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# STATE SUPPORTED R&D
## IN THE CZECH REPUBLIC

## SHORT GUIDEBOOK – 2007

**REPRONIS**
**Ostrava**
**2006**

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Translation: Fiesta Publishing, s.r.o.


**ISBN 80-7329-143-6**

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# 1. INTRODUCTION

You have in your hands the brochure called the "State-supported R&D in the Czech Republic – Short Guidebook – 2007".

The publication provides for basic information about the system of state support in research and development.

The "Guidebook 2007" has been put together with materials from publicly accessible data and documents, with materials provided by the Research and Development Council, and by the individual administrators of budgetary chapters.

The main objective of the "Guidebook 2007" is to provide public with information about possibilities and ways of gaining the state support of participation in public tenders. For this reason, a substantial part relates to the target-oriented funding of research and development. Selected programmes, announced by individual administrators of budgetary chapters in the state budget, are progressively characterised.

The administrators are as follows: The Academy of Sciences of the Czech Republic (AS CR), the Grant Agency of the Czech Republic (GA CR), the Ministry of Industry and Trade (MIT), the Ministry of Education, Youth and Sports (MEYS), the Ministry of Health (MH), the Ministry of Agriculture (MA) and the Ministry of Environment (ME).

A special chapter deals again with the international co-operation of the Czech Republic in the area of research and development at the intergovernmental level.

This publication describes the situation, as it existed in December 2006, when the state budget for 2007 had been already approved.

The publication should provide foreign scientific and research workers and institutions with basic information about the state support of research and development in the Czech Republic.

## 2. DEFINITION AND TERMS

The basic definitions and terms are defined as in the Research and Development Support Act No. 130/2002 Coll.

**Research** means systematic creative activities extending knowledge, including a better understanding of human beings, cultures, or societies with the methods allowing for the confirmation, complementation, or refusal of gained knowledge undertaken as:

1. **Basic research**, which means experimental or theoretical activities undertaken with the goal of gaining knowledge about fundamentals or basic nature of observed phenomena, explanation of their causes and possible impacts, while utilising the gained knowledge, and
2. **Applied research**, which means experimental or theoretical activities undertaken with the goal of gaining new knowledge focussed on its practical utilisation in future. This part of the applied research, results of which are utilised through development in new products, technologies, and services, and which are determined for business activities, according to special regulations (e.g. the Commercial Code), is called the **Industrial research**.

**Development** means a systematic creative utilisation of research knowledge, or of other themes, for the production of new or improved materials, products, or facilities, or for the introduction of new or better technologies, systems, or services, including the creation and verification of prototypes, semi-operational or demonstration facilities.

For the purpose of support provision:

a) **Provider** is the administrator of a state budgetary chapter or a local self-government, which decides on the support provision and which provides for this support,

b) **Receiving party** is an organisational unit, or a legal or natural person for the benefit of which a provider decided on the support provision,

c) **Co-receiving party** is an organisational unit, or a legal or natural person whose project share was determined in the project proposal and with whom a receiving party concluded an agreement on the solving of a part of the project,

d) **Applicant** (or candidate) is an organisational unit, or a legal or natural person, which applies for the support provision,

e) **Programme** means a set of material, time, and financial conditions necessary for the activities focussed on reaching the research and development goals as formulated by a provider, which the provider declares within public tenders organised for research and development, or within the framework of public tender terms, according to special legal regulations (the Assignment of Public Orders Act No. 137/2006 Coll.),

f) **Infrastructure** means support activities organised for research and development, which include services or activities of special research facilities, organisations providing for administration and funding of research and development, or for the verification and spread of research and development results,

g) **Result** means new knowledge in research and development, which occurred thanks to the activities undertaken within the framework of project implementation or of a research plan, or their utilisation,

h) **User** is an organisational unit, or a legal or natural person, which utilises a result within its activities,

i) **Recognised costs** are research and development costs, which a provider approves as the necessary ones for the project or research plan completion and which are incurred at the time of the project solution, which are substantiated, evidenced, and assigned to approved activities,

j) **Target-oriented support** means the provision of target-oriented funds for a research and development project, when the project means the description of an activity subject within research and development;

   1. In a **programme project**, in which the receiving party expresses in which way and under what conditions it would contribute to the programme goals as formulated by the provider,
   2. In a **grant project**, in which the receiving party itself establishes goals and ways of the basic research,
   3. In a **public order** made within research and development, in which the receiving party organises research and development for needs of the provider, who is the only user of results,

k) **Institutional support** means the provision of institutional means for a research intention, or for a specific research undertaken at universities, or for the international co-operation of the Czech Republic in research and development, in which

   1. **A research intention** describes a subject of research activities of a legal person or organisational unit, its goals, strategy, costs, and envisaged results gained in the basic or applied research, with the exception of the industrial research, and its conceptual development in the period of 5 to 7 years,
   2. **A specific research organised at universities** means a part of research undertaken at universities, which is immediately connected with education and in which students participate,
   3. **The international co-operation of the Czech Republic in research and development** means co-operation implemented on the basis of international agreements concluded by the Czech Republic.

# 3. MAIN LEGAL REGULATIONS AND DOCUMENTS ON RESEARCH AND DEVELOPMENT

The main documents are the following laws and regulations:

1. Public Research Institutions Act No. 341/2005 Coll.,
2. Act No. 342/2005 Coll. on changes in some Acts initiated by the Public Research Institutions Act,
3. Act No. 130/2002 Coll. on the support of research and development funded from public funds and on some related laws (the Support of research and development Act) as amended,
4. Act No. 283/1992 Coll. on the Academy of Sciences of the Czech Republic as later amended (the full wording issued under the number 420/2005 Coll.)
5. Government Directive No. 267/2002 Coll. on the research and development information system,
6. Government Directive No. 461/2002 Coll. on the purpose-oriented support of research and development funded from public funds and on public tenders in research and development,
7. Government Directive No. 462/2002 Coll. on the institutional support of research and development funded from public funds and on the assessment of research plans,
8. Government Directive No. 28/2003 Coll. changing the Government Directive No. 462/2002 Coll. on the institutional support of research and development funded from public funds and on the assessment of research plans,
9. Research and Development Council Status (Annex to the Government Resolution No. 82+P of 19 January 2005),
10. Grant Agency of the Czech Republic Status (Annex to the Government Resolution No. 770+P of 7 August 2002).

The Research and Development Support Act No. 130/2002 Coll. has been changed by six laws on 10 February 2006:

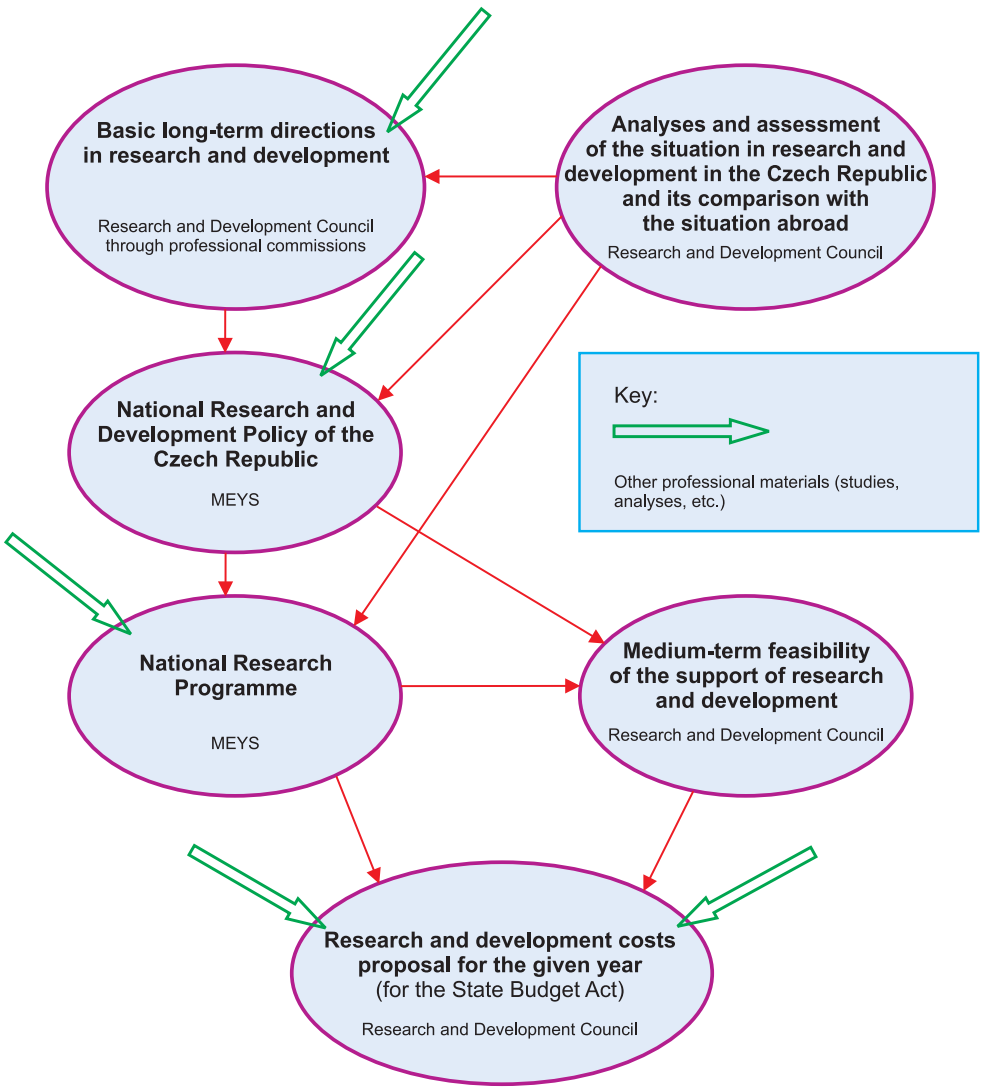
- Act No. 41/2004 Coll., which changes some laws in connection with the passing of the Public Tenders Act, has cancelled the second part of the Research and Development Support Act;
- Act No. 215/2004 Coll. on adjustment of some relations in the area of public support and on the amendment of the Research and Development Support Act, which has cancelled the third part of the Research and Development Support Act;
- Act No. 342/2005 Coll. on changes in some laws in connection with the passing the Public Research Institutions Act;
- Act No. 413/2005 Coll. on changes in laws in relation to the changed Confidential Information Protection Act and on the security qualifications. The Act wording has changed the term “facts” to “information” and the text of the underline note No. 14;

- Act No. 227/2006 Coll. on the research of human embryo stem cells and related activities and on changes in some related laws, which extended the competences of the Research and Development Council when preparing opinions on applications for the permits to research human embryo stem cells and establishes the Council obligation to found a Bio-Ethical Commission for the purpose; The way of awarding members of advisory bodies of the Research and Development Council has been also changed;
- Act No. 81/2006 Coll. changing the Act No. 365/2000 Coll. on information systems of the state administration and on changes in some other laws as amended and other relevant laws. There was the provision in § 32(5) related to data about solvers within the information research and development system adjusted.

# 4. CURRENT SYSTEM OF THE STATE SUPPORT IN RESEARCH AND DEVELOPMENT

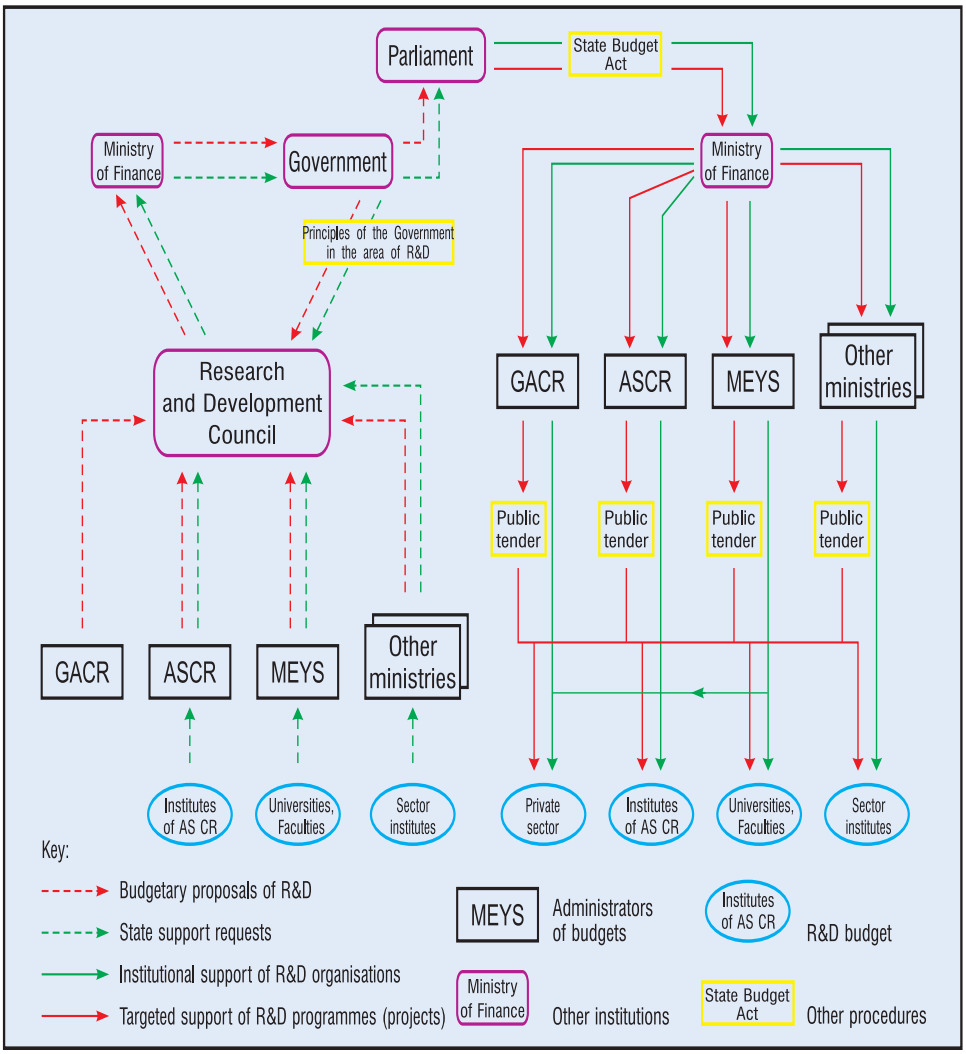
The basic mechanism of support of R&D from public funds is presented in **Fig. 1**. The main activities are mentioned together with their gestors. The system of the public support of R&D in the Czech Republic is much decentralised. In fact, all ministries and the central administration support R&D within their budgetary chapters. The Ministry of Education, Youth and Sports (MEYS) and the Research and Development Council (RDC) are the most important for the system.

*Fig. 1 Basic steps (stages) in the preparation of the support of research and development from public funds, accordings to the Research and Development Support Act No. 130/2002 Coll.*



The actual information about individual activities is in Chapter 5. This Chapter 4 provides for more detailed description of the R&D funding from public funds and describes the principles in this public support. There are also mentioned issues of the R&D assessment and the strengthening of the dependency of the provided support on achieved results. Processes of the preparation of the state budget and the provision of public support are described in **Fig. 2**. The left part of the figure shows the preparatory stage of the state budget – from suggestions by the administrators of individual budgetary chapters (GA CR, AS CR, and sectors) to the approval of the budget by Parliament. It is clear that the most important role in the creation of the research and development budget is played by the Research and Development Council, while the Ministry of Finance is the most important in proposing the final level of the budget. The Ministry of Finance assigns funds to individual administrators of the budgetary chapters after the state budget is approved by Parliament.

***Fig. 2***



The cycle presented in **Fig. 2** lasts usually for about one year. Proposals for individual budgetary chapters are prepared for each following year in the period May–July in the given year and the assigned funds are available in the period March–June in the following year.

The state support of research and development is provided for in two forms:

a) As target-oriented funding, i.e. the support of research projects (the red lines in **Fig. 2**):

- The support of "grant projects", i.e. the projects proposed by natural or legal persons,
- The support of "programme projects", i.e. the projects fulfilling programmes announced by the providers. Programmes are proposed and announced by administrators of the budgetary chapters and assessed by the Research and Development Council. They are approved by the government,
- In the form of "public contracts", i.e. the projects, in which the state administration determines parameters of results. As the state is the only user, public tenders are announced in accordance with the Act No. 137/2006 Coll.

The administrators of the state budgetary chapters assign target-oriented funds in two ways:

- As subsidies assigned to legal and natural persons and by funding activities of allowance and budgetary organisations undertaking the projects, the results of which are determined for publicising, for needs of the state administration bodies, or for more users,
- As loans (the returnable financial aid) to legal and natural persons undertaking projects, the results of which are determined for a single user only (with the exception of results determined for needs of the state administration bodies).

Details about the provision of target-oriented support are described in the government Resolution No. 461/2002 Coll. on the target-oriented support of research and development from public funds and about public tenders in research and development[1].

b) As institutional funding, i.e. the provision of institutional funds for research intentions, specific research at universities, or for selected activities within the international co-operation of the Czech Republic in R&D.

The original wording of the Act No. 130/2002 Coll. on the public support of R&D and about its implementation regulations required that only public universities, military and police academies, allowance organisations, and organisation units of the Czech Republic could ask for the institutional support of research intentions[2].

As from 2004, legal persons from the private sector can also ask for the institutional support, when they fulfil certain conditions. The most important limiting conditions are as follows: The activity, the relevant subject is involved in, must be registered in the articles of partnership, or in a similar document, all profit after

[1] The full wording is available at the address www.vyzkum.cz in the part Research and Development Legislature. The English version is also available at that address.

[2] The full wording is available at the address www.vyzkum.cz in the part Research and Development Legislature. The English version is also available at that address.

tax and contributions to the funds established in the law (e.g. the reserve fund) must be again invested in R&D.

The details are in the government Resolution No. 462/2002 Coll. on the institutional support of R&D from public funds and on the assessment of research intentions.

# 5. NATIONAL R&D POLICY AND ITS IMPLEMENTATION

## 5.1. BASIC LONG-TERM RESEARCH DIRECTIONS (LTRD)

The long-term basic research directions (LTRD) approved by the Government have been the fundamental document for the preparation of the National Research Policy (see also the scheme in **Fig. 1**), according to the Research and Development Support Act No. 130/2002 Coll. The objective of LTRD is to define priorities in the perspective research directions from the contribution point of view related to the economy, its competitiveness, and the sustainable society development. LTRD serves also for the concentration of financial, personal and other sources assigned to the limited number of the most important priorities.

There have been currently the eight following long-term basic research directions approved:

- Sustainable development
- Molecular biology
- Energy sources
- Materials research
- Mechanical engineering competitiveness
- Information Society
- Security research
- Social science research.

LTRD identify the most important issues in research and development and to them related innovations. RDC will supervise the providers of the support of research and development from public funds in order to make them respecting these fundamental directions when preparing their programmes (i.e. when distributing about one quarter of funds determined for research and development). However, at the same time, LTRD do not present an enumerative list of directions, which would exclusively enjoy the support. There will be also other research activities funded (research plans, grant projects, the research covering the needs of the state administration, etc.), including the sectoral research. LTRD, however, present the priorities.

## 5.2. NATIONAL R&D POLICY

The National R&D Policy determines basic objectives in the support of R&D from public and other funds, their division, and the factual focus of the support in the period of 4 to 6 years, and includes provisions for their implementation in accordance with the Act No. 130/2002 Coll. on the support of R&D with public funds. The National R&D Policy of the Czech Republic for the period 2004–2008 has been approved in the government Resolution No. 5 of 7 January 2004[3].

Included provisions have been processed and implemented within a number of consequent documents and activities. They are mainly the following ones:

- National Research Programme II
- The Czech attitude to the EC materials: Investing in Research: The European Action Plan

[3] National R&D Policy of the Czech Republic for the period 2004–2008, including the relevant government resolution is available at the address www.vyzkum.cz in both Czech and English versions.

- Assessment of indirect R&D support instruments
- Public Research Institutions Act
- Proposal of the Act on the research of human embryonic stear cells
- Operating programme for the Development of human resources (OP DHR) – Provision 3.2: Support of the tertiary education, research, and development
- Ethical research framework
- Sectoral conception for the development in research and development
- Regional conception for research and development
- Basic long-term research directions
- Assessment of research and development and of the results.

A number of tasks resulting from the R&D policy have been already fulfilled. We can name especially the National Research Programme II, the Act on the public research institutions, the basic long-term research directions, the tax allowances for the subjects investing in research, the proposal of the law on the research of human embryonic cells, and the implementation of the system assessing R&D and the results.

The situation develops quickly in the area of R&D. Many changes have taken place in connection with the accession of the Czech Republic to the European Union, the updating of the Lisbon Strategy, the preparation of the budgetary outlook of EU for the period 2007–2013 (the 7th Framework Research and Development Programme related to technologies, the Framework Competitiveness and Innovation Programme, the new Cohesiveness Policy, etc.). Some changes have taken place also in the country – the approval of BLRD, the approval of the National Innovation Policy for the period 2005–2010, the passing of the Act No. 341/2005 Coll. on public research institutions, etc.

The Government Resolution No. 661 of 1 June 2005, which approved of the suggested LTRD, asked for the updating of the National Research and Development Policy.

The Government Resolution No. 851 of 7 July 2005, which approved of the innovation policy, asked for the harmonization of the National Research and Development Policy with the National Innovation Policy of the Czech Republic for the period 2005–2010. The Association of research organisations of the Czech Republic organised a survey in 2006. Its objective was the gaining of suggestions resulting from experience of the R&D organisations gained during the implementation of the existing R&D policy.

A new National Research and Development Policy for the period 2009–2013 will start in 2007 at the latest. There will be a proposal of the new set of long-term basic research directions presented in 2007 as the fundamental input for the preparation of the new R&D policy.

## 5.3. NATIONAL INNOVATION POLICY

The Czech Republic had been, until the mid 2005, one of only few member countries of the Organisation for the Economic Co-operation and Development (OECD), which did not have any official by the government or parliament-approved document on the state support of innovation. This fact was caused by a number of causes, including the not completely clear competences of individual central administration offices (the ministries, etc.), certain overrating of the support of basic research, and problems connected with the restructuring of the business sector (changes in the ownership, the solution of immediate and short-term issues, etc.).

The National Innovation Policy (NIP) was approved of by the Government Resolution No. 851 of 7 July 2005. NIP has established the four following objectives:

- Strengthening of research and development as the sources of innovation
- Creation of functioning co-operation of the public and private sectors
- Ensuring human resources for innovations
- Making the performance of the state administration in research, development and innovations more efficient.

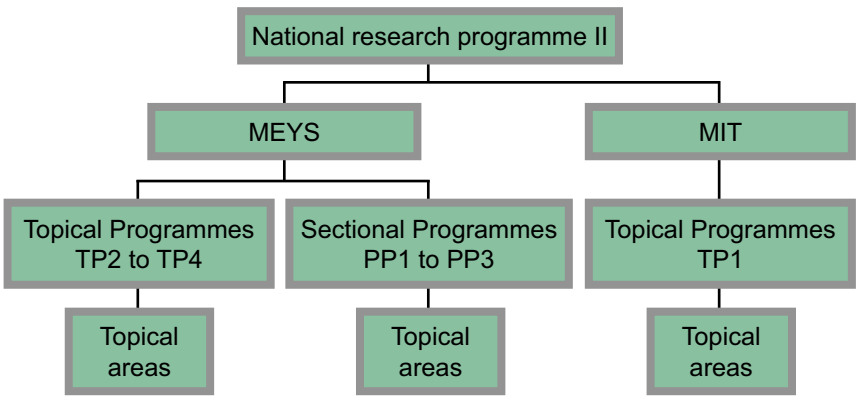
There have been specific tasks, instruments and provisions established for the implementation of the determined objectives. NIP contains 48 specific tasks in total. Each of them has got assigned gestors and implementation dates, but also indicators for the assessment of the implementation results. The document can be fully compared, in facts and methodology, with similar documents by the most advanced EU member countries.

The gestors have to ensure all the NIP provisions at the same time. The Government also asked the Deputy Prime Minister for the economy and the Chairman of RDC for the preparation of the extension of the RDC competency with the area of innovations and for the presentation of a report on the NIP performance in 2007, including a proposal of the possible correction provisions. NIP has been made public in the Czech and English versions and could be found in the electronic form, in both languages, at ***www.vyzkum.cz***.

## 5.4. NATIONAL RESEARCH PROGRAMME II

The government Resolution No. 272 of 9 March 2005 has approved the National Research Programme II (NRP II). NRP II removes the fundamental shortcomings existing in NRP I, while retaining all positive features and basic ideas (i.e. the support of the successful areas of the Czech research, which are also important for the society). (The information about NRP I was published in the "Guide 2005" and public tenders will not be announced anymore.) Public funds related to NRP II have been centralised only in the budgetary chapters of the Ministry of Education, Youth and Sports (MEYS) and the Ministry of Industry and Trade (MIT). These ministries fulfil the roles of the providers and MEYS is also the NRP II co-ordinator. NRP II consists of 7 programmes in total, i.e. of 4 topical and 3 sectional programmes. The basic NRP II structure is presented in **Tables I** and **II** and schematically illustrated in **Fig. 3**.

***Fig. 3 – National Research Programme II structure***



The more detailed information about the contents of the individual topical areas is presented within the providers of topical and sectional NRP II programmes (MIT – Chapter 7.3, MEYS – Chapter 7.4).

***Table I – Topical programmes within NRP II***

| Provider | Topical Programme | Topical areas |
|---|---|---|
| **MIT** | **Sustainable prosperity (TP1)** | T1-1-1 Increased reliability of power networks and high voltage switching stations<br>T1-1-2 Utilisation of hydrogen and fuel cells as energy sources<br>T1-1-3 New nuclear technologies for the power production, high potential heat, and hydrogen<br>T1-1-4 Lowering of energy demands in operations of buildings<br>T1-1-5 Renewable energy resources<br>T1-2-1 New technologies and materials for the air protection<br>T1-2-2 Technologies for the protection of water and the mineral environment<br>T1-3-1 New materials with new usable properties<br>T1-3-2 Applications of new materials in machinery design<br>T1-3-3 Mechatronic systems and robotics<br>T1-3-4 New structures in manufacturing machines<br>T1-3-5 New semiconductor sensors and nanoparts<br>T1-3-6 Increased operating life-span and reliability of machinery products and facilities with high quality technical parameters<br>T1-3-7 New nanodiagnostic methods<br>T1-4-1 Alternative energy sources in transport<br>T1-4-2 Improved quality and reliability of the transport infrastructure<br>T1-4-3 Transport equipment and systems for public and individual transport<br>T1-5-1 Chemical optimising and development of new pharmaceutical technologies<br>T1-5-2 Safety of chemicals<br>T1-5-3 Nanomaterials and processes<br>T1-5-4 Development of new chemical additives for products in other industries<br>T1-5-5 Functional polymers<br>T1-5-6 Organic syntheses for the products with high value added<br>T1-5-7 Catalysts for the protection of environment, the energy industry, the food industry, and for low waste chemical technologies |
| **MEYS** | **Healthy and quality life (TP2)** | T2-1-1 Healthy and sound food<br>T2-1-2 Systems and methods for the assessment of the healthy status of food materials, foodstuffs, and feeds<br>T2-1-4 Non traditional utilisation of agricultural produce<br>T2-2-1 Development of new diagnostics based on molecular–biological methods<br>T2-2-2 Molecular genetics and biotechnologies for new drugs<br>T2-2-3 Nanomaterials in biology and medicine<br>T2-2-4 Biomaterials for the transplanting medicine<br>T2-2-5 Genomics, proteomics and pathophysiology of cardiovascular diseases<br>T2-2-6 Genomics and proteomics in the cell differentiation in oncological diseases<br>T2-3-1 Limitation of the contamination of surface waters<br>T2-3-2 Bio-remedy of the environment with the aid of micro-organisms<br>T2-3-3 Modernisation in the waste management<br>T2-3-4 Biodiversity<br>T2-3-5 Environment and health |

| | | |
|---|---|---|
| **MEYS** | **Information technologies for the knowledgeable society (TP3)** | T3-1-1 Management of knowledge and informatics, especially for the support of the prevention and treatment of diseases<br>T3-1-2 Open and mobile systems for the Internet and industrial applications<br>T3-1-3 Security of information and cryptology<br>T3-1-4 Information infrastructure, e-learning, and virtual workplaces<br>T3-1-5 Elimination of language barriers with the means provided by information technologies |
| | **Social-economic development in the Czech society (TP4)** | T4-1-1 Aging Czech society<br>T4-1-2 Modernising of the Czech public policy and administration within the EU context<br>T4-1-3 Immigration issues and their affect on the Czech society<br>T4-1-4 Modernising of public services<br>T4-1-5 Institutional framework for the social-economic stratification processes<br>T4-1-6 Interests of the Czech state and the Czech society in processes of the European integration |

*Table II – Sectional programmes within NRP II*

| Provider | Sectional Programme | Topical areas |
|---|---|---|
| **MEYS** | **Human resources (PP1)** | P1-1 Target-oriented research for the better quality basic, secondary, and tertiary education, including the general development of human resources<br>P1-2 Strengthening of research at universities and in other scientific workplaces<br>P1-3 Improved attractiveness of the work and equal opportunities in research<br>P1-4 Making research more popular<br>P1-5 Support of migration |
| | **International co-operation (PP2)** | Research for the state administration, according to § 3, paragraph 1a), in the 3rd Act on the support of research and development, determined for the solution of intentions assigned to the Central Research and Development Administration Office by the government and for the procurement of international co-operation in research and development, and for the development of regional co-operation in this area. |
| | **Support of preparations and the implementation of the National Policy, including the technical help (PP3)** | Research for the state administration, according to § 3, paragraph 1a), in the 3rd Act on the support of research and development, determined for the solution of intentions assigned to the Central Research and Development Administration Office by the government and for the implementation of the current and preparation of the new National Research Policy and also for the performance of Central Administration Office's intentions, which result from the performance of the obligations given by the competency Act and by § 33 in the Act on the support of research and development. The only result user is, in this case, the state. The programme covers also the areas focussed on the solution of issues in the area of the utilisation of research and development results, the improvement of the assessment of research, and the support and procurement of the participation of state administration workers in forums and conferences organised in the area of research and development. |

## 5.5. NATIONAL RESEARCH PROGRAMME III

Preparatory works on the formulation of the National Research Programme III for the period 2009–2015 have started in the second half 2006. NRP III should update the operating programme "Research and Development for Innovations" after 2009. More detailed information is at ***www.msmt.cz***.

## 5.6. PUBLIC RESEARCH INSTITUTIONS ACT

Experiences of several years have repeatedly shown that allowance organisations and organisational state authorities are not the suitable legal form of organisations, which should be involved in research and development. The preparation of the Public Research Institution Act was one of the specific and highly pressing tasks within the National Research and Development Policy of the Czech Republic for the period 2004–2008. The Public Research Institution Act has become effective by its publishing in the Act Collection of the Czech Republic on 13 September 2005 (Part 122) under the number 341/2005 Coll.

The transformation of allowance research and development organisations to public research institutions (PRI) takes place following similar principles as in the case of public universities. PRI is a suitable organisational form, especially for the transformation of sectoral research institutions, which are currently the state allowance organisations. Allowance organisations were established as a universal form of the state, later public organisers basically in all areas (education, culture, healthcare, social affairs, etc.). Though, this form cannot be adjusted in more details by the changes of current legal regulations and it remains limited in a number of its rights and duties. In contrast, public research institutions will become a purpose-established form allowing more detail adjustments for specific research and development areas.

The objective of the approved adjustment is not the transfer of all sectoral research institutions to the legal form of public research institutions. Allowance organisations with a small participation in research and development and some allowance organisations, organising research ordered mostly from within tenders (the results are determined only for the providers), have not been covered by the law proposal.

Public research institutions can be founded by organisational authorities of the Czech Republic, including the Academy of Sciences of the Czech Republic and regional self-governments. The Official Register of all public research institutions is managed by the Ministry of Education, Youth and Sports of the Czech Republic. A founder puts in – within some limits – the current state assets, which the organisation had managed by the time and which is necessary for the achievement of determined results, into the ownership of a public research institution. In addition to the research and organisation of the infrastructure, the workplace as a public research institution can organise also other activities, while observing certain legal regulations, for the purpose of a profit creation. A public research institution can even found another legal person or it can participate with its capital in activities of some other legal person within the interest of the utilisation of results of its research activities. The Act has established the single date – 1 January 2007 – for the transformation of current allowance organisations, including all workplaces of the Academy of Sciences of the Czech Republic, to public research institutions.

Peculiarities in the transformation of institutes of the Academy of Sciences of the Czech Republic have been resolved within the approved Act Amendment No. 283/1992 Coll. on the Academy of Sciences of the Czech Republic, in the wording of the Act No. 220/2000 Coll., which adjusts also the legal position of the Academy of Sciences of the Czech Republic and of its institutes. However, all conditions established for public research organisations apply in general also on the transformation of institutes of the Academy of Sciences.

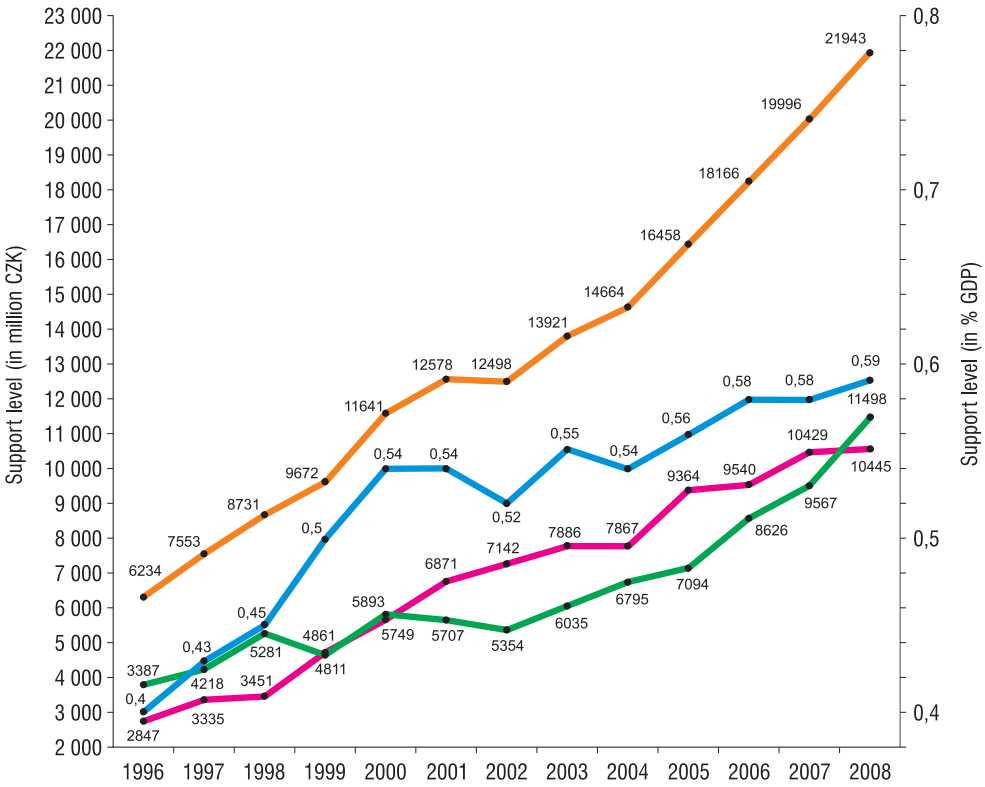
# 6. ANALYSIS OF THE RESEARCH AND DEVELOPMENT FUNDING FROM PUBLIC FUNDS

The key requirement of the European Union, described in Article 130 on the European Union, is the enforcement of an adequate national research and development policy in each country. The government of the Czech Republic has accepted that by the approval of the document "National Research and Development Policy of the Czech Republic (2004–2008)", by the announcement of the National Research Programme II, and by the approval of the Czech acceptance of the research and development EU Action Plan. This should help in getting the Czech research and development to the European level.

The funding of R&D is one of the strategic instruments in NR&DP. This Chapter reviews the area. The data cover the period 1998–2006 (the Plan). The comments on the individual images relate only to 2005 and 2006.

## 6.1. DEVELOPMENT IN THE GENERAL SUPPORT OF RESEARCH AND DEVELOPMENT WITH PUBLIC FUNDS

*Fig. 4*




Note: The data for the period 1997–2006 have been obtained from the approved state budgets and the data for the period 2007–2008 have been approved by the government Resolution No. 605 of 24 May 2006.

The **Fig. 4** shows the development in the general support of research and development with public funds in the period 1996–2006 and the prognoses until 2008.

The Figure presents four curves:
1. Total support from public funds
2. Institutional support (basically the support of the basic research)
3. Target-oriented support (public tenders)
4. Total support in % of GDP

It results from the **Fig. 4** that:

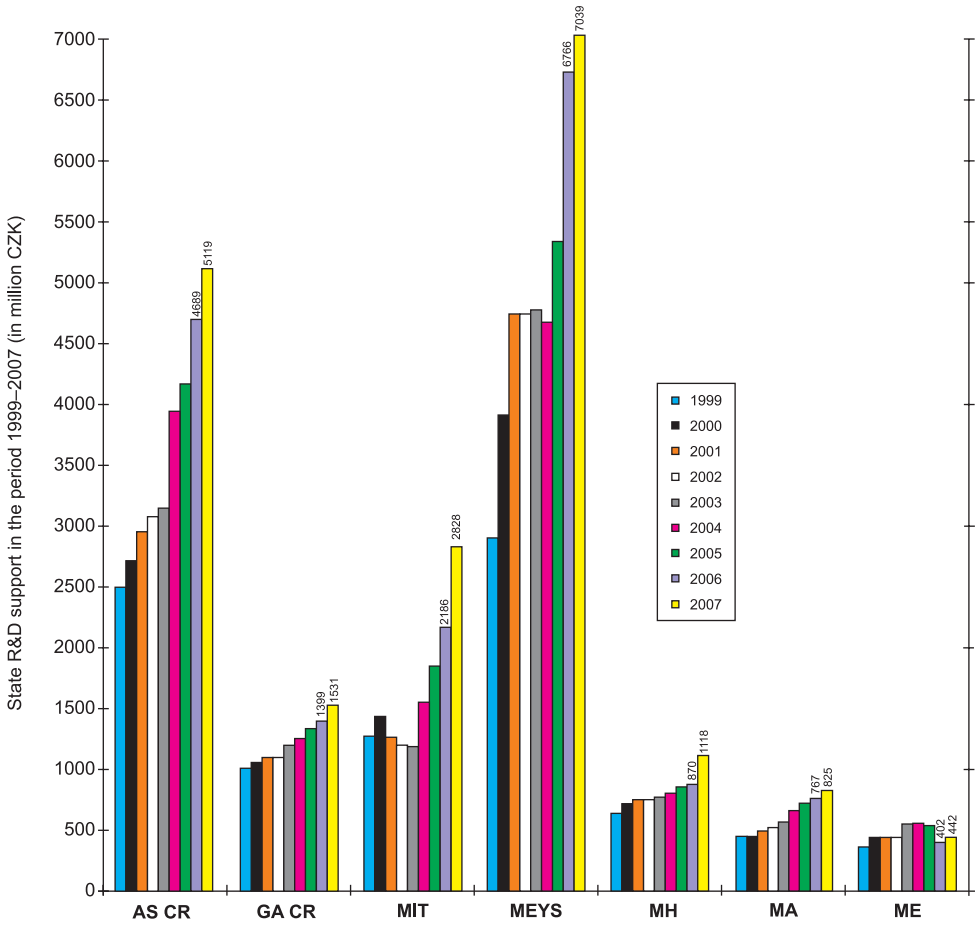
- An increase of the total funds, up to CZK 19 996 million, i.e. by 10.0 % is expected in 2007. When compared with 2006, it shows zero increase in the GDP share by 0.58 %,
- Slight increases in funds for research and development are expected in 2008, while the share in the GDP indicator will stagnate.

## 6.2. DEVELOPMENT IN THE GENERAL SUPPORT OF RESEARCH AND DEVELOPMENT WITH PUBLIC FUNDS AT SELECTED PROVIDERS

The Figure 5 presents the total level of the support from public funds (the target-oriented + institutional funds) at selected providers in the period 1999–2007. The **Figure 5** shows that:

- The biggest increase in the funds takes place in MIT, when compared with 2006 and 2007. It is higher by 40 %. The increase is also in MA (by 26.4%), MEYS (by 15.8 %) an AS CR (by 9 %).
- Data for 2007 were not finalised at the time of this publication because of complications in the approval of the state budget.

*Fig. 5*




Source of data: Research and Development Council

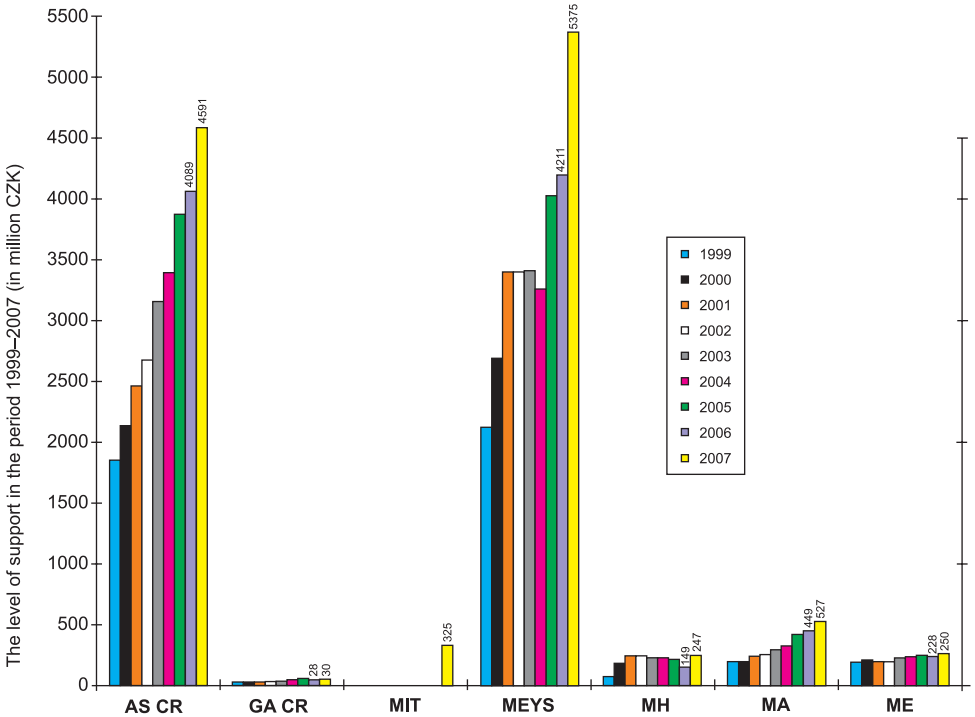
Note: AS CR – Academy of Sciences of the Czech Republic, GA CR – Grant Agency of the Czech Republic, MIT – Ministry of Industry and Trade, MEYS – Ministry of Education, Youth and Sports, MH – Ministry of Health, MA – Ministry of Agriculture, ME – Ministry of Environment. The expenditures in million CZK are in current prices of the relevant years.

## 6.3. DEVELOPMENT IN THE INSTITUTIONAL SUPPORT OF RESEARCH AT SELECTED PROVIDERS

The **Figure 6** presents the development in the institutional support at selected providers. The comments on this Figure are as follows:

- The institutional support of research has been mostly centred on two providers – MEYS and AS CR,
- MIT will have institutional funds in 2007 for the first time. They will be the funds for co-funding of projects within the EU framework programmes.

*Fig. 6*



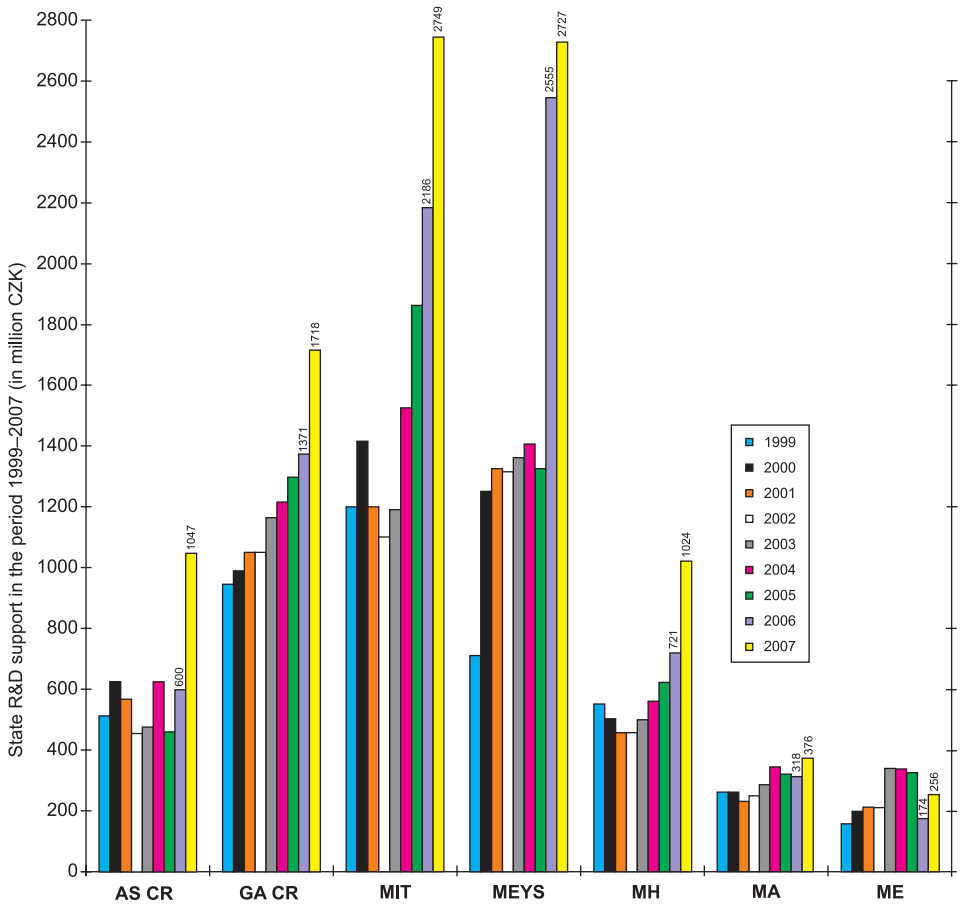

## 6.4. DEVELOPMENT IN THE TARGET-ORIENTED SUPPORT OF RESEARCH AND DEVELOPMENT AT SELECTED PROVIDERS

The **Figure 7** presents the development in the target-oriented support of research and development at selected providers.

The comments on this presentation are as follows:

- The target-oriented support of R&D is given to R&D projects on the basis of results of public tenders. GA CR and AS CR provide for the support of grant projects. Other providers, including AS CR, support the programme projects, which make parts of by them announced R&D programmes, and public orders related to R&D,
- The target-oriented support of R&D with the MIT funds will increase by 25.6 % in 2007, when compared with 2006.
- The target-oriented support of R&D with funds of AS CR will increase by 75 % in 2007, when compared with 2006 (the continuation of the programme "Nanotechnology for the Society"),

*Fig. 7*


State R&D support in the period 1999–2007 (in million CZK)
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1047
600
1718
1371
2749
2186
2727
2555
1024
721
376
318
256
174
AS CR
GA CR
MIT
MEYS
MH
MA
ME
1999
2000
2001
2002
2003
2004
2005
2006
2007

# 7. RESEARCH AND DEVELOPMENT PROGRAMMES AND GRANT PROJECTS OF THE SELECTED CENTRAL AUTHORITIES

Whereas the main objective of the "Guide in the system of the state support of research and development in the Czech Republic" is the provision of information about the possibilities and ways for gaining the state support of the participation in public tenders to the wide public, the attention will be focussed mainly on the target-oriented funding of research and development. The following systems will be progressively characterised:

7.1 Academy of Sciences of the Czech Republic and its grant system (AS CR)
7.2 Grant Agency of the Czech Republic and its grant system (GA CR)
7.3 Research programmes of the Ministry of Industry and Trade (MIT)
7.4 Research programmes of the Ministry of Education, Youth and Sport (MEYS)
7.5 Research programmes of the Ministry of Health (MH)
7.6 Research programmes of the Ministry of Agriculture and of its National Agency for Agricultural Research (MA)
7.7 Research programmes of the Ministry of Environment (ME)

The publication describes the situation at the end of 2006. The dates of announcements of public tenders have not been unified and, for this reason, not all information is valid from the lodgement of applications point of view. However, as the announcements of public tenders repeat regularly in the case of most programmes, the information provided for in this "Guide" could serve for the necessary long-term project preparations.

## 7.1. ACADEMY OF SCIENCES OF THE CZECH REPUBLIC AND ITS GRANT AGENCY (AS CR)

### 7.1.1. BASIC CHARACTERISTICS OF AS CR

The Academy of Sciences of the Czech Republic was founded by the Act No. 283/1992 Coll. as the Czech successor of the former Czechoslovak Academy of Science. It consists of 53 scientific institutes and 2 service workplaces, including the AS CR Office. There are almost 7 000 employees working and more than one half of them are university educated scientists.

The main mission of the AS CR and its workplaces is the organisation of the basic research within the extensive spectrum of natural, technical, and social sciences. This research – very specialised or interdisciplinary in its character – tries for the development in knowledge at the international level, while respecting actual needs of the Czech society and the country culture. Workplaces of the Academy of Sciences participate in education, mostly in the training of young scientists when undertaking doctor study programmes. However, they conduct also training activities for their workers at universities. The Academy also develops the co-operation with the applied research and the industry. A number of joint international projects and worker exchanges with foreign partner institutions strengthen the participation of the Czech science in the international context.

The highest self-governing body of the Academy of Sciences is the Academic Congress consisting, in two thirds, of representatives of all institutes and also the representatives of universities, the state administration, the enterprising sector, and other outstanding personalities. The Academic Council, headed by the Chairperson of the Academy of Sciences, is the executive body of the Academy. The Science Committee deals mostly with the science policy of the Academy. These academic bodies are always elected for the period of four years. The Commission for the Assessment of Research Activities in Workplaces of AS CR organises an independent assessment of the scientific level of individual institutes and of their research intentions. They should correspond with the individual science areas of the Academy. For more detailed information, see ***www.cas.cz***.

The Academy of Sciences is mostly funded from the state budget (see Chapter 6). The funding of scientific works within the Academy corresponds with the usual international standards. In addition to the institutional funding of research intentions of AS CR workplaces, there is the increasing role of the target-oriented funding, which takes place in the form of solution of scientific projects and grants selected in public tenders. The Academy, as the first one in the Czech Republic, has founded its own Grant Agency (GA AS CR) that supports with funds scientific projects on the basis of opinions based on the peer-review system, which includes foreign assessors. Individual institutes obtain other funds by their participation in domestic or foreign programmes.

### 7.1.2. RESEARCH PROGRAMMES OF AS CR

The projects in the following research and development programmes will be solved or will commence in 2007:

- "Support of projects in the targeted research and development" (1Q) – 2005–2009.

It is a partial NRP I programme. No further public tenders will be announced. This programme has been described in detail in the "Guide 2005". The web page of AS CR presents the accessible information about the accepted projects,

- "Information Society" (1E) – 2004–2009. It is the topical NRP I programme. No further public tenders will be announced. This programme has been described in detail in the "Guide 2005". The web page of AS CR presents the accessible information about the accepted projects,
- "Nanotechnologies for the Society" (KA) – 2006–2012.

#### 7.1.2.1. Nanotechnologies for the Society (KA)

This programme of AS CR was announced on 14 December 2005. The main objective of the programme is to achieve significant progress in the development of research and in the practical utilisation of nanotechnologies and nanomaterials in the Czech society. The programme's objective is, at the same time, the creation of a platform including AS CR, universities, and the industrial sector in the Czech Republic. This platform should ensure the long-term development of this area of science. The analysis of the current situation organised within this area of science has shown that only a specific, unified and focussed programme supporting the development in the research of nanotechnologies in the Czech Republic can contribute to the change in the not favourable situation existing in the area. The finalisation of this programme is expected in 2012.

##### 7.1.2.1.1. Programme goals

1) Creation of new materials and applications for them, the creation of optimised applications, and the achievement of target-modified usable mechanical, electrical and other material properties based on the unique characteristics of nanoparticles, nanofibres, composite, and nanostructured materials.
   Efficient transfer of knowledge extending the spectrum of technologies used in the industry, which are based on practical use of nanoparticles, nanofibres, nanocoatings, nanostructures, and nanocomposites in the manufacture of materials in the Czech Republic. In the case of free nanoparticles and nanofibres, to assess their possible negative impacts on the environment and humans.
2) Utilisation of nanostructures and nanocomplexes, including hybrid materials manageable by an external magnetic field, for new forms of drugs, diagnostics, specific agents and carriers ensuring the destination-oriented transport of these substances, or the transfer of gene information, their activation and biodegradation in organisms.
   Proposition of new biosensors and diagnostic systems allowing for a sensitive detection of molecular objects and the support of the introduction of modern nanotechnology materials and applications into the medical practice in the Czech Republic.
3) Design of new instruments, tools and equipment for the creation and high resolution characterisation of nanostructures and the preparation of new applications for the handling and interconnecting the nanoobjects with micro and macro surroundings, especially with micro electronics.
   In the case of technologically interesting bulk and gradient materials, the creation of new characterising processes allowing for the concurrent high lateral resolution characterisation of the topography and the chemical composition of their surfaces

and the preparation of applications for the optimising of usable mechanical, electrical and other properties of these materials.

4) Proposition, preparation, characterisation, and modelling of new nanostructures suitable for detectors, photonic crystals and lasers, and new semiconductor spintronic materials for the development of a new generation of nanoparts for the recording and transfer of information.
   Design of new applications for the preparation of nanostructures and nanomaterials with the target-oriented management of object sizes, or their self-organisation, especially the preparation, characterisation and optimising of new nanocarbonaceous and nanodiamond materials for the bio-applications and nanoelectronics.

7.1.2.1.2. Programme structure

1) Sub programme "Nanoparticles, nanofibres and nanocomposite materials"
2) Sub programme "Nanobiology and nanomedicine"
3) Sub programme "Nano-macro interfaces"
4) Sub programme "New phenomena and materials for nanoelectronics"

7.1.2.1.3. Priorities in individual sub programmes:

1) Sub programme "Nanoparticles, nanofibres and nanocomposite materials"

- **Nanoparticles of metals and metallic oxides.** The research will focus on the preparation technologies related to nanoparticles of metals (e.g. Au, Ag, etc.) and their oxides, nitrides, and other substances (e.g. MgO, $TiO_2$, etc.), technologies for their compacting, stability, usable nanoparticle properties, research of their application and the research of their impact on the environment and humans.
- **Nanoparticles and nanolayers on the basis of ceramic materials.** The preparation and characterisation of nanograins, ultra-thin layers and super-matrices on the basis of nanocrystalline ceramics of unique properties. Specifically, this can relate to the study and research of new nanocomposites made of magnetic oxides, size effects of layered cuprates, and ferroelectric or ferromagnetic materials. These nanomaterials can become themselves the research or industrial production targets in the area of mechanical engineering, electrical engineering, or electronics.
- **Nanofibres based on carbon, special inorganic materials, and polymers.** Research will focus on the materials with purpose-oriented modification of their mechanical, electrical, magnetic, and optical properties. These nanomaterials can become themselves the research or industrial production targets with the aim to obtain products of a high usable value. They should also result in the practical utilisation in new technologies, e.g. in the conversion and accumulation of energies.
- **Nanocoatings, nanostructures and nanocomposite materials.** The research of nanocoatings and functional nanostructures in thin layers will be target-oriented on the improvement of usable properties of materials important for the practical use, e.g. the development of self-cleaning and antibacterial layers and products usable for the protection of the environment, especially for the removal of hazardous materials from water or air. The research of nanocomposites will focus on the finding of a suitable bond between metallic and ceramic or polymer matrices and the strengthening of the nanostructural (usually ceramic) composite phase determined for extreme mechanical and chemical duties. The utilisation areas should be the

miniaturised systems and their integration in a new generation of products at the level of micro and nanosizes.

2) Sub programme "Nanobiology and nanomedicine"

- **The targeted drug delivery of biologically active substances and nanosystems for diagnostics, therapy, or radiotherapy, e.g. with the aid of polymers or "molecular vessels".** Research of drug forms, contrast substances and diagnostics based on biodegradable (especially polymer) systems allowing for the bonds of drugs, or possibly diagnostics and other biologically active molecules as the units ensuring the organ or cell-specific delivery of a complete system within a living organism and its specific activation in the required place of effect. In an ideal case, this system should function as a diagnostic medium and, at the same time, also as a specific therapeutic agent. The fundamental is the delivery of chemotherapeutics and radio-therapeutics determined especially for the treatment of tumorous diseases.
- **Magnetic nanoparticles for medical purposes.** The stress will be put on hybrid materials consisting of magnetic cores and biocompatible macromolecular coatings, where their transport, distribution, and behaviour can be managed by an external magnetic field. These nanoparticle systems should serve *in vivo* in diagnostics and therapy as the drug target delivery, chemotherapeutic and radio-therapeutic substances, or in the role of contrast substances for the magnetic resonance imagining and the local destruction of cancerous tumours by the magnetic hyperthermy.
- **Bio-functionalisation of surfaces.** This relates to the understanding of fundamental processes influencing the interaction of molecular objects on metallic and semiconductor surfaces, the understanding of their creation, or self-assembly. The stress will be put on nanobiotechnologies allowing for the creation of a defined interface between biological and non biological environments that will allow for the achievement of a specific biological activity, e.g. the creation, regeneration or reconstruction of cells and tissues (the bioengineering) and for the creation of biocompatible surfaces of medical preparations, tools and instruments, or adjustment of surfaces specifically reacting to the presence of selected molecules (the detection system of biosensors). This should not be only for the medical use.
- **Biosensors and diagnostic systems.** Research of diagnostic systems and chips based on the surface modification of nanofibres, matrices and sensitive detectors of antibodies specifically against different molecules. The interaction even of a small amount of molecules with antibodies and the connected highly sensitive conductivity changes, or other properties, should be utilised for their specific detection.
- **Polymer nanocomplexes for the transport of gene information and the gene therapy.** The preparation, study of properties, and the research of DNA complexes allowing for the *in vivo* effective destination-focussed delivery a gene information to the beforehand selected kinds of cells, or used as the systems ensuring the efficient transfection of more kinds of cells and their use for the therapy.
- **Supramolecular creation of nanostructures.** It is fundamental for the biomedical use to create artificial nanostructures by a managed setup of purpose-prepared molecular construction units. This is, together with the maximal utilisation of self--assembly of covalent and non covalent bonds, one of the goals of the supramolecular chemistry.

3) Sub programme "Nano-macro interfaces"

- **Development of tools, instruments, equipment, and applications for the creation and characterisation of high resolution nanostructures** that will focus on the characterisation of materials from the topographic, electric, optical, and magnetic properties points of view, their passivation, thermal resistance and the resistance against intensive beams and mechanical effects. These nanotechnology tools will allow for a direct control of individual technological steps.
- **Development of applications for the handling and connection of nanoobjects with micro and macro environments**, especially with microelectronics that should allow for the measuring of electric and operational parameters of individual electronic elements and nanostructures. There will be applications of manipulation the atoms, molecules and clusters researched with lithographic applications for the contacting of nanostructures and nanoparts and their in-building in complex circuits and electronic equipment.
- **Development of metrological applications and the characterisation of surfaces of technically interesting macroscopic materials with the nm resolution** with the use of scanning probe microscopes, optics, and diffractive electron and photoelectron applications. There will be metrological processes created for the determination of nanoobject sizes and, at the same time, of their chemical composition, topography and electron properties. These applications will be utilised also for the grants of attests and for guaranteeing the properties of new products, in which their state of surface plays the decisive role.
- **Study of bulk materials, properties of which are fundamentally influenced by their microstructure or nanostructure, especially by the nanometric grain boudaries.** An important group of such materials is made of nanostructured bulk and gradient dielectric and metallic materials, the research of which will focus especially on the nanotechnology of preparation of nanostructured ceramics or ultra-fine-grained metals and inter-metallic alloys (e.g. the application of extreme local plastic deformations or the influencing of grain boundaries) with the goal to gain materials, which will be outstandingly strong and plastic and having excellent electric and magnetic properties.

4) Sub programme "New phenomena and materials for nanoelectronics"

- **Nanophotonics and especially new kinds of lasers.** The stress will be put on the study of quantum properties of electrons and their effect on the emission, spread and absorption of photons in the two, one and zero-dimensional structures, their theoretical modelling and simulation of general nanophotonic systems. The fundamental will become the preparation and characterisation of nanostructures or nanosize polymers suitable for detectors, photonic crystals, emission diodes, and especially lasers.
- **Semiconductor spintronics** focussed on the preparation, characterisation and utilisation of spintronic materials and structures combining the magnetic and non magnetic semiconductors. The stress will be put on the design of nanoparts that will not use for the recording and transfer of information the electrons' charge, but their spin. They will create in this way an important part of nanoelectronics.

- **Nanostructures on the basis of carbon and the nanodiamond layers.** The objective of the research of unique electrical, optical and magnetic properties of the carbonaceous nanostructures containing the atom of carbon in *sp, sp*$^2$, and *sp*$^3$ states will be the exploration of new possibilities of carbonaceous nanomaterials and also of new physical phenomena, which are exclusively bound with nano-carbon and which are perspective in nanoelectronics and bio-applications. An important research task will be to manage the deposition of nanodiamond layers on substrates of the size larger than 10 cm$^2$ and the modification of their surface, which should allow for the achievement of in practice usable unique electric and surface properties.
- **Nanotechnologies and nanophenomena on the atomic and molecular levels.** An important part should focus on the development and implementation of preparation applications for nanostructures and nanomaterials with the targeted management of object sizes, or their self-organisation related to lithographic, epitaxial, steam and sputtering, sol-gel, laser managed or other applications and techniques, but also on the preparation and utilisation of metallic nanostructures in the area of plasmonics focussed on the research of the spreading of elmg. signal along to nanostructures. The fundamental role will be played by the creation of nanoelectronic items and parts (e.g. the single-electron transistor) and their application in the research of quantum phenomena with the perspective utilisation in nanoelectronics or molecular electronics.

#### 7.1.2.1.4. The form of the expected results

The form of the expected results should be as follows:

- The subject of the legal protection, according to the Act No. 527/1990 Coll. on inventions and innovations as later amended,
- New manufacturing technology, processes, instruments, prototypes, etc.,
- Publication in a renowned professional press,
- Newly prepared methodology, or diagnostics,
- Proposal of a technical standard.

#### 7.1.2.1.5. Terms established for candidates in public tenders

- A target-oriented support can be applied for by a candidate, possibly also with other candidates, with whom he/she will solve the project. All obligations assigned to the candidate further relate also to other candidates, unless stated otherwise.
- A candidate/applicant for the target-oriented support from funds of this programme can be a state or a local self-governmental organisational unit, an enterprising natural person, or a legal person with the registered address in the Czech Republic.
- Candidates prove their professional qualifications for project solutions in their project proposals with a list of guarantors and a list of experts, who would participate in the project solutions. Their five most important research and development results must be cited and they must correspond with their activities within the project solutions.
- Project proposals must be marked with sub programmes, from within the presented bids, to which individual project proposals belong. Each project proposal can be marked with only one sub programme.

- The project proposal must contribute to the fulfilment of a programme objective, of the sub programme respectively.
- Project proposals must include the names of their solvers (see § 9, paragraph 1, letter e), in the Act No. 130/2002 Coll.) and the names of members in the solving teams.
- Project proposals must include all programmes or grant projects, or research intentions, in which the members of the solving teams participate and which relate to the presented project proposals. The recognised costs of these projects or research intentions are not included in the recognised costs of the proposed projects.
- Students can be under a contract by the candidate and their work description can include activities related to the project solution. However, scholarships are not recognised costs of the project as described in the Act No. 130/2002 Coll.
- When more candidates participate in the project solution, the project proposal must include also a proposed contract on the using and ownership rights covering the project knowledge and results, according to § 11, paragraph 1, in the Act No. 130/2002 Coll.
- Candidates determine, in their project proposals, items included as the recognised costs, according to § 3 in the government Directive No. 461/2002 Coll. on the target-oriented support of research and development from public funds and on public tenders in research and development (hereinafter called the "government Directive No. 461/2002 Coll." only).
- The level of the target-oriented support and the financial share of the candidate, or the support grantee respectively, for the project implementation is governed by the Act No. 130/2002 Coll., § 2 in the government Directive No. 461/2002 Coll., and the terms of this programme.
- In the case of projects, where the share of the target-oriented support in the recognised costs is lower that 100 %, the candidates must document the gaining of the remaining funds from other public or private sources.
- The recognised project costs cover wages and salaries, or their relevant parts of all workers participating in the project solution, according to the provisions in § 3, paragraph 1, letter a), in the government Directive No. 461/2002 Coll.
- Wages and salaries of the workers must correspond with the remuneration codes of their employers.
- The recognised project costs can cover also the costs of innovation of workplace equipment in the first year of the project solution (in 2006), but the candidate must prove its necessity for the completion of specific research intentions.
- Total concentrated solution capacity must correspond with the reasonably calculated annual recognised costs of the project solution and with the maximal level of the target-oriented support, up to CZK 30 million.
- The highest share of the target-oriented support in the recognised costs can reach the following levels:
  85 % of the recognised project costs – the sub programme 1
  90 % of the recognised project costs – the sub programme 2
  100 % of the recognised project costs – the sub programme 3
  100 % of the recognised project costs – the sub programme 4

- When terms of the public tender within research and development announced by the provider are breached, or when the candidate suggests in his/her project proposal a known solution or the problem already resolved, the provider will exclude the project proposal from the tender.

7.1.2.1.6. Contact

**Kancelář AV ČR, oddělení záměrů a programů**
(AS CR Office, Department of intentions and programmes)
Národní 3, 117 20 Praha 1
Tel.: 221 403 361, Fax: 221 403 521, e-mail: ***ozp@kav.cas.cz***, Further information is available at ***www.avcr.cz*** – research and development

## 7.1.3. GRANT AGENCY OF THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC

The system of grants was introduced in AS CR in 1991 by founding the Grant Agency of the then Czechoslovak Academy of Science (CSAV), now the Grant Agency of the Academy of Sciences of the Czech Republic (GA AS CR).

Its mission is in accordance with the Academy of Sciences of the Czech Republic Act No. 286/1992 Coll. in the wording of the Research and Development Support Act No. 220/2000 Coll. (the Act No. 130/2002 Coll. on the support of research and development from public funds and changes in some other laws). It distributes funds assigned for this purpose from the AS CR budget and other sources for target-oriented support of grant projects on the basis of results of research and development public tenders. The grant system of the Grant Agency of the Academy of Sciences of the Czech Republic (hereinafter called "GA AS" only) is based on the GA AS Status approved at 15th Meeting of the Academic Congress of AS CR on 18 December 2002 and on GA AS Activity Principles approved at 28th Meeting of the Academic Congress of AS CR on 11 February 2003. Public tenders in research and development for grant projects are announced by the Academy of Sciences of the Czech Republic in accordance with the Research and Development Support Act and the government Directive No. 461/2002 Coll. on the target-oriented support of research and development from public funds and on public tenders in research and development based on the Research and Development Support Act. The provider of the target-oriented support is the Academy of Sciences of the Czech Republic.

New rounds of public tenders are announced within the process determined in the Activity Principles of GA AS every year. There are kinds of the grant projects and tender terms determined in each round.

GA AS usually organises public tenders on the target-oriented support of solutions of the following grant projects:

A. Standard research grant projects
B. Junior research grant projects
C. Additional publicising grant projects.

Basic characteristics of these project kinds are as follows:

**A. Standard research grant projects**

The project topic is selected the party preparing the proposal (by the proposing party), who is usually the solver. The project has the character of the basic research

and its professional focus corresponds with the science conception of AS CR. The grant project can be resolved by a creative worker authorised by the candidate himself/ herself, or together with a team of co-workers. Project works can be planned for the period of 2 to 5 years (unless the given year requires otherwise). It must be in full calendar years. Participants in doctor studies can be members of the solution team.

**B. Junior research grant projects**

The project topic is selected by the party preparing the proposal (by the proposing party), who is usually the solver. The project has the character of the basic research and its professional focus corresponds with the science conception of AS CR. The grant project can be resolved by an authorised young researcher (younger than 35 years of age), who is the graduate of doctor studies, or the student in the last stage of the studies before graduation. He/she can solve the project by himself/herself, or together with a solution team, in which the majority are young workers. The average team age, including the solver, must not be higher than 38 years of age (taking the envisaged solution capacities into account). Project works can be planned for the period of 1 to 3 years in full calendar years.

**C. Additional publicising grant projects**

This kind of grant projects has the character of the support of a research and development infrastructure and it is determined to make low print runs of scientific publications easier – to support of the publication of original scientific studies, when the result dissemination for the public was not possible within the research grant project, during which the result was achieved. The support is granted for 1 year.

The success of solutions within exploratory grant projects will be assessed on the basis of utilised results, especially the publications in professional journals or in some other relevant forms. The publishing makes the project objective in the case of additional publication grant projects. In the case of supported grant projects, each of them must have at least one recognised result in the information R&D system (the RIV database) to be assessed as the fulfilled project.

The grant programme of the Grant Agency of the Academy of Sciences will continue in 2007 with another round of grant project tender. There is the date of public tender announcement envisaged in March 2007 for standard research grant projects and junior research grant projects, which should start in 2008. The date for additional publication grant projects is August 2007.

**Contact address:**

Sekretariát Grantové agentury AV ČR (Secretariate of the Grant Agency of the Academy of Sciences of the Czech Republic), Národní 3, 117 20 Praha 1

***acadga@kav.cas.cz***

***www.gaav.kav.cas.cz***

## 7.2. GRANT AGENCY OF THE CZECH REPUBLIC AND ITS GRANT SYSTEM

### 7.2.1. BASIC INFORMATION

The Grant Agency of the Czech Republic (GA CR) was founded by the State Support of Research and Development Act No. 300/1992 Coll. in the mid 1992 as an independent institution supporting the basic scientific research in the Czech Republic. Since 2002, the new Act No. 130/2002 Coll. on the support of research and development has been valid. The task of GA CR has been to assign grants, on the basis of public research tenders, to the best projects within the basic research in all science areas every year. Another task of the Agency is the control of the running and performance of project goals in every past year and the assessment of achieved project results after the finalisation.

GA CR provides for the grants or purpose-oriented funds from the state budget chapter, which has been assigned to it. GA CR assigned grants of about CZK 1 300 million from this Chapter in 2005, CZK 1 400 million in 2006, and CZK 1 700 million has been planned for 2007. There are about 2 200 grant applications every year and about one third is successful. The average annual costs of a project equal about CZK 800 thousand. GA CR provides scientific projects for the financial support within the so-called programmes of standard projects, doctor projects, post doctoral projects, and projects within the Eurocores programme organised by the European Science Foundation.

**Tasks of GA CR are as follows:**

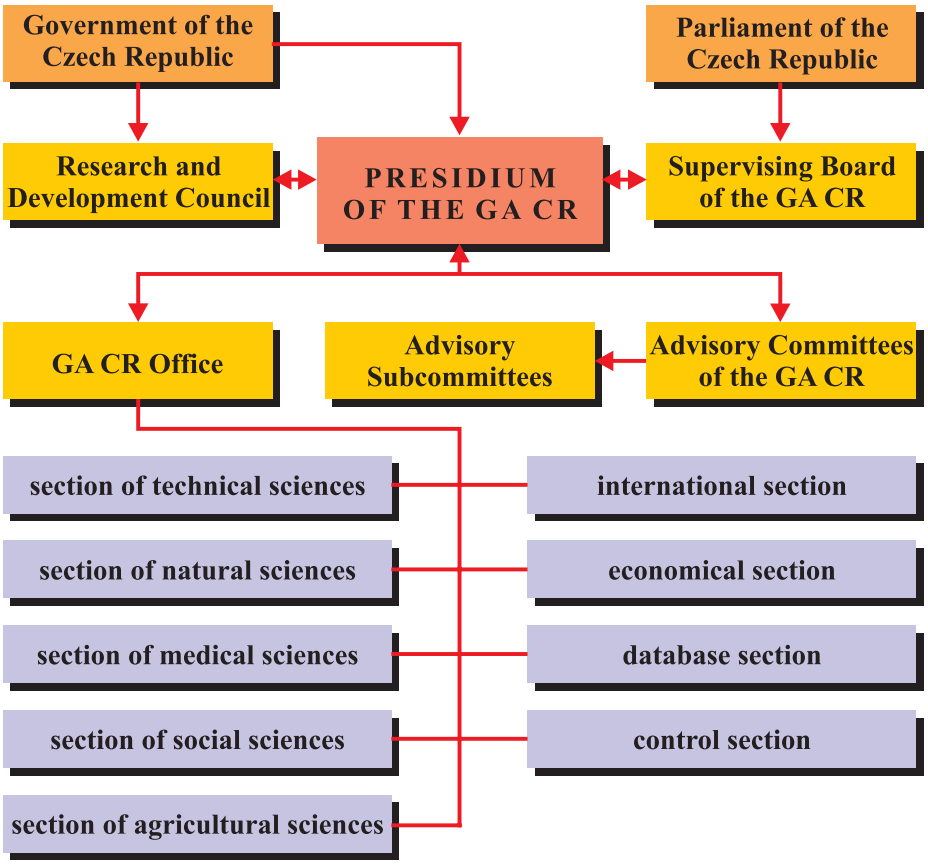
- Preparation and announcement of public research and development tenders supporting grant projects,
- Assessment of project proposals by expert advisory bodies of GA CR and the selection of the best projects for a grant assignment,
- Assignment of grants to the selected projects within its financial capacity, i.e. according to the amount received by GA CR from the state budget, and conclusion of contracts with applicants,
- Control of the solution performance and of project goals fulfilment every year on the basis of the so-called partial reports,
- Assessment of achieved project results after the finalisation on the basis of the so-called final reports,
- Control of economic management of funds assigned for the project solutions, i.e. their purposeful utilisation in accordance with the relevant regulations and requirements,
- Co-operation with foreign research bodies and institutions, especially in EC member countries.

### 7.2.2. ORGANISATIONAL STRUCTURE OF GA CR

The organisational structure of GA CR is illustrated in **Fig. 8**.

- The Grant Agency bodies consist of the Chairperson, the Board, and Control Committee of the Grant Agency.
- Advisory commissions of the Grant Agency are the advisory bodies of the Grant Agency.

*Fig. 8 – Organisational structure of GA CR*




- The Grant Agency Board (hereinafter called the "Board" only) can establish sub advisory commissions as advisory bodies for the advisory commissions.
- The Grant Agency Office organises the organisational and administration activities of the Grant Agency.

### 7.2.3. ADVISORY AND SUB ADVISORY COMMISSIONS

The advisory commissions procure the acceptance, assessment and evaluation of the basic research project proposals. Members of the advisory commissions are appointed and recalled in accordance with principles established in special legal regulations. The membership in an advisory commission is considered a position of the public interest. Advisory commissions have been established for the following areas:

- Technical sciences
- Natural sciences
- Medical sciences
- Social sciences
- Agricultural sciences.

*Table III - The list of advisory commissions and sub commissions of the GA CR*

| | | |
|---|---|---|
| 1. TECHNICAL SCIENCES | 101 | - Mechanical engineering |
| | 102 | - Electrical engineering and cybernetics |
| | 103 | - Civil engineering, architecture and transport |
| | 104 | - Technical chemistry |
| | 105 | - Mining |
| | 106 | - Metallurgy and materials science |
| 2. NATURAL SCIENCES | 201 | - Mathematics and informatics |
| | 202 | - Physics |
| | 203 | - Chemistry |
| | 204 | - Cell and molecular biology |
| | 205 | - Earth and space sciences |
| | 206 | - General and ecological biology |
| 3. MEDICAL AND HEALTH SCIENCES | 301 | - Molecular biology |
| | 303 | - Biochemistry, patho-biochemistry, and toxicology |
| | 304 | - Morphologic sciences |
| | 305 | - Standard physiology |
| | 306 | - Pathologic and clinic physiology |
| | 309 | - Neuroscience |
| | 310 | - Microbiology and immunology |
| 4. HUMAN AND SOCIAL SCIENCES | 401 | - Philosophy, theology, and religions |
| | 402 | - Economic sciences |
| | 403 | - Sociology |
| | 404 | - Historical sciences and ethnography |
| | 405 | - Philology |
| | 406 | - Psychology and pedagogy |
| | 407 | - Legal sciences and political sciences |
| | 408 | - Aesthetics, musicology, and art sciences |
| | 409 | - History of the 19th and 20th centuries |
| 5. AGRI-CULTURAL SCIENCES | 521 | - Plant production, genetics, and breeding |
| | 522 | - Phyto-pathology and plant physiology |
| | 523 | - Animal production, genetics, and breeding |
| | 524 | - Animal physiology and pathology |
| | 525 | - Agricultural products, food technology and eco toxicology |
| | 526 | - Ecology, forestry, and soil sciences |

The review of advisory and sub advisory commissions is presented in **Table III**.

Advisory commission procure mainly the following activities:

a) Acceptance of project proposals and the assessment of the fulfilment of public tender conditions,

b) Objective and not bias assessment and evaluation of the basic research project proposals, according to the announced regulations and criteria of public tenders, on the basis of opponents' opinions,

c) Preparation of the protocol on the assessment result related to each project proposal,

d) Proposals of the establishment or abolishment of sub advisory commissions, including the appointment or recall of their members, to the Board,

e) Presentation of a statement related to the assessment organisation and processes to the Board.

### 7.2.4. EXTRACT FROM THE REGULATIONS OF THE GRANT SYSTEM BY THE GRANT AGENCY OF THE CZECH REPUBLIC

Public tenders are usually announced once a year. Applications are lodged in a Czech or English version and they are evaluated by at least three assessors, among whom at least one is a foreigner. The advisory committee prepares the order of projects on the basis of expert opinions and its own evaluation. The list is then recommended to the Board for grant assignments.

The grant funds can be exclusively utilised only for the coverage of expenditures, which relate to the solution of a given project – investments, salary, and material costs.

Target-oriented funds can be awarded by the Grant Agency of the Czech Republic in two ways:

- Target-oriented subsidies for the funding of exploratory research projects must be utilised on the basis of really incurred costs necessary for the solution of the project.
- Returnable financial aid is provided to projects, the results of which are determined for one subject only (with the exception of results determined for bodies of the state administration) and under the condition that the level of the state support does not exceed 50 % of total project costs. The returnable financial aid is interest free and it is due in annual instalments started in the second year after the finalisation of the project solution.

  Grant projects can relate to the five basic areas.

Applications are lodged on forms, which present information on the proposed project, its focus and importance, the information about the proposing parties, and their workplaces. It should show the ability of the solution team to resolve the research intention in a quality way. The itemised list of financial requirements should be also presented. Solvers from different organisations, or several organisations, including foreign ones, can participate in solutions of proposed projects. One proposing party may apply for several grants related to projects with different contents, or can get further funds for the project solution from alternative sources, including foreign ones. The usual project duration varies from one to three years.

The solution performances of grant projects are inspected by sub advisory and advisory commissions of GA CR on the basis of partial reports, which the solvers must present to GA CR annually in prescribed dates. The GA CR Board then decides, on the basis of the evaluation, on the assignment of funds for the next period in the project solution. The funds are transferred to the solvers on the basis of a contract on the project solution addendum.

Results of grant project solutions must be publicised in the form corresponding with the character of the relevant area of science or technology. Publications as the confirmations of achieved results of grant project solutions could be recognised only when the financial support of GA CR is recognised in the publications, together with the grant registration number. The solvers are obliged to enclose a copy of the publication to the partial or final report on the project solution, or to send it to GA CR immediately after the publication, when it is published after the finalisation of the project solution.

### 7.2.5. KINDS OF GRANT PROJECTS

The Grant Agency of the Czech Republic supports several kinds of projects, the topics of which belong to the basic research.

Most activities of GA CR take place within the programme of **standard projects**, in which any legal or natural person from the Czech Republic can be involved. The topics of these projects are selected by proposing parties themselves. Seventy-eight per cent of target-oriented funds from the GA CR budget will be assigned to standard projects in 2006.

In addition to standard projects, GA CR has introduced, since 1997, a programme of the **post doctor projects** (Post-Doc), in which scientists younger than 35 years of age can participate. However, they must have graduated in doctor studies. The programme objective is the support of the interest of post gradual study graduates in work done in research institutions. The programme should help these institutions in creating salary terms for these beginning researchers, which would prevent them from leaving the research practice. The effort is also to utilise the potential of good experts and to get them involved in solved issues.

Another activity, which has commenced in 2003, is the programme of **doctor projects**, which is determined for doctor teams associating doctors active in a given topical area. The purpose of the programme is to increase the social importance of doctoral studies and to make careers in science more attractive for the graduates of master studies.

GA CR, together with AS CR, has been, since 1999, a member of the European Science Foundation (ESF) associating national science institutions from almost all European countries. GA CR participates within this association in the support of international science programmes **EUROCORES**. In addition to these programmes, GA CR provides for the financial support of the programme INGO (the Ministry of Education, Youth and Sports of the Czech Republic) and also other ESF activities.

In 2006, GA CR announced a public tender within the programme of the bilateral projects, which include the scientific co-operation Czech-German and Czech-Korean.

### 7.2.6. EUROCORES 2006 (GE)

The Grant Agency of the Czech Republic, which has been a member organisation of the European Science Foundation (ESF) since 2002, is involved in the ESF programme Collaborative Research Programme. It is a programme of the international co-operation of science teams within the projects in selected topical areas.

The international Management Council selects every year five highly actual, perspective and interdisciplinary topics. The presented project proposals are assessed by

the international panel. When a grant is awarded, the research is funded by national agencies (GA CR). The programmes are announced in a unified date – in March every year and the deadline of the tender is in May. The Grant Agency of the Czech Republic announces the public tender on EUROCORES projects in consequence to the ESF programme announcement. For more detailed information, see ***www.esf.org*** and ***www.gacr.cz***.

Selected topics for 2007:

- 4-D Topography Evolution in Europe: Uplift, Subsidence and Sea Level Change - The Geo-science of Coupled Deep Earth - Surface Processes (TOPO-EUROPE)
- Friction and Adhesion in Nanomechanical Systems (FANAS)
- Stress and Mental Health (EuroSTRESS)
- Logical Modelling in Interaction, Communication, Cognition and Computation (LogICCC)
- The impact of biochemicals and infochemicals on trophic dynamics and nutrient cycling in planktonic food webs (DYNAPLAN)
- European QUAntum StandARds and Metrology (QUASAR)
- Cross-national and Multi-level Analysis of Human Values, Institutions and Behaviour (HumVIB)

### 7.2.7. PUBLIC TENDERS

Public tenders on standard grants and post doctoral grants (Post-Doc), which should start in 2008, are expected to be announced in February 2007.

### 7.2.8. SOME ADDITIONAL INFORMATION AND THE CONTACT

a) **Home page:**
The home page of GA CR is ***www.gacr.cz***. There is actual information, the frequently asked questions section, and the possibility of downloading the application forms.

b) **Publications of the Office of GA CR:**
GA CR publishes the Bulletin of the Grant Agency of the Czech Republic and also the annual publication "Grant System of the Grant Agency of the Czech Republic", as well as different lists of awarded and finalised grants, some of them in English.

c) **Contact:**
Grantová agentura ČR (Grant Agency of the Czech Republic)
Národní 3, 111 21 Praha 1, Tel.: 224 240 588, ***e-mail: grantcr@kav.cas.cz***
***www.gacr.cz***

## 7.3. RESEARCH PROGRAMMES OF THE MINISTRY OF INDUSTRY AND TRADE (MIT)

MIT will provide, in 2007, for funds for project solutions within the following research programmes:

- "POKROK" (PROGRESS) (1H) – 2004–2009. The programme makes a part of NRP I and was described in detail in the "Guide 2005". No further public tenders will be announced.
- "TANDEM" (FT) – 2004–2010.
- "IMPULS" (FI) – 2004–2010.
- "Permanent Prosperity" (2A) – 2006–2013. The topical programme within NRP II.

### 7.3.1. PROGRAMME "TANDEM" (FT)

This programme implements the target-oriented support of research and development from funds in the state budget determined for this purpose in the budgetary chapter of the Ministry of Industry and Trade. The research and development programme "TANDEM" focuses on the support of projects within the target-oriented research, the results of which will be utilised within the consequent industrial research and development, in new products, technologies, and services. The solution of these projects will be completed by target-made groups [they are project teams put together from workers' groups (solvers) coming from industrial organisations and workers from research workplaces (academic, university, and other ones)]. All these organisations must have their registered addresses in the Czech Republic. Each candidate, who would co-finance the presented project, must be an entity founded in accordance with the Commercial Code.

Each project in this programme must ensure, at the same time, the transfer of results from the level of the basic or target-oriented research to the level of the industrial research and development.

The programme has been repeatedly announced by the Ministry of Industry and Trade, always in April of the given year. The last announcement is envisaged in 2007. The programme will finish in 2010.

The objective of the programme is the improvement of the co-operation of industrial organisations with research workplaces (academic, university, and other ones), the theoretical and technological support of small and medium-size enterprises, the improvement of the competitiveness of future products and technologies, and significant improvements in transfers of results of the basic research to industrial applications and consequently to the lowering of differences between the economic levels of the Czech Republic and the other countries in the European Union.

There will be projects supported within the programme framework, which will focus on the research leading to production of new materials and materials of not yet known properties, new technologies, systems, and services, including possible production and verification of samples and demonstration facilities, which would present the highest level of innovation, or which would better fulfil criteria of this programme and contribute increased utilisation parameters. It is assumed that solutions should be finalised within four years (within 48 months) from receiving the support from the state budget.

There will be projects supported, which would fulfil common important priorities expressing the way of implementation of the main global objective. This objective is the increased transfer of knowledge from the basic research and the increased utilisation of results in industrial applications.

The support will be limited to projects, which would not result in the support of banned branches of science, or in disturbances of free terms of commerce, according to Articles 87–89 of the European Community Association Agreement. They must respect Community Framework No. 96/C - 45/06, which provides for conditions and rules applicable on the target-oriented support of research and development.

**Utilised priorities:**

- Active orientation of the research and development potential of universities and the Academy of Sciences of the Czech Republic towards outputs, which would be suitable for industrial applications,
- Support of small and medium-size enterprises,
- Preparation of conditions on the creation of new jobs,
- Utilisation of the potential of qualified human resources for increases in the labour productivity,
- Development of high-tech products and technologies (the OECD classification), e.g. in the aircraft industry and aeronautics, chemical products and processes, etc.,
- Basic principles for future products, technologies, and services fulfilling needs of citizens with better quality and much higher level, including the modernisation of traditional manufacturing,
- Basic principles for future products and technologies improving the living conditions of citizens (leisure, healthcare, the aging population, organ replacements and prostheses, the pharmaceutical industry, etc.). The target-oriented support of the medicinal research finishes with pre clinical tests. The state support is not provided for the clinical evaluation of medicines,
- Basic principles for products and technologies for multiple uses, the inter-sector technologies,
- Basic principles for products and technologies developing communication, information, computing, and office technologies,
- New principles for scientific and diagnostic instruments,
- The research leading to the creation of materials made from renewable resources, new and improved materials and their utilisation in the industrial production,
- Basic principles for processing technologies and for the utilisation of animal and plant products,
- Biotechnology,
- Nanotechnologies and nanomaterials,
- Environmental friendliness (almost non-waste technologies, recycling, the improvements of the environment, the observation of the environmental standards, ecological transport, the liquidation and decreasing of ecological burdens, the utilisation of secondary materials, etc.),

- Energy savings, the utilisation of non traditional energy resources, more efficient utilisation of energy resources, and the renewable energy resources.

### 7.3.2. PROGRAMME "IMPULS" (F1)

This programme provides for the target-oriented support of industrial research and development from funds of the state budget determined for this purpose in the budgetary chapter of the Ministry of Industry and Trade.

The programme of the industrial research and development "IMPULS" is focussed, according to the law, on the support of research and development related to new materials, industrial products, production technologies, information and management products, and technologies implemented by:

- Individual organisations,
- Target-created groups, i.e. project teams set up of workers' groups (solvers) coming from industrial organisations and workers from research workplaces (academic, university, and other ones). All entities must have their registered addresses in the Czech Republic and must be co-ordinated by one of the participating entities.

The programme always envisages the solution of one specific research and development project, usually up to the level of a verified sample, functional model, prototype, semi-operational, pilot, or trial facility.

The programme has been repeatedly announced by the Ministry of Industry and Trade, always in April of the given year. The last announcement is expected in 2007. The programme will finish in 2010.

The programme objective is the increased performance of manufacturing organisations, the support of small and medium-size enterprises, the improved competitiveness of products, and the modernisation of technologies leading towards making the difference between the economic levels of the Czech Republic and other states of the European Union smaller.

There will be projects supported within this programme, which focus on the research and development of new materials and materials of not yet known properties, new or improved industrial products and facilities, new or improved technologies, systems, and services, new information and management products and technologies, including possible production and verification of samples, prototypes, semi-operational and demonstration facilities, which would present a higher level of innovation, or which would better fulfil criteria of this programme and contribute to the increased technical-economic, operational, and ecological parameters, the increase in the utilisation value and a higher level of the value added. It is assumed that the solutions should be finalised within three years (36 months) from the commencement of the support from the state budget and which should return the invested funds within five years after the finalisation of the solutions.

The support will be limited to projects, which would not result in the support of banned branches of science, or in disturbances of free terms of commerce, according to Articles 87–89 of the European Community Association Agreement. They must respect the Community Framework No. 96/C - 45/06, which provides for conditions and rules applicable on the target-oriented support of research and development.

**Utilised priorities:**

- Active orientation of the research and development potential of universities and the Academy of Sciences of the Czech Republic towards outputs, which are suitable for industrial applications,
- Support of small and medium-size enterprises,
- The creation of new jobs,
- Utilisation of the potential of qualified human resources for increases in the labour productivity,
- Development of high-tech products and technologies (the OECD classification), e.g. the air craft industry and aeronautics, chemical products and processes, etc.,
- Complex technologies and innovations (solving the need, design, production, distribution, use, and the management of production),
- Products, technologies, and services fulfilling needs of the citizens in the area of better quality and much higher level, including the modernisation of traditional manufacturing,
- Products and technologies improving the living conditions of citizens (leisure, healthcare, the aging population, organ replacements and prostheses, the pharmaceutical industry, etc.). The target-oriented support of the medicine research finishes with pre clinical tests. The state support is not provided for the clinical evaluation of medicine,
- Products and technologies for multiple use and the inter-sector technologies,
- Products and technologies developing communication, information, computing, and office technologies,
- Scientific and diagnostic instruments,
- Materials made from renewable resources, new and improved materials and their utilisation in the industrial production,
- Technologies processing and utilising animal and plant products,
- Biotechnology,
- Nanotechnologies and nanomaterials,
- Environmental friendliness (almost non-waste technologies, recycling, the improvements of the environment, the observation of the environmental standards, ecological transport, the liquidation and decreasing of ecological burdens, the utilisation of secondary materials, etc.),
- Energy savings, the utilisation of non traditional energy resources, more efficient utilisation of energy resources, and the renewable energy resources.

### 7.3.3. CRITERIA FOR THE EVALUATION OF PROJECT PROPOSALS WITHIN THE PROGRAMMES TANDEM AND IMPULS

Applications for the support of projects are assessed in a complex way in accordance with § 21 in the Act No. 130/2002 Coll. by commissions for the acceptation of project proposals and by expert advisory bodies of the providers. When assessing, at least two opinions of independent opponents are utilised, according to the following criteria:

- Fulfilment of formal conditions on the acceptance of application for project support,
- Achievement of the correspondence with the assessment criteria applicable for the project proposals,
- Achievement of the observance of priorities presented in the individual announced programmes.

The condition on the acceptance of an application for the project support is the observation of all necessities presented in the announcement of the tender and on the form of the application for the support itself, i.e.:

- Fulfilment of objectives and priorities as in the announced programme,
- Technical-economical level and the complex nature of the proposed solution,
- Knowledge of similar resolved problems abroad,
- Importance and the actual nature of the intention,
- Need of the product or technology, possibly documented with a marketing survey or a study,
- Comparability of the product or technology with the world standard, from the point of view of technical parameters, quality, and the price,
- Assumed volume of production and possibilities of its placement (the utilisation and sales),
- Proved professional capacity of the research team for the solution of the given project,
- Proved economical and financial capacity of the candidate (the receiving party) and possible co-candidates (co-receiving parties) for the solution of the project and its consequent introduction into production,
- Proved capacity of the candidate (the receiving party) and possible co-candidates (co-receiving parties) to support the project solution with materials and technologies at the required level for the complete duration of its solution (the technical equipment, space, materials, the technical aid and service personnel, and possible manufacturing and laboratory capacities, etc.),
- Appropriateness of the project time schedule (the actual nature of the fulfilled objectives, the market introduction date),
- Appropriateness of the project financial requirements,
- Contractual documentation of the basic criteria, as described in the text of the relevant programme, which are necessary for the inclusion into the relevant programme.

### 7.3.4. PROGRAMME "PERMANENT PROSPERITY" (2A)

The programme is a topical programme 1 (TP1) within the National Research Programme II (see Chapter 5). It will be implemented in the period 2006–2013.

### 7.3.4.1. Objectives of the topical programme Permanent Prosperity (TP1)

1. Preparation of new materials and new processes utilised in relation to renewable and non traditional energy resources, including the hydrogen energy.
2. The increased reliability of systems for electric power transfers.
3. Preparation of new processes for nuclear power technologies.
4. The decreased energy demands in building operations.
5. Creation of new non conventional machine structures and constructions.
6. Creation of new materials with new usable properties, including nanomaterials and new material diagnostic methods.
7. Preparation of new semiconductor parts for diagnostics and management.
8. The increased utilisation of the transport safety systems.
9. Introduction of new processes in selected branches within the chemical and pharmaceutical industries.
10. Development of new materials, new additives for products in other industries, and new polymers and catalysts.

The topical areas of TP1 are presented in **Table IV**.

***Table IV. – Topical areas within the topical programme 1 "Permanent Prosperity"***

| Topical areas |
|---|
| T 1-1-1 Increased reliability of electrical high voltage networks and switching stations |
| T 1-1-2 Utilisation of hydrogen and fuel cells as energy sources |
| T 1-1-3 New nuclear technologies for the production of power, high potential heat, and hydrogen |
| T 1-1-4 Lowering of energy demands of building operations |
| T 1-1-5 Renewable energy resources |
| T 1-2-1 New technologies and materials for the air protection |
| T 1-2-2 Technologies for the protection of waters and the mineral environment |
| T 1-3-1 New materials with new usable properties |
| T 1-3-2 Applications of new materials in machine design |
| T 1-3-3 Mechanical systems and robotics |
| T 1-3-4 New structures of manufacturing machines |
| T 1-3-5 New semiconductor sensors and nanoparts |
| T 1-3-6 Increased operational lifespan and reliability of machinery products and facilities of top technical parameters |
| T 1-3-7 New nanodiagnostic methods |
| T 1-4-1 Alternative energy resources in transport |
| T 1-4-2 Higher quality and increased reliability of the transport infrastructure |
| T 1-4-3 Transport equipment and systems for the public and individual transport |
| T 1-5-1 Chemical optimising and the development of new pharmaceutical technologies |
| T 1-5-2 Safety of chemicals |
| T 1-5-3 Nanomaterials and processes |
| T 1-5-4 Development of new chemical additives for products in other industries |
| T 1-5-5 Functional polymers |
| T 1-5-6 Organic syntheses for products with the high value-added |
| T 1-5-7 Catalysts for the protection of environment, the energy industry, the food industry, and for the low waste chemical technologies |

### 7.3.4.2. Contents and priorities in individual topical areas

**T 1-1-1 Increased reliability of electrical high voltage networks and switching stations:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) The creation of conditions necessary for the creation of fault databases for the entire Czech Republic and the preparation of a system of reliability-oriented maintenance of selected high voltage facilities,

b) The preparation and assessment of mathematical, information, and technical solution method for the priorities related to the use of control remote systems in energy networks,

c) The increased reliability of power systems and the increased safety of residents in individual regions of the Czech Republic.

The limitation of power delivery disruptions, which should result in lower manufacture damages related to damaged or destroyed products, or the secondary damages incurred in industrial plants.

**T 1-1-2 Utilisation of hydrogen and fuel cells as energy sources:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Optimising of hydrogen manufacturing technologies and the short and long-term hydrogen storage and transport to places of the use,

b) Gaining and utilisation of the hydrogen energy, manufacture of fuel cells, and their utilisation,

c) Research resulting in new materials resistant to thermochemical and diffusion processes during the hydrogen production.

**T 1-1-3 New nuclear technologies for the production of power, high potential heat, and hydrogen:**

Processes allowing the replacement of the now used up fossil sources in the suitable combination of new nuclear energy sources, the utilisation of hydrogen technologies, and in the long-term perspectives the utilisation of energy focussed nuclear fusion.

**T 1-1-4 Lowering of energy demands of building operations:**

Processes resulting in a lower consumption of energies in a specific kind of constructions, and the long-term lowering of demands on energy resources.

**T 1-1-5 Renewable energy resources:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Lowering of negative impacts by the manufacture and operations of renewable energy resources on the environment in the progressively increasing energy use,

b) Lowering of the dependency on the current non renewable energy resources as well as of the negative ecological impacts, while the energy use by the society is growing,

c) Increased reliability and readiness of energy deliveries within the complex energy systems.

**T 1-2-1 New technologies and materials for the air protection:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Making emissions of priority contaminants – solid substances (especially the $PM_{10}$ and $PM_{2.5}$), ozone precursors ($NO_x$ and volatile organic substances), heavy metals, and POPs minimal,

b) Replacement of heavy metals and their compounds (where possible thanks to the manufacturing process) and the replacement of persistent organic pollutants,

c) Manufacture of all size category heaters with low $NO_x$ emissions (including "hybrid" heaters),

d) Limitation of $NO_x$ emissions, development of low cost "secondary" provisions limiting $NO_x$ emissions, and the development of combined techniques for the limitation of sulphur dioxide and $NO_x$,

e) Manufacture of water soluble paints, degreasers, and other agents with a low content of organic degreasers, and low emission facilities and processes for their application,

f) Introduction of new separation processes (e.g. super critical extractions) and surface treatment processes minimising or eliminating emissions of contaminants into the air,

g) Introduction of new efficient conductors and insulation materials (preferably based on wastes and secondary materials) and efficient and reliable and in price accessible thermo-regulation technologies and low energy demand lighting technologies.

**T 1-2-2 Technologies for the protection of waters and the mineral environment:**

The new processes or prototype designs for facilities, which will allow for:

a) Complex solution of the issues of bio-geochemical cycles in main nutrients of carbon, nitrogen, sulphur, and phosphorus (the sources, chemical transformation, mobility, accumulation, transport, and downfalls),

b) Integrated protection of entire catchments, especially in relation between economic activities in catchments and the good ecological situation in water systems.

**T 1-3-1 New materials with new usable properties:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Preparation of nanocomposites usable as structural materials in engineering,

b) Preparation of supramolecular systems based on intercalation and inclusion compounds usable as medicines, sorbent, separation materials, catalysts, photo functional units in optoelectronics, etc.,

c) Utilisation of supramolecular structures with self-assembly abilities,

d) Utilisation of self-monitoring polymer systems,

e) Molecular modelling utilising empirical force fields in the main topical areas and the development of the methodology for computer designs of materials allowing for the consequent development,

f) Preparation or utilisation of protection optoelectronic monitoring sensors and sensor systems.

**T 1-3-2 Applications of new materials in machine constructions:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Improved operational parameters of machine mechanisms, making the manufacturing technology simple, creation of conditions for the development of new conceptions for machine component structures, and utilisation of the prerequisites for the creation of components with a higher level of the functional integration,

b) Support of qualitative changes in the area of design principles with the expected effects in the innovation of traditional machine designs and in the creation of new machine conceptions.

**T 1-3-3 Mechanical systems and robotics:**

The new materials, processes, or prototype designs for facilities, which will allow for the creation and applications of mechatronic machine components, facilities, or mechatronic target-oriented automation means like, for example, service robots and peripheral devices for automated workplaces.

**T 1-3-4 New structures of manufacturing machines:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Preparation of new machines with non conventional kinematic structures utilising top standard components and modern control principles. They are machine structures of the multitechnological character and machines for one piece or small series manufacturing. The related research part is the progressive design methodology for atypical machine structures,

b) Preparation of unique machines for different functional utilisation, i.e. machining, forming, textile, food industry, and packing machines. The partial objective is the fast and efficient methodology introduction in the machine category.

**T 1-3-5 New semiconductor sensors and nanoparts:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Preparation and utilisation of a thin layer structure based on semiconducting compounds $A_{III}B_V$ as the basis for the completion of different kinds of laser structures in combination with magnetic additives, and the development of the emerging field – the so-called spintronics,

b) Preparation of new silicon structures (Si nanocrystals, porous or microcrystalline silicon) highly perspective in applications in optoelectronics and in the integration within the existing commercially dominant silicon technology of microchips,

c) Development of new tunable lasers based on GaSb, development of laser structures with a field of the so-called quantum dots for the increased capacity of optical transmission cables, development of the newly emerging field of spintronics, and the identification of properties of the new silicon forms as the basis for the development of new Si laser conceptions for the considered integration in optoelectronics.

**T 1-3-6 Increased operational lifespan and reliability of machinery products and facilities of top technical parameters:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Speeding up of stages in the machine development and the creation of conditions for machine designs with better parameters,

b) Achievement of the high reliability and increased lifespan of newly developed machines.

**T 1-3-7 New nanodiagnostic methods:**

The new materials, processes, or prototype designs for facilities, which will allow for the analysis of the crystalline and electronic structures and for the imagining of the preparation composition with the nanometric definition in all three sizes and their application, in the combination with innovated preparation technologies, in actual development and diagnostic problems related to new materials and parts.

**T 1-4-1 Alternative energy resources in transport:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Support of the production and utilisation of bio-fuels and other alternative fuels,

b) Introduction of vehicles running on alternative fuels, the development of alternative drives, and applications of alternative energy sources in the practice.

**T 1-4-2 Higher quality and increased reliability of the transport infrastructure:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Optimising of the area service, optimising of systemic relations of individual transport kinds within the European and regional context from the points of view of the creation of the transport infrastructure and the international character of external costs in individual transport kinds,

b) Development of combined transport with the utilisation of progressive logistic approaches,

c) Increased effectiveness and safety of the railway transport by the utilisation of new solutions within the national applications of the ERTMS systems (European Rail Traffic Management Systems),

d) Solution of telematic issues related to the increased effectiveness and safety of the road traffic and the utilisation of new possibilities of intelligent transport systems, including the space research applications,

e) Solution of the technological design of EFC systems and of other systems for the efficient regulation of processes taking place in the transport infrastructure,

f) Development of the quality diagnostics and controls in the construction and operations of transport routes, and the optimising of the plan for the network development.

**T 1-4-3 Transport equipment and systems for the public and individual transport:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) The increased transport safety, thanks to the application of new telematic, diagnostics, and control systems and the increased active and passive vehicle safety on the basis of analyses of accidents and their consequences,
b) Modernisation of vehicles for the integrated transport systems, for the increased safety, and for the utilisation of new energy sources.

**T 1-5-1 Chemical optimising and the development of new pharmaceutical technologies:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Development of new and optimised drug forms and the development of their manufacturing technologies, which would be highly targeted, environmentally friendly, and economically acceptable,
b) Preparation of new more sensitive analytical techniques, considering especially the stricter detection of side effects and not desirable impacts,
c) Optimising of pharmaceutical technologies, biotechnologies, nanotechnologies, and the improvement of their effectiveness,
d) Introduction of new analytical techniques and their utilisation not only in the manufacture of pharmaceutical products, but also in their monitoring during the utilisation of medical applications.

**T 1-5-2 Safety of chemicals:**

The new materials, processes, or prototype designs for facilities, which will allow for the introduction of alternative tests finding dangerous properties of chemical substances and chemical compounds, which would be faster, cheaper, and which would make the necessary number of test animals minimal (where their use cannot be avoided), or which would exclude their use completely.

**T 1-5-3 Nanomaterials and processes:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Introduction of economically accessible manufacturing processes for the preparation of nanomaterials and the verification of their practical applications in a number of industries,
b) Ensuring that new nanosize materials are safe and the preparation of processes, which make their possible negative impacts on human health and the environment minimal from the long-term point of view.

**T 1-5-4 Development of new chemical additives for products in other industries:**

The new materials, processes, or prototype designs for facilities, which will allow for the introduction of the manufacture of chemicals necessary for other industries, which would improve their final products and help in the implementation of completely new usable properties.

**T 1-5-5 Functional polymers:**

The new materials, processes, or prototype designs for facilities, which will allow for the manufacture of new polymers adjusted to their required functions and for the

design of suitable processing processes, to make final products, and necessary methods, which would determine the structures and properties of these polymers.

**T 1-5-6 Organic syntheses for products with the high value-added:**

The new materials, processes, or prototype designs for facilities, which will allow for the increased share of products with higher value added (qualified chemical products) like, for example, more complex organic intermediate products, organic pigments and colorants, more efficient and to the environment friendlier agricultural chemicals, and intermediate products for the manufacture of drugs, inter alia, chiral pure chemicals. This should utilise the existing capacities of the organic syntheses in the area of research and development (including semi-operations), technical development, and manufacturing.

**T 1-5-7 Catalysts for the protection of environment, the energy industry, the food industry, and for the low waste chemical technologies:**

The new materials, processes, or prototype designs for facilities, which will allow for:

a) Utilisation of catalytic systems for the food industry applications and the utilisation and catalytic reactors,
b) Applications of new heterogenous, homogenous, and enzyme catalysts and catalytic systems for the manufacture of substances, edibles, pharmaceuticals, and for the protection of environment.

### 7.3.4.3. Basic parameters of the programme Permanent Prosperity

| | |
|---|---|
| Support form | • Non returnable subsidy |
| Support level | • Support up to the level of 75% recognised costs of research projects (CZK 1–30 million a year) |
| Party receiving support | • Research institutions, universities, or enterprising subjects |
| Recognised costs | • Personal costs<br>• Costs of tangible and intangible assets<br>• Costs of operations and maintenance<br>• Other costs of operations<br>• Costs of services<br>• Costs of result publicising<br>• Travelling costs<br>• Additional costs (overheads) |
| Specifics and limits | • When the applicant is an entrepreneur, one of the business activities must be "research and development"<br>• The applicant must be assigned good rating |
| Supported activities | • Research and development |

There were two public tenders organised in 2006. Another one will be announced in 2007. The programme administration for MIT is organised by the agency for the support of enterprising and investments – Czechinvest – ***www.czechinvest.cz***.

### 7.3.5. INFORMATION AND CONTACT PLACE RELATED TO THE MIT PROGRAMMES

Ministerstvo průmyslu a obchodu České republiky (MPO)
(The Ministry and Industry and Trade of the Czech Republic (MIT))
Na Františku 32, 110 15 Praha 1
Odbor průmyslového výzkumu a vývoje
(Department of the industrial research and development)
Tel.: 224 852 556
***www.mpo.cz*** > prumysl > vyzkum a vyvoj

## 7.4. RESEARCH PROGRAMMES OF THE MINISTRY OF EDUCATION, YOUTH AND SPORTS (MEYS)

The Ministry of Education, Youth and Sports is the central administration authority responsible for research and development. The Ministry organises especially the following:

a) Preparation of the National Research and Development Policy of the Czech Republic in accordance with international agreements and the control of its implementation in the form of an opinion on the correspondence of research and development programmes presented by providers with the National Research and Development Policy of the Czech Republic before their approval by the government.

b) Preparation of priorities in the form of National Research Programmes.

c) The implementation of research priorities in areas, which does not belong among the competences of providers, in the form of organisation of a part of the National Research Programme.

d) Preparation of legal regulations covering research and development and the assessment of impacts of other legal regulations on research and development.

e) International co-operation of the Czech Republic in research and development, including dealings with bodies of the European Community institutions and of individual countries within the European community active in research and development, with the exception of the international co-operation in defence research and development, which is looked after by the Ministry of Defence.

f) When the Czech Republic is represented in the relevant international bodies and organisations by the Ministry, it presents the government with a report on the running and co-operation results after its approval by the Research and Development Council. The report is then made public.

MEYS has got a specific position among sectors involved in the state-supported research and development.

- "Department of international relations in research and development" organises the extensive area of research and development at the international level, including the creation of conceptions for the international co-operation in research and development. It manages programmes in the area of international co-operation in research and development – see Chapter 8.
- "Department of research and development programmes" manages research programmes at universities and other specific research programmes – see Sub chapters 7.4.1–7.4.4.
- MYES, on the basis of the Government Resolution No. 1088 of 20 September 2006, organises also activities by the Research and Development Council (RDC) advising the government.

MEYS will provide for the support of the following research programmes in 2007 (the programmes of the support of regional and international research and development are described in Chapter 8):

- "R&D support in the area of education, youth and sports" (LS) – 2000–2009 (the state administration projects). The information about the contents of the programme was published in the "Guide 2005".
- "Research Centres" (1M) – 2004–2009, the NRP I programme. No public tender will be announced for 2007.
- "Support of beginning researchers" (1K) – 2004–2009, the NRP I programme. No more public tenders will be announced. The programme structure was described in the "Guide 2005". The programme will be finalised in 2007.
- "Information research and development infrastructure" (1N) – 2004–2009, the NRP I programme. The programme structure was described in the "Guide 2005". No public tender will be announced for 2007.
- "Basic Research Centres" (LC) – 2005–2009. No public tender will be probably announced for 2007.
- "Healthy and quality life" (2B) – 2006–2011, the topical programme PP2 within NRP II.
- "Information technologies for the knowledgeable society" (2C) – 2006–2011, the topical programme TP3 within NRP II.
- "Social-economic development in the Czech society" (2D) – 2006–2011, the topical programme TP4 within NRP II.
- "Human resources" (2E) – 2006–2011, the sectional programme PP1 within NRP II.

### 7.4.1. PROGRAMMES WITHIN THE NATIONAL RESEARCH PROGRAMME II

The Ministry of Education, Youth and Sports has become authorised to manage the topical programmes TP2, TP3, and TP4 within NRP II and the sectional programmes PP1–PP3 – see **Table I** in Chapter 5. The public tenders on the solution of projects within TP2–TP4 and PP1 were announced on 7 December 2005 and solutions of the selected projects commenced on 1 July 2006.. The review of topical areas within the mentioned topical programmes is presented in **Table V**.

***Table V – Topical areas of the topical programmes TP2–TP4 and of the sectional programme PP1.***

| | |
|---|---|
| **Healthy and Quality Life (TP2)** | T 2-1-1 Healthy and sound food<br>T 2-1-2 Systems and methods for the assessment of healthy and sound food materials, foodstuffs, and feeds<br>T 2-1-4 Non traditional utilisation of agricultural produce<br>T 2-2-1 Development of new diagnostics based on molecular--biological methods<br>T 2-2-2 Molecular genetics and biotechnology for new medicine<br>T 2-2-3 Nanomaterials in biology and medicine<br>T 2-2-4 Biomaterials for the medicine of transplants<br>T 2-2-5 Genomics, proteomics, and pathophysiology of cardiovascular diseases<br>T 2-2-6 Gemonics, proteomics, and cell differentiation in oncological diseases<br>T 2-3-1 Limitation of surface water pollution |

| | |
|---|---|
| | T 2-3-2 Bioremedy of the environment with the aid of microorganisms<br>T 2-3-3 Modernisation of waste management<br>T 2-3-4 Biodiversity<br>T 2-3-5 The environment and health |
| **Information Technologies for the Knowledgeable Society (TP3)** | T 3-1-1 Management of knowledge and informatics, especially for the support of prevention and treatment of diseases<br>T 3-1-2 Opened and mobile systems for the Internet and industrial applications<br>T 3-1-3 Security of information and encrypting<br>T 3-1-4 Information infrastructure, e-learning, and virtual workplaces<br>T 3-1-5 Elimination of language barriers with information technology means |
| **Social-Economic Development in the Czech Society (TP4)** | T 4-1-1 The aging Czech society<br>T 4-1-2 Modernisation of the Czech public policy and administration within the EU context<br>T 4-1-3 Migration issues and their impacts on the Czech society<br>T 4-1-4 Modernisation of public services<br>T 4-1-5 Institutional framework for the social-economic stratification processes<br>T 4-1-6 Interests of the Czech state and society in processes of the European integration |
| **Human Resources (PP1)** | P 1-1 Research of the purpose to improve the elementary, secondary, and tertiary education, and the general development of human resources<br>P 1-2 Strengthening of research at universities and in other scientific workplaces<br>P 1-3 Improvement of the attractiveness of careers and the support of equal opportunities in research<br>P 1-4 Making research popular<br>P 1-5 Support of migration |

#### 7.4.1.1 The programme "Healthy and Quality Life" (2B)

*Objectives of the topical programme*

- The procurement of new processing, distribution, control, and distinct identification processes of healthy and sound food, and the finding of their new sources.
- The creation of new breeding systems for production organisms.
- The development of new diagnostic processes, including nanotechnological methods, for the fast, precise, and patient friendly determination of the situation and for the monitoring of treatment progression.
- The increased therapeutic efficiency and drug safety.
- The development of new processes in the area of genomics of serious diseases.
- The creation of new materials and processes for medicine.
- The decreased gas emissions in the environment, the improvement in the state of localities suffering of past ecological burdens, including the improved cleanliness of water flows.
- The preparation of innovative processes for the waste management.
- The preparation of the methodology of implementation of the environmental standards, according to the OECD norms.

***Contents and priorities of the individual topical areas***

**T 2-1-1 Healthy and sound food:**

New processes, which will allow for:

a) The organisation of healthy food raw materials,
b) The identification and assessment of raw materials for the manufacture of food with the required functional properties,
c) Development of technologies and techniques ensuring the manufacture of safe foods, or optimised from the physiological needs of the consumers' point of view,
d) Development of foods offering better healthy benefits, including the food additives.

**T 2-1-2 Systems and methods for the assessment of healthy and sound food materials, foodstuffs, and feeds:**

New processes, which will allow for:

a) Improvement of inspection system related to food raw materials and products,
b) Development of methods determining chemical and biological toxic substances and the food authenticity,
c) Development of new methods for the reliable assessment of row materials' quality during all stages of the technological manufacturing process, and in final products,
d) Development of new analytical instruments allowing for the fast and reliable detection of chemical and biological toxic substances, which could help in the early finding of contaminants and in uncovering of their sources in raw materials and foods,
e) Development of new methods for the reliable assessment of raw materials' quality during all stages of the technological manufacturing processes, and in final products.

**T 2-1-4 Non traditional utilisation of agricultural produce:**

New processes, which will allow for the alternative utilisation of plants as raw materials for other than food utilisation and the proposition of efficient ways for their processing and utilisation in products with higher usable value.

**T 2-2-1 Development of new diagnostics based on molecular-biological methods:**

New processes, which will allow for the manufacturing of new original diagnostics of the domestic origin.

**T 2-2-2 Molecular genetics and biotechnology for new medicine:**

New processes, which will allow for the identification of suitable molecules for the preparation of new drugs and vaccinations with the utilisation of knowledge gained from the functional genomics, structural biology, and proteomics.

The research will especially focus on the new generation of medicine and drug forms, which would allow for the targeted therapy and managed freeing up of drugs, on original structures with new mechanisms offering antibacterial, antiviral, immuno-modulation and anti-inflammation effects, and on the effectiveness of the tumour chemotherapy.

**T 2-2-3 Nanomaterials in biology and medicine:**

New processes, which will allow for the development of new kinds of magnetic hybrid nanocomposite materials with specific properties, e.g. contrast substances for the magnetic resonance, or substances for the target therapy of tumorous diseases.

**T 2-2-4 Biomaterials for the medicine of transplants:**
New processes, which will allow for the replacement of the unsatisfactory amount of natural tissues and organs with biomaterials and for the increased safety of patients, who are operated and get partial replacements of the skeletal system, thanks to better understanding of the interaction of the organism and artificial replacements.

**T 2-2-5 Genomics, proteomics, and pathophysiology of cardiovascular diseases:**
New processes, which will allow for the identification of reflecting mechanisms of the function of candidate genes and their interactions taking place in the external environment in the pathophysiology of cardiovascular and metabolic diseases, and the introduction of new diagnostic and therapeutic processes based on better understanding of the genetic determinants.

**T 2-2-6 Gemonics, proteomics, and cell differentiation in oncological diseases:**
New processes, which will allow for the determination of specific markers of tumorous diseases, with the aid of the combination of genomic and proteomic techniques, suitable for the screening and early diagnostics by laboratory or imagining techniques. The determination of factors responsible for the primary and secondary resistance to the cancer treatment, the finding of candidate target molecules for the specific tumour and pre cancer therapy, and the recognition of key heredity factors responsible for the increased risk of tumour occurrence.

**T 2-3-1 Limitation of surface water pollution:**
The research will mainly focus on the processes allowing the development of new principles in the treatment of waters polluted with specific pollutants with the utilisation of the bioremedy, for example. It will also focus on the processes of determination of biochemical cycles of main nutrients C, N, S, and Ph related to the chemical transformation, accumulation, etc.

**T 2-3-2 Bioremedy of the environment with the aid of microorganisms:**
New processes, which will allow for:
a) Efficient utilisation of natural microorganisms (bacteria, algae, fibrous fungi, and mixed microbial cultures) able to degrade soil or water contaminants,
b) Utilisation of the genetic engineering with the objective to gain organisms able to degrade soil or water contaminants.

**T 2-3-3 Modernisation of waste management:**
The development of new processes and systems based on preventive tools and the more efficient utilisation of wastes as material and energy sources resulting in:
a) Sustainable utilisation of natural resources,
b) Monitoring and optimising of material flows, including the waste management,
c) Decreased energy and material manufacturing demands (e.g. the ecodesign),
d) Minimising of the volume and contents of biologically decomposing part in the case of landfill wastes,
e) Pre treatment of hazardous wastes with the objective to eliminate, or at least minimise their dangerous properties.

**T 2-3-4 Biodiversity:**

New processes, which will allow for:

a) Development of cultural landscape in the Czech Republic,
b) Research of efficient processes for the recultivation and improvement of deteriorated areas,
c) The determination of conditions on the development of transport infrastructure and the transport in relation to the protection of nature, landscape, and the environment,
d) Creation of principles for the protection of biodiversity at all levels (genetic, species, ecological systems, landscape, etc.),
e) Research of new methods for the assessment of main self-regulation ecosystem capacities.

**T 2-3-5 The environment and health:**

New processes, which will allow for:

a) Better quality monitoring of the burden and the state of individual environmental parts,
b) Identification and quantification of risks related to burdens put on the environment,
c) Determination of the exposure to hazardous substances,
d) Finding the mechanisms in factors' impacts on the environment and human health,
e) Improvement in reliability and understandability of information related to the environment.

### 7.4.1.2. Programme "Information Technologies for the Knowledgeable Society" (2C)

*Objectives of the topical programme*

1. Development of a technological infrastructure for the management of knowledge, especially in the area of healthcare, social security, and the state administration generally.
2. Development of a new information infrastructure at universities.
3. Development of new methods for the management of knowledge, especially with the utilisation of methods like the artificial intelligence, machine learning, and information and data storage.
4. Development of new mobile and open systems for the Internet applications and for new kinds of customer solutions in the industry and outside the industrial sector.
5. Development of new computer security systems, including the protection against spam, to make the information and communication environment in the Czech Republic of the security standard at the world level.
6. Development of new means for the work of virtual teams and laboratories and, in relation with this, the development of methods for the computer managed learning (e-learning) with the aim to achieve at least the top European level.
7. Overcoming language barriers in sharing information and knowledge in the multilingual EU environment.

*Contents and priorities of individual topical areas*

**T 3-1-1 Management of knowledge and informatics, especially for the support of prevention and treatment of diseases:**

New processes or proposals of facilities allowing for:

a) Creation of a base for assessment instruments, which would assess the relevance and structuring of the contents of general and specialised sources of data and knowledge,
b) Gaining practically usable professional knowledge from extensive data sources and not structured information.

**T 3-1-2 Opened and mobile systems for the Internet and industrial applications:**

New processes or proposals of facilities allowing for the creation of conditions for setting up open systems in the area of technological means for the Internet, the management of technological processes and instrument constructions.

**T 3-1-3 Security of information and encrypting:**

New processes or proposals of facilities allowing for:

a) Utilisation of new authentication and authorising mechanisms, which would allow users of mobile networks, with disregard to the place of connection, to utilise computer network services (both cable and wireless ones),
b) Effective and safe identification and authentication of users by the use of electronic chip cards.

**T 3-1-4 Information infrastructure, e-learning, and virtual workplaces:**

New processes allowing for:

a) Better quality of the information research infrastructure, especially at universities,
b) Implementation of the environment helping communications in between individual education institutions for distance learning in the form of dynamic on-line education in not only the Czech Republic, but also allowing the communication with partners abroad.

**T 3-1-5 Elimination of language barriers with information technology means:**

New processes or proposals of facilities allowing for:

a) Creation of an information base – the complex knowledge base for the preparation of different linguistic applications,
b) Development of a new automated translation technology.

### 7.4.1.3 Programme "Social-Economic Development in the Czech Society" (2D)

*Objectives of the topical programme*

1. Implementation of the Czech national interests and the creation of the Czech identity within the conditions of European integration and economic globalization.
2. Reductions of potentially negative consequences of the social stratification processes within the context of the conflict between the economic pressure on the growing meritocratic principles and possibilities of the social state to compensate the social inequality, and the enforcement of social justice criteria.

3. Activation of the senior population in the job market for a richer involvement in social structures and the analysis of the possibility to reduce effects of the Czech demographic development, which would reflect in a shortage of the workforce and in dynamic population aging.

***Contents and priorities of the individual topical areas***

**T 4-1-1 The aging Czech society:**

New processes allowing for:

a) Focussing the state and regional administration, but also the private sector, on the formulation of long-term strategies and changes in the orientation of the produce and distribution,
b) Efficient and economic adaptation of the fundamental structural change in the Czech society.

**T 4-1-2 Modernisation of the Czech public policy and administration within the EU context:**

New processes in the modernisation of the public policy, administration, and services corresponding with higher demands put on them and with the processes of globalization and European integration.

**T 4-1-3 Migration issues and their impacts on the Czech society:**

New processes allowing for the monitoring of the structure able to function in the process of acceptance and integration of foreigners in the Czech society. There is the need to prepare a projection of these structures at the national and regional levels.

**T 4-1-4 Modernisation of public services:**

New processes in the identification of neuralgic satisfaction points of the current and expected future public interests and the proposed ways of making the public services react fast and efficiently in order to optimise the way of creation and use of public and mixed means within the effective and functional co-operation of the public, citizen, and commercial sectors (including the assessment and possible utilisation of approaches called the “Public and Private Partnership”).

**T 4-1-5 Institutional framework for the social-economic stratification processes:**

New processes focussed on the minimising of negative impacts of the excessive social differentiation and exclusion. The research objective, together with the analysis of changes in the social structure, is the gaining of data for the identification of factors strengthening the social cohesion of the Czech Republic as a whole.

**T 4-1-6 Interests of the Czech state and society in processes of the European integration:**

New processes allowing for:

a) Scientific analysis of the position of the Czech Republic in the decision-making system in EU (including the so-called European Constitution) and the identification of Czech medium-term and long-term interests,
b) Creation of economic integration theories based on the political-economic modelling, social and cultural development, and the understanding of the Czech identity,

c) Creation of new knowledge in the area of implementation of the internal market rules, the common agricultural policy, structural policy, the utilisation of EU funds, the social, education, and research policies, the currency union, and the implementation and changes in the acquits, etc.

### 7.4.1.4 Programme "Human Resources" (2E)

*Objectives of the sectional programme*

1. The preparation and verification of processes and methods increasing the number of researchers in science, research and development, and the improvement of their social-economic positions and the more efficient motivation for the selection of the relevant professions.
2. The improvement of processes in positive affecting the public attitude to science, research, and development and, at the same time, the increased level of education of the entire population in the area of scientific and technological knowledge.
3. The improvement of the preparatory and advanced education of R&D workers at universities and in other scientific workplaces.
4. The focussing the objectives, contents and methods in the basic and secondary education on the advances in the scientific and technological knowledge. The finding of motivation, which would increase the attractiveness of scientific, research and technological professions among students and consequently also among graduates of the tertiary education.
5. Development of new processes supporting the involvement of women in R&D.
6. The analyses of impacts and effectiveness of individual steps in the improvement of the situation in the area of human resources.
7. Development of new instruments for the support of the mobility of researchers by the state, but also inside institutions and in between different workplaces (within the Czech Republic, but also internationally).

*Contents and priorities in individual topical areas*

**P 1-1 Research of the purpose to improve the elementary, secondary, and tertiary education, and the general development of human resources:**

The research resulting in:

a) Creation of creativity competitions for the youth,
b) Identification, description and promotion of successful co-operation forms among education institutions, technologically advanced companies and other social partners, including local communities,
c) Preparation of the framework education programmes for kindergartens, elementary and secondary schools, which would reflect demands of the new education paradigm,
d) Utilisation of e-learning in the education at all levels and in all forms of education.

**P 1-2 Strengthening of research at universities and in other scientific workplaces:**

The research resulting in:

a) Creation of better condition for the occurrence of research consortia "the industry – university", or "the industry – university – research institution" for the solution of specific projects,

b) Creation of centres for the transfer of technologies at technical universities and in workplaces of the Academy of Science of the Czech Republic,
c) Support of the establishment of consulting centres at universities focussed on technology or natural sciences and in workplaces of the Academy of Science of the Czech Republic.

**P 1-3 Improvement of the attractiveness of careers and the support of equal opportunities in research:**

The research resulting in:
a) Support of beginning researchers,
b) Improved material conditions after returns from abroad,
c) Successful in media popularisation of women in research,
d) Increased participation of women in doctor study programmes.

**P 1-4 Making research popular:**

The research resulting in:
a) Stressing the need and perspectives of research in media,
b) Increased awareness of the society of the career of technological professions,
c) Quality support of the research infrastructure of focussed associations and events spreading the scientific and technological knowledge,
d) Quality support of the research infrastructure within industrial museums, open-air technological museums, and science centres as parts of leisure parks.

**P 1-5 Support of migration:**

The processes resulting in the improved migration of researchers and university lecturers.

#### 7.4.1.5 Common terms for public tender candidates

- A candidate can lodge an application for a target-oriented support possibly also with other candidates, who would jointly solve the project. All obligations presented farther relate to all candidates, unless stated otherwise.
- The candidate applying for a target-oriented support from funds of this programme can be an organisational state or local self-government unit, an enterprising natural person, or a legal person with the registered address in the Czech Republic.
- Candidates present, together with their project proposals, their professional qualifications, the list of guarantors, and the list of specialists participating in the project solution, together with the citation of their five most important research and development results, which relate to activities within the project solution.
- The project proposal must identify the programme, from within the presented offer, the topical area and the project topic, to which the project relates. One project proposal can identify only one programme, one topical area and one project topic.
- The project proposal must contribute to the achievement of a programme objective.
- The project proposal must identify the researcher (see § 9, paragraph 1, letter e), in the Act No. 130/2002 Coll.), other persons, who would guarantee the professional

standard of the project solution (the so-called guarantors), and other members of the solution team.

- The project proposal must present programme or grant projects or research intentions, in which the members of the solution team participate. Recognised costs of these projects or research intentions are not included in the costs of the proposed project.
- Students can have a work contract concluded with the candidate, or co-candidates and they can have the project solution in the work description and they can receive scholarships from subsidies of the university determined for specific activities at universities. The scholarships cannot be included in the project recognised costs, according to the Act No. 130/2002 Coll. and they cannot make parts of subsidies for the project solution.
- If more persons participate in the project solution, the project proposal must include an agreement adjusting the ownership rights for the knowledge and results of the projects in the case of their utilisation. These rights become effective at the same time as the contract on the support provision (the decision on the support provision) concluded with the provider. The agreement must be signed by representatives of all candidates, who jointly apply for the project solution.
- The candidate determines items of the recognised costs in the project proposal, according to § 3 in the government Directive No. 461/2002 Coll. on the target-oriented support of research and development from public funds and public tenders in research and development (hereinafter called the "government Directive No. 461/2002 Coll." only).
- The level of the target-oriented support and the financial share of the candidate, of the support grantee respectively, in the project implementation is governed by the Act No. 130/2002 Coll., § 2 in the government Directive No. 461/2002 Coll., and by terms of the programme.
- The project proposal must present also the way of gaining the rest of funds, up to 100 % of the project recognised costs, from private sources (i.e. the sources, which do not originate in public expenditures).
- The recognised project costs include wages and salaries, or their relevant parts of all workers, who participate in the project solution, according to the provision in § 3, paragraph 1, letter a), in the government Directive No. 461/2002 Coll.
- Wages and salaries of the workers must correspond with the remuneration codes of their employers.
- The recognised project costs can include, during the first two years of the project solution, the costs of the innovation of instrument equipment of the workplaces, when the candidate proves their necessity for the completion of specific research intentions.
- The level of target-oriented project support cannot exceed CZK 30 million a year and it cannot be lower than CZK 1 million a year in the case of topical programmes, or lower than CZK 200 000 a year in the case of a sectional programme.
- The highest share of the level of the target-oriented support in recognised costs can reach up to:
  90 % of the recognised costs, in the case of a project within the programme 2B,

75 % of the recognised costs, in the case of a project within the programme 2C, 100 % of the recognised costs, in the case of a project within the programme 2D, 100 % of the recognised costs, in the case of a project within the programme 2E.

- When the terms of a research and development public tender announced by the provider are breached, or when the candidate suggests in the project proposal a known solution or a resolved problem, the provider excludes the project proposal from the public tender.

#### 7.4.1.6. *Additional information*

There is additional information at ***www.msmt.cz***. The public tender on the selection of projects, which should start in 2008, will not be probably announced in 2007 because of the shortage of funds.

#### 7.4.1.7 Contact

PhDr. Věra Kubíková, tel. 253 193 248, e-mail: ***vera.kubikova@msmt.cz***
***www.msmt.cz***

## 7.5. RESEARCH PROGRAMMES OF THE MINISTRY OF HEALTH (MH)

The Ministry of Health will provide funds for the project solutions within the following research programmes in 2007:

- "Population Health" (1A) – 2004–2009, a partial programme within NRP 1. The programme has been described in the "Guide 2005". No public tenders will be announced in future.
- "Sector Research and Development Programme" (NR) – 2004–2009.

### 7.5.1. SECTOR RESEARCH AND DEVELOPMENT PROGRAMME (NR)

The "Sector Research and Development Programme" commenced with the solution of projects in 2004. The programme was announced for the period 2004–2009. The tender will relate to the target-oriented support by the Internal Grant Agency of the Ministry of Health (IGA MH), which will focus on programme projects within the target-oriented and applied research and development, i.e. the projects which should obtain new knowledge focussed on specific and beforehand established practical objective with a given result application in healthcare. IGA does not support the part of the applied research, the development of which is utilised in new or improved products, technologies, and services determined for enterprising activities (e.g. as in the Commercial Code) and which are called the industrial research. IGA MH also does not support the development of new improved materials, products technologies, systems, and services, including the preparation and verification of prototypes, semi-operational or demonstration facilities, which are determined for business (i.e. the pre competitive development activity as the final output in relation to the market). Programme projects' proposals must perform the "Sector Research and Development Programme in the Ministry of Health for the period 2004–2009", or contribute to the solution of problems existing in the Czech healthcare system. The programme consists of the following partial programmes:

**XA. Cardiovascular and cerebrovascular diseases**

Diseases with the highest occurrence of the ischemic heart disease, hypertension, cerebrovascular and vascular diseases

- Clinical implementation and the objective assessment of new diagnostic and therapeutic methods,
- Cardiovascular research
  - Cardiomyopathy,
  - Sudden heart death,
  - The prediction and monitoring of ill myocardium at the molecular-genetic level,
  - Research of early stages of the atherosclerosis, their risk factors and important relations,
- The early stage of the atherosclerosis, the interconnection with the metabolic disease (obesity, hyperlipo-proteinaemia, etc.).

**Objective:**

The increased quality of the preventive and treatment care after ill people suffering of cardiovascular diseases and the decreased mortality.

**XB. Disorders of metabolism and nutrition, the endocrine disorders, including diabetes mellitus**

- The most serious spectrum of diseases, which can, with their results, endanger the healthy development of the population, i.e. especially diseases of the metabolism of fats, diabetes mellitus and its complications, liver metabolism, endocrine diseases, especially related to the steroid and thyroidital metabolism and its disorders,
- Influences of exogenic factors, especially nutrition,
- Obesity.

**Objective:**

The optimising of the early diagnostics of metabolic disorders and the utilisation of new diagnostic processes in the recognition of complications as the prerequisite for a rational therapy.

**XC. Tumour diseases**

- Epidemiology, prevention, diagnostics, and treatment of malignant diseases.

**Objective:**

The decreased incidence of tumours and the oncological morbidity with the application of preventive provisions, the lower incidence and the decreased mortality of tumour diseases in the population, the lower oncological danger for individuals and the population, the lower mortality related to tumour diseases with the early diagnostics and modern complex therapy, the increased efficiency of therapeutic treatments at the causal and palliative levels, the individualisation of the treatment of malignant tumours with the utilisation of multi factor assessment of predictive parameters.

**XD. Diseases of binders, bones, and joints; injuries**

- Joint diseases, bad backs, and serious limb injuries,
- Analysis of clinical and epidemiological data and costs of the treatment of muscle--skeletal diseases,
- Epidemiology and the injury prevention, the register,
- Minimising the injury consequences, the research in the area of injury treatment and their consequences,
- Pre hospital, hospital, and the rehabilitation care after injuries and the liquidation of extraordinary situations like mass accidents and disasters.

**Objective:**

The lowering of impacts of muscle-skeletal diseases and injuries on the society, improvements in the preventive care, diagnostics, and in the treatment of these diseases, the targeted intervention leading towards the accident prevention.

**XE. Age specific health aspects and diseases**

- Development of methodologies and monitoring of healthy pregnancies and of the post natal development of children,

- In time diagnostics of pregnancy pathologies related to mothers and foetuses,
- Improved care after the paediatric population, including problems in the medical genetics,
- Problems related to the auto immunisation and allergic diseases occurring at an early age,
- Improvements in the geriatric care and in the geriatric research,
- Development healthcare,
- Perinatal programme with the effort of influencing the perinatal and infantile mortality, and consequently also the morbidity,
- The most frequent causes of child deaths in the first year of age – injuries and poisoning and the so-called new morbidity of youth,
- Problems in the health-social understanding of the family function and the quality of the relation mother-child, the gender study,
- Disorders occurring mostly in higher age categories (especially the cardiovascular and oncological diseases, brain and metabolic disorders),
- Development of modern technologies for the diagnostics of genome disorders and the testing of their practical utilisation, especially from the cost-benefit point of view,
- Finding about risks and prediction factors in the efficient diagnostics and treatment.

**Objective:**

The deepening of knowledge of the molecular genetic articles in the disease pathogenesis, improvements in the prevention, the early diagnostics, and the treatment of inborn development disorders and serious genetic illnesses, improvements in the care after pregnant women and the prevention of pregnancy pathologies, the higher level of diagnostics and the treatment of states, which significantly participate in the child and youth's mortality and morbidity in the Czech Republic, improvements in the quality of life of people in higher age categories and the more effective expenditures of the care after the older population, the minimising of risks and improvements in the quality care after the aging population.

**XF. Neurological and mental diseases**

- Brain vascular diseases, extra-pyramidal movement disorders, epilepsy, disseminated cerebrospinal sclerosis, headaches, dementia, affective disorders, and schizophrenia,
- Interdisciplinary approach to the problem solution (computer networks and the data analysis, genetic aspects, psychic problems of somatic diseases, including some social aetipathogenetical mechanisms) and to the problems with stigma removals related to neuropsychiatric disorders and the patients' human rights,
- Neurobiology of serious mental disorders,
- New objective methods in the diagnostics of psychiatric illnesses with the assessment of their dynamics and treatment results,
- Learning about mechanisms, and the resulting possibilities of intervention, in problems related to the fast technological development (adaptation problems, the management of extreme stresses, etc.),

- Dependency on addictive drugs,
- Psychological problems in pregnancies and during the lactation period.

**Objective:**

The increased diagnostic and therapeutic effectiveness and the increased quality of life for patients and the lowering of a disease incidence, the introduction of new diagnostic and treatment methods, the mapping of patho-plastic factors, the epidemiologic recognition of neuropsychiatric diseases and dependencies, the reduction of their social impacts, and the optimising of the network providing for the related services.

**XG. Reproductive disorders**

- Prevention, the early diagnostics of pregnancy pathologies related to mothers and foetuses, including early deliveries and inborn foetus disorders,
- Prevention, diagnostics, and the therapy of malignant tumours in the reproductive organs of women (the cervix, womb, ovaries, and breasts),
- Methods in the assisted reproduction.

**Objective:**

Improvements in the prevention, diagnostics, and therapy of the most serious diseases in the genecology and obstetrics.

**XH. Infectious diseases and immunity disorders**

- Serious infectious diseases in our population (viral hepatitis, tuberculosis, diseases transferred by vectors – lime diseases, neuroinfections, AIDS),
- Imported infections,
- Pathogenesis and diagnostics of immune pathological states (especially the allergic and auto-immune ones),
- Problems with infections of ill people with their weakened immune systems, including the nose penetrating infections,
- Development in vaccination,
- Vaccines and immunotherapy of serious infectious processes,
- Allergies – possibilities of the influencing their occurrence in early stages,
- Useful utilisation of antibiotics, possibilities in overcoming the resistance problems.

**Objective:**

Improved diagnostics, treatment, and the prevention of infectious diseases and the immune pathological states.

**XI. Relation between the health and the environment – preventive approaches in healthcare**

- Recognition of environmental and behavioural health risks and the specific risks resulting from human exposures to contaminants. The study of nutritional factors, the factors of the life and work environments, the social-economical, psychological, and ethnic factors,

- Recognition of mechanisms in the influences of causal disease factors and health disorders, especially at the molecular-biological level,
- The study of positive health determinants and protection factors, which increase the disease resistance,
- Development of new processes preventing diseases and supporting health. Analyses of conditions on the healthy development of individuals and the study of healthy population and population groups' determinants.

**Objective:**

The creation of a scientific base for new and more efficient tools supporting health and preventing diseases, the identification of new health risks, and the prediction of future trends in the population health supported with research.

**XJ. Actual problems in other medical branches**

- Actual medicine – the development in traumatology, resuscitation, and reanimation,
- Endoscopic methods – thoracoscopic and laparoscopic approaches to acute states,
- Transplantation – the actual problems in the field, the lung, heart, liver, kidney, and other transplantations,
- Surgeries of malignant tumours,
- Focus on critically ill patients (ICU, ER),
- A chronically ill surgery patient – the finalisation of care, rehabilitation, re qualification, and re socialisation,
- Dentistry (toothaches, periodontics),
- Rheumatology (spine and joints' diseases),
- Dermatology (the skin disease connected with effects of the external environment),
- Ophthalmology (retina diseases, artificial lens and cornea replacements, the syndrom of a dry eye),
- Otorhinolaryngology and hearing disorders,
- Gastro-enteralgia (ulcer gastroduodenal disease, inflammatory diseases of the gastro-intestine system),
- Nephrology (kidney inflammations, etc.),
- New methods.

**Objective:**

The modernisation of the surgical therapy, the finding of new knowledge in the areas of diagnostics and treatment of diseases in the fields, which are assessed by the programme, the formulation of original approaches to the explanation of their etiology and pathogenesis, the application of results in the prevention.

**XK. Pharmacology and pharmacy**

- Focus on the most spread diseases in the next decade,
- Medicine, which act in the way of modified genetic information,
- Development of therapeutic systems, which allow for the transport of medicines in the most simple way and selectively to the place of its effect (the receptor),

- Pharmacogenetics, problems in transplantations, the treatment with basic cells,
- Treatment of pains,
- Drugs,
- Reflection of the civilisation diseases.

**Objective:**

The research of new biologically active substances for medical purposes, the explanation of undesirable effects of medicine and the gaining of knowledge for the limitation of drug dependencies, the finding of the medicine effectiveness and safety, the finding about the fate of medicine in organisms, problems in the pharmacological--epidemiology and pharmacological-economics.

**XL. Health systems and management**

- Problems in the health situation of the population and possibilities of the positive influencing the situation with better arrangements of health facilities,
- Basic health determinants,
- Principles in the health policy,
- Economics of the provided healthcare,
- Finding about the healthcare quality,
- Management of healthcare facilities,
- Principles in the healthcare ethics,
- Occurrence of civilisation diseases in the population,
- Long-term co-operation programmes with WHO.

**Objective:**

The optimising of the healthcare system, the integration of the healthcare system with the utilisation of the computing technology focussed on network applications.

**XM. Actual problems in nursing and in the non-medical health fields**

- Standardisation of the nursing terminology within the international context,
- Verification of the effectiveness of different approaches to the nurse training for the professional work,
- Projecting and verification of different models of the care provision in a multi field team of healthcare workers in connection with the increased quality of the provided care and the proofs based effectiveness of the invested means,
- Development of tools for the measurement of care results provided by non-medical healthcare workers,
- Support of the women participation in the healthcare research and development,
- Organisation of the care in an efficient and acceptable way to endangered groups, for example, the old people, children with inborn disabilities, mentally disabled people, cultural and ethnic groups, etc.,
- Decreasing of negative effects of new healthcare technologies on the adaptation abilities of individuals or families with acute or chronic health problems,

- Development of integrating research methodologies from the point of view of the holistic understanding of humans, their families, and life styles.

**Objective:**

The improved healthcare from the point of view of the complete understanding of humans in the fields of nursing and non-medical professions, the contribution to the development of the theory and the scientific knowledge base about nursing and non-medical professions, the improvement and spreading of knowledge related to the provision of a quality healthcare within the multi field team of professionals, the development of experience from researched phenomena within the international context.

**XN. Information and screening technologies in healthcare**

- Development of information databases determined for the medical research and development with the utilisation of methods used in multi criteria analytical systems,
- Internet applications in healthcare and in the health training,
- Healthcare informatics and the telemedicine,
- New screening techniques and processes in the morphologic and functional diagnostics,
- Screening technologies at the molecular level,
- Screening algorithms in the traumatology and urgent medicine,
- Development of intervention radiological methods in the clinical practice.

**Objective:**

The introduction of progressive image processes in diagnostics, the work out of screening algorithms in clinical fields, the development of minimal invasive intervention treatments with the utilisation of image technologies, the implementation of digital acquisition, transfer, processing, and storing methods for information and image data.

### 7.5.2. INTERNAL GRANT AGENCY OF THE MINISTRY OF HEALTH (IGA MH)

The Internal Grant Agency of the Ministry of Health (IGA MH) is a specialised advisory body of the Ministry of Health in the area of the healthcare research and development. Its objective is to contribute with the target-oriented support of healthcare research to the improved diagnostics, therapy, and prevention of the most serious illnesses and the improved health state and quality of the population in the Czech Republic. The objective also includes the management of healthcare provisions, the more efficient Czech applied medical research and development, and the increased share of its contribution within the international context and, at the same time, the stimulation of creative skills of research workers. The activity of IGA MH is governed by the Status. The bodies of IGA MH are as follows: The Managing Board, the Managing Committee of the Managing Board, the Scientific Committee, the Managing Committee of the Scientific Committee, and the Executive Secretariat of IGA MH. The professional bodies of IGA MH are the expert commissions, which make up the Scientific Committee. The organisational and administration activities of IGA MH are executed by the Executive Secretariat and the legal person, which is contractually hired

by IGA MH on the basis of a public tender. It is currently AA-GRANT, spol. s r.o. from Praha.

#### 7.5.2.1. Contact

a) **Interní grantová agentura Ministerstva zdravotnictví**
**(Internal Grant Agency of the Ministry of Health)**
Palackého nám. 4, P. O. Box 81, 128 01 Praha 2
tel. 224 972 331, 224 972 471
**MUDr. Ivan Pfeifer, CSc.** – the Secretary of VR and SR IGA
M. Chumanová, the Secretariat, 224 972 637
***www.mzcr.cz***, click on the "pro odbornou veřejnost" (for professionals), and then on "výzkum a vývoj" (research and development)

b) **AA-GRANT, spol. s r.o.**
Ruská 2412/85, 100 05 Praha 10
tel. 271 019 400-408, fax 271 019 410
**Statutory Representative: Ing. Eva Kolářová**
***www.aa-grant.cz***

## 7.6. RESEARCH PROGRAMMES OF THE MINISTRY OF AGRICULTURE (MA)

The Ministry of Agriculture will provide funds for project solutions within the following research programmes in 2007:

- The programme "Landscape and Settlements of the Future" (1R) – 2004–2009. It is DP3 of the topical programme TP1 "Quality of Life" within NRP I. The programme has been described in the "Guide 2005". No further public tenders will be announced.
- The sector programme "Research Programme of MH" (QF) – 2003–2007. The programme has been in detail described in the "Guide 2003". No more public tenders will be announced within the framework of this programme.
- The programme "Quality and Safe Nutrition" (1B) – 2003–2009. It is DP2 of the topical programme TP1 "Quality of Life" within NRP I. The programme has been described in the "Guide 2005". No further public tenders will be announced.
- The programme "Utilisation of Natural Resources" (1G) – 2004–2009. It is DP6 of the topical programme TP3 "Competitiveness in the Sustainable Development" in NRP I. The programme has been described in the "Guide 2005". No further public tenders will be announced.
- The programme "Research Programme of MH 2005–2009" (QG). The programme was described in the "Guide 2005". Public tenders within this programme will not be announced anymore.
- "Research programme in the agrarian sector 2007–2012" (QH). The public tender was announced, for the first time, on 1 November 2006.

The preparation of materials, organisation of public tenders, and other necessary works has been done for the Ministry of Agriculture by the National Agency for the Agricultural Research (NAZV) – see 7.6.2.

### 7.6.1. RESEARCH PROGRAMME IN THE AGRARIAN SECTOR 2007–2012 (QH)

The "Research Programme in the agrarian sector 2007–2012" focuses especially on the prosperity of the agrarian sector, while observing the careful and ethical attitude to natural resources and the proportional development in the countryside. The careful attitude to the utilisation of natural resources makes the worldwide recognised and economically important requirement, which has its impact on the economy in the entire area for which the government is responsible. The agrarian sector means the area of agriculture, food industry, water and forestry management, and the issues related to the countryside development in accordance with the development in quality of life.

The research programme in the agrarian sector consists of two sub programmes: "Effective processes in the agrarian sector" and "Careful and protective management processes". Research and development projects will be funded up to the level of 100 % from the Ministry of Agriculture budget, according to § 2 in the Government Directive No. 461/2002 Coll. on the purpose-oriented support of research and development funded from public funds and on public tenders in research and development, according to EU rules.

### 7.6.1.1. Sub programme "Effective processes in the agrarian sector"

*Characteristics*

The sub programme is open to projects resolving efficient biological processes in production, which lead to the improved competitiveness of the agrarian sector within the worldwide scale. The utilisation of new research knowledge will ensure improvements in the resource utilisation for the general benefit in the countryside. It is expected that the application of individual rules of the common market and of the Joint Agrarian Policy will be beneficial after the accession of the Czech Republic to EU from the food supply to residents for appropriate prices point of view and from the point of view of the organisation of acceptable living standard of farmers. The substance means the utilisation of innovative ability, creativity and co-operation for the creation of a profit within the ethical enterprising in the agrarian sector.

*Research directions*

**1. Multifunctional economic systems in agriculture**

Partial objectives

a) The innovation of cultivation technologies and breeding ways for animals and fishes determined for different objectives and intensity related to the agrarian and environmental conditions. The optimising of nutrition and fertilising of plants and of the nutrition and feeding of farm animals, the evaluation of the interactions of humans with animals and robots in farm animal breeding, and the decreasing of energy requirements of production processes.

b) The innovation of systems of integrated production of fruits, vegetables, and vineyards in accordance with requirements of the highest international standards for these systems related to the quality of products and the protection of environment.

c) The creation of effective and not energy intensive technological systems of storage and production processing in primary agricultural enterprises.

d) The establishment of processes increasing the multifunctional potential of the Czech agriculture at the enterprise level, especially by the knowledgeable utilisation of the European Agrarian Fund for the Regional Development (EAFRD) in the period 2007–2013.

e) The assessment of influences of global chains on the Czech agrarian sector and the regional development, including suggestions for the removal of negative impacts.

f) The establishment of methods assessing the efficiency of farm produce and the competitiveness of main enterprising forms in the Czech agriculture.

g) The creation and extension of technologies related to the growing of plants for the energy utilisation and the manufacturing industry.

**2. Protection of plant and animal health**

Partial objectives

a) The innovation of means and methods protecting plants against the complex of harmful organisms on a certain plant or a group of plants for different growing systems and in warehouses.

b) The innovation of methods diagnosing also races and tribes, detecting and quan-

tifying harmful organisms, especially the quarantine and economically important ones and the creation of protection provisions against their spread and transfers, including their utilisation in systems of certification of healthy cultural plants.

c) The establishment of provisions minimising risks of the occurrence of pesticide residues and natural contaminants in technological processes used in the agrarian sector.
d) The improvement of diagnostics, prevention and therapy of infectious animal diseases. (The establishment of the ethology and epidemiology importance and the preparation of methods for their muting and healing.)
e) The improvement of diagnostics and prevention of genetic and reproduction animal diseases.
f) The determination of risk factors in the reproduction performance of farm animals.

**3. Biotechnological processes**

Partial objectives

a) The utilisation of genetic markers in the agrarian sector (to make the assessment of animal values more precise, to identify forest wood populations, etc.).
b) The utilisation of biotechnological processes for making the plant reproduction material healthier, for the removal of pathogens from farm animals, and for the improvement of plant and animal production.
c) The utilisation of biotechnological methods for the increased resistance of cultural plants to not favourable abiotic and biotic effects.
d) The utilisation of biotechnological processes and means for the minimising or replacement of chemical additives in food, or of chemicals in technological processes.
e) The establishment of methods assessing benefits and risks of GMO used in the agrarian sector, the finding of possibilities in the co-existence of conventional and environmental agriculture with GMO.
f) The utilisation of farm animals as model organisms in cell therapies.
g) The development and application of new methods for breeding, seed management, species controls, and quality of the production controls.
h) The improvement and utilisation of the biological potential of production organisms in the agrarian sector for the improvement in the quality of materials and food, while ensuring the high effectiveness of production and limiting negative impacts on the environment.
i) The characterisation of the genetic structures of autochthonous and other important partial forests wood populations.

**4. Utilisation of water sources, their improvement and limitation of impacts of the climatic changes**

Partial objectives

a) The development of methods assessing the effectiveness and costs of provisions improving water resources and maintaining their sustainable utilisation.
b) The proposition of processes eliminating impacts of climatic changes on water sources, their need and sustainable utilisation, including the establishment of economical instruments.

c) The optimising of water management in the landscape, including the draining of urban areas, and the system of prevention against floods, while increasing the retention landscape ability.
d) The development of efficient processes limiting eutrophication of surface waters and the proposition of a technology eliminating their negative effects on the quality of drinking water.
e) The optimising of aerobic and anaerobic ways of waste water treatment coming from small sources of contamination (from 5 to 200 residents) and improving the quality of underground and surface waters.
f) The proposition of processes improving the management of ponds' utilisation and the hydro-morphologic conditions of flow beds for fishes from the water quality point of view.

**5. Permanently sustainable forest management**

Partial objectives

a) The ensuring the sustainable management of forests with careful technologies, while harmonising production and other than production functions and the protection of biodiversity.
b) The solution of issues in relations of freely living animals with other parts of the agrarian sectors, the game-keeping and fishing.
c) The preparation of a system assessing forest functions, including the establishment of criteria and indicators of poly-functional forest management.
d) The quantifying of the potential of individual functions in specific conditions of different forest kinds.
e) The establishment of methods assessing the effectiveness of the forest management.

### 7.6.1.2. Sub programme "Protective and careful management processes"

***Characteristics***

The sub programme is open to projects focussed on processes respecting the environmental requirements of countryside and the environment. The utilisation of these processes in the agrarian area develops the multifunctional focus of agriculture, improves relations of living organisms, and improves values of life in the society. It contributes to the maintenance of high quality and harmonised life, while requiring minimal costs in the agricultural area and allowing the introduction of efficient and effective co--operation at different levels. This could become a prerequisite for the extension of human abilities in the development of favourable conditions for the elimination of harmful environmental features.

***Research directions***

1. Interactions of water, soil and the environment

Partial objectives

a) The ensuring improvements of other than production soil functions within the interaction with the production function and with impacts on the area and qualitative protection of soil and water.

b) The establishment of possibilities in the increasing of water retention and accumulation in the landscape.
c) The establishment of limiting factors in soil utilisation, which influence its protection against degradation.
d) The utilisation of provisions lowering soil losses by erosion and limiting surface outflows.
e) The establishment of limits and standards in soil degradation and contamination as a base for the soil utilisation and management.
f) The establishment of processes for soil recultivation and utilisation in the protection of surface and underground waters.
g) The proposition of optimal management ways in protection areas of water sources.
h) The optimising of systems of rational soil utilisation, including agrarian technologies contributing to the soil protection.

**2. Support of the sustainable development in the countryside**

Partial objectives

a) The establishment of processes ensuring the harmonisation of production and landscape creation functions of the agrarian sector.
b) The preparation of methodology for the bee and other pollinators' utilisation in the development of living nature.
c) The establishment of processes and indicators for the permanently sustainable development of agricultural activities and in the landscape care.
d) The proposition of models supporting the development in settlement structures in relation to the multifunctional agriculture.
e) The proposition of strategic provisions stopping negative trends of leaving residents and supporting the diversification of activities and the creation of jobs and good conditions for life in the countryside.
f) The application of integrated logistical methods and information technologies in the management of technological processes, enterprises' management, and farm management in the Czech agrarian sector.

**3. Biodiversity of organisms useful within the agrarian sector**

Partial objectives

a) The utilisation of genetic and biotechnological processes for the protection and utilisation of biodiversity when it comes to agrarian plants, forest woods, and farm animals.
b) The establishment of new methods protecting genetic sources of plants, micro--organisms, and animals.
c) The utilisation of agrarian biodiversity in the improvements of production quality and stability and in eliminating negative impacts of the agrarian sector on the environment.
d) The utilisation of new and ignored plant species for products offering specific qualities.
e) The selection and proposition of utilisation of suitable species and kinds of cultural plants for an alternative technological utilisation and the proposition of growing processes for the limitation of negative impacts of agriculture on the environment.

**4. Nature-close management – welfare and permaculture**

Partial objectives

a) The proposition of optimal utilisation of natural nature abilities by the planning of garden and utilisation ecosystems, e.g. by the planting of suitable combinations of plant species.
b) The improvement of the system for plant growing and animal breeding in the environment-friendly agriculture for the production of BIO quality foods.
c) The utilisation of gene funds of selected plant species (regional and original species), the optimising of the economic and landscape creating functions.
d) The establishment of criteria for welfare in intensive and extensive farm animal keeping.
e) The establishment of criteria of environmental aspects in intensive and extensive farm animal keeping.

**5. Changes in agrarian sector ecosystems caused by the multifunctional management**

Partial objectives

a) The establishment of processes improving and positively utilising changes in agrarian sector ecosystems caused by the multifunctional forest management.
b) The establishment of processes and methods eliminating negative impacts of climatic changes and anthropogenic impacts on forest ecosystems.
c) The proposition of careful management technologies used in forests (the wood cutting and transport).
d) The identifying of negative factors influencing the environmental burdens originating in technological processes for their effective management and minimising.
e) The optimising of technological systems in less favourable production areas (LFA).

Additional information is available at ***www.nazv.cz***.

### 7.6.2. CONTACT

**National Agency for the Agricultural Research – NAZV**

The NAZV is the Department No. 13024 within the Section 13020 – Section of research, education, and founding activities by the Ministry of Agriculture.

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## 7.7. RESEARCH PROGRAMMES OF THE MINISTRY OF ENVIRONMENT (ME)

The Ministry of Environment will provide, in 2007, funds for project solutions within the following research programmes:

- Programme "Landscape and Settlements of the Future – TP1/DP3", (SL) (2003–2007)
- Programme "Environment and the Protection of Natural Resources – TP1/DP4" (SM) (2003–2007)
- Programme "Rational Utilisation of Energies and Renewable Natural Resources – TP4/DP3" (SN) (2003–2007)

Characteristics of these programmes were described in the "Guide 2004". No more public tenders will be announced.

- Programmes TP1/DP3 and TP1/DP4, the codes 1C, 1D – NRP I, the period 2004–2009. Characteristics of this programme were described in the "Guide 2005". No more public tenders will be announced.
- "Sectoral research programme within the competence of the Ministry of Environment 2007–2013". The public tender on projects has been announced on 8 November 2006.

### 7.7.1. SECTORAL RESEARCH PROGRAMME WITHIN THE COMPETENCE OF THE MINISTRY OF ENVIRONMENT 2007–2013

The Sectoral Research Programme by the Ministry of Environment is based on the National Innovation Policy of the Czech Republic for the period 2005–2010 and on Long-term basic research directions, in which objectives and tasks contained in strategic EU documents reflect. Objectives of this programme by the Ministry of Environment extend within this context the objectives of the 7th Framework Programme by the European Community for research, technological development and demonstrations and the National Research Programme II of the Czech Republic. Individual partial programmes and research areas in the Sectoral Research Programme by the Ministry of Environment specify these objectives within the conceptual and strategic documents valid in the area of the Czech Republic and with regard to its international obligations. This will thus solve problems connected with the area of the Czech Republic, the problems which are especially important for the sustainable development in the Czech Republic, and the problems, which the Czech Republic is bound to resolve.

In contrast to the National Research Programme II of the Czech Republic, which focuses on topical priorities and sectional programmes more or less interdisciplinary, the Sectoral Research Programme by the Ministry of Environment focuses on specific areas within the competences of the Ministry for the administration of which the Ministry of Environment has got a high quality professional potential. There have been topics selected in the area of renewable energy sources, which supplement the research included in this area in the National Research Programme II.

The Sectoral Research Programme by the Ministry of Environment focuses on priorities of the environmental sector in the following areas:

– Protection of natural water accumulation,

- Protection of water sources and the protection of quality of underground and surface waters,
- Protection of air,
- Protection of nature and landscape,
- Geological exploration in accordance with § 2 in the Act on geological works,
- Protection of mineral environment, including the protection of mineral resources and underground waters,
- Waste management,
- Assessment of impacts and consequences of activities on the environment,
- Changes in environmental factors from the point of view of their impact on the interaction of organisms, including humans,
- Rational utilisation of natural resources and renewable energy sources.

**The programme consists of the four following sub programmes:**

- SP1 – Climatic changes, the limitation of contamination and risks
- SP2 – Sustainable utilisation of resources
- SP3 – Research of environmental technologies
- SP4 – Observation of Earth and assessment instruments

#### 7.7.1.1. Sub programme SP1 – Climatic changes, the limitation of contamination and risks

***Characteristics***

The sub programme "Climatic changes, the limitation of contamination and risks" follows especially the basic research direction "the sustainable development (the biological and ecological aspects in the sustainable development)" and it relates also to basic research directions of "molecular biology" and "the security research in the area of environment". These basic research directions have been approved in the Government Resolution No. 661 of 1 June 2005 on Long-term basic research directions. The sub programme focuses on the solution of the following problem groups:

- **Negative impacts on the environment and on the climate:** The functioning of the climatic and Earth systems, provisions for the adjustment to and for the softening of these changes impacts, contamination of air, soil, and water, changes in the consistence of atmosphere and in the water circulation, mutual effects of the climate and the Earth surface, impacts of anthropogenic/industrial effects and risks.
- **The environment and health:** The interaction of environmental impulses causing stress for the human health, including the identification of sources, the occurring risk factors, methods for the integrated risk assessment related to toxic compounds, the quantifying and the analysis of costs and contributions of the elimination of environmental health risks, and indicators for the prevention strategy.
- **Natural risks:** The improvement in forecasting and integrated threats assessment, the sensitivity and risk assessment for catastrophes related to the geology (e.g. landslides, rock falls and earthquakes) and the climate (e.g. storms and floods), the development of early warning systems, and the improvement in the strategy for the prevention and softening of consequences.

***Research areas***

The programme consists of the three following research areas:

- SP1a – Impacts of anthropogenic effects and provisions on the softening of climatic changes
- SP1b – Environmental health determinants and risky situations
- SP1c – Protection against negative impacts of natural disasters

#### 7.7.1.2. Sub programme SP2 – Sustainable resource utilisation

***Characteristics***

The sub programme "Sustainable resource utilisation" follows the basic research direction "sustainable development (biological and ecological aspects in the sustainable development)" approved in the Government Resolution No. 661 of 1 June 2005 on Long-term basic research directions. It focuses on the following problem groups, which relate to the protection and sustainable utilisation of natural and artificial resources:

- Ecosystems, the monitoring of their state and the optimising of their functions, the protection of biological diversity, the harmonising of the biodiversity protection with human activities, the environmentally friendly management of landscape areas, the forest management, the sustainable management and planning of urban environments,
- Protection and utilisation of water resources and the soil protection,
- Waste management, biotechnology in the processing and utilisation of wastes, the prevention of the waste creation.

***Research areas***

The programme consists of the three following research areas:

- SP2d – Ecosystems and the protection of biological diversity
- SP2e – Protection of water, soil, and the mineral environment
- SP2f – Waste management and the prevention of the waste creation

#### 7.7.1.3. Sub programme SP3 – Research of environmental technologies

***Characteristics***

The sub programme "Research of environmental technologies" follows the long-term basic research direction "sustainable development (biological and ecological aspects in the sustainable development)" and the environmental aspects in the long-term research direction "energy resources (the support of long-term sustainable organisation of energy resources)". These basic research directions were approved in the Government Resolution No. 661 of 1 June 2005 on Long-term basic research directions. The sub programme focuses on the solution of the following problem groups:

- Production of power from renewable sources (e.g. the development and demonstration of technologies suitable for different regional conditions), the rational energy utilisation, and the assessment and verification of technologies from the environmental risk and life cycle points of view,
- Processing of biomass for the energy purposes, different kinds of bio-fuels, and lower $CO_2$ emissions,
- Optimising of the co-ordination of individual renewable resources within the combined application, the resource backups, and the increasing reliability of energy supplies.

***Research areas***

The programme consists of the following single research area:

- SP3g – Environmental technology, the rational energy utilisation, and renewable energy resources (OZE)

#### 7.7.1.4. Sub programme SP4 – Earth observation and the assessment instruments

***Characteristics***

The sub programme "Earth observation and the assessment instruments" follows the basic research direction "sustainable development" and the environmental aspects in the basic research direction "Information Society". These basic development directions have been approved of in the Government Resolution No. 661 of 1 June 2005 on the Long-term basic research directions. The sub programme focuses on the solution of the following problem groups:

- Earth observation: The development and integration of observation systems from the environmental questions and sustainability issues points of view (e.g. within the Global system of Earth observation – GEOSS), the inter-operations of systems and the optimising of information for the understanding, modelling and forecasting of environmental phenomena, new information and communication technologies, new systems and services in the areas of public interest, which increase the quality, effectiveness and access to the environmental information with the goal to support the sustainable development, to soften consequences of natural disasters and ecological accidents, and increase efficiency and openness of the state administration (see the research area "Inter-operations of systems and the optimising of information, including the research of applications for a better performance of the state administration and for the general accessibility of information").
- Forecasting methods and assessment instruments: The modelling of relations among the economy, the environment, and the society, including the market tools (the external factors, barriers, and the development of a knowledge base and methodologies for the assessment of impacts on the sustainability in key issues, for example, the soil utilisation, social and economic tension relating to the climatic changes), social-economic models, economic and social cohesiveness with regard to the protection of environment (see the research area "Methods of the forecasting and assessment instruments, including the modelling of economic and social relations within the sustainable development").

***Research areas***

The programme consists of the two following research areas:

- SP4h – Optimising of information, including the research of applications for a better performance and general accessibility of information
- SP4i – Methods and instruments for the forecasting and assessment, including the modelling of economic and social relations within the sustainable development.

### 7.7.2. CONTACT

**Ministerstvo životního prostředí (Ministry of Environment)**
Section of voluntary instruments
Department of research and development
Vršovická 65, 100 10 Praha 10
Tel.: 267 122 490 (Ing. Jiří Fereš)
E-mail: ***jiri.feres@env.cz***
***www.env.cz***

# 8. INTERNATIONAL CO-OPERATION OF THE CZECH REPUBLIC IN THE AREA OF RESEARCH AND DEVELOPMENT

According to the Act No. 21/1993 Col. (the so-called Competency Act), the Ministry of Education, Youth and Sports of the Czech Republic is responsible for the international co-operation in research and development, including the responsibility for the conclusion of relevant agreements. From the procedure point of view, international agreements in the area of research and development belong, in the Czech Republic, among those approved by the government of the Czech Republic in the form of a resolution and also by Parliament of the Czech Republic, for their ratification.

The international co-operation in research and development (IR&DC) is created as a long-term conception leading towards the development in the country prosperity by effects of the value added, which the international co-operation creates. Joint research or development projects or a participation in development work and the participation in international multilateral projects (activities) always make a base and the main part of the international co-operation in R&D.

The main priority of the Czech Republic is to be involved in research and development structures of the European Union, especially in the finalisation of the most effective participation in research and development framework programmes by EU and EURATOM, especially in the 6th Framework Programme of EU and in EURATOM – 2002–2006, and 2007–2013 the 7th EU Framework Programme and EURATOM, the participation in the creation and structuring of the European Research and Innovation Area, and the participation in the implementation of the so-called Lisbon strategy also belongs among the priorities. However, independent projects are also important, especially those of multilateral and bilateral co-operation selected for the financial support in public tenders, as well as the support of the participation in important international government and non government organisations.

Similarly as the National Research and Development Policy the policy in the area of international co-operation (which makes a part of the National Research and Development Policy as an independent sub programme) should also correspond with the policies of the EU member countries at least as much as it is required by the EU legislature. It relates especially to the application of Article 169 in the European Union Agreement, in the Amsterdam wording, which allows the European Community to design, together with the member countries, European research and development programmes and to participate in their funding and contribute, in this way, to the co-ordination of national research and development policies. In order to achieve the required level of integration in the area of research and development within EU, it is required to progress in accordance with general procedures used in advanced EU countries and to achieve the legislative environment, which would support this integration as much as possible.

Apart from the European area of advanced countries, the created IR&DC policy should consider also the legislative environment existing in other Central European countries as well as the R&D policy in USA, Canada and in the advanced countries in Asia.

The current possibilities in the involvement in programmes of international co-operation in the area of research and development will be described within the following division:

- European Research and Innovation Area (8.1)
- Framework EU programmes in the area of research and development and Euratom (8.2)
- Liaison Information Office of the Czech Republic in Brussels – CZELO (8.3)
- Research Fund for Coal and Steel – (8.4.)
- Competitiveness and Innovation Framework Programme for the 2007–2013 (8.5.)
- International co-operation within EU – ISTC, STCU (8.6.)
- Multilateral intergovernmental co-operation (8.7.)
- Other multilateral co-operation (8.8.)
- Bilateral co-operation (8.9.)
- Support of IR&DC projects by MEYS (8.10.)

## 8.1. EUROPEAN RESEARCH AND INNOVATION AREA

The European Research and Innovation Area (ERA) was created by the decision of the European Council and its basic idea was to create the unified European area for research and development, which should help in the achievement of better cohesion in this field and to contribute to better competitiveness of Europe, when compared with USA and some Asian countries. The idea has been based on the fact that research and development expenditures have been declining in Europe as well as the investments in research. Careers of scientific or research workers have not been attractive life or work goals and the participation of women in research has been also unsatisfactory. Rare research resources have not been always used for the society benefit and there have been still some ethical problems occurring in science (e.g. the research of embryonic master cells). The founding of the European Research Area should help in resolving these issues. This new environment gives the opportunity for the occurrence of proposals of new framework programmes. ERA covers framework programmes, national policies of the member EU countries, their co-ordination, and European research organisations. This all should result in a real European science and research policy. The most important thing is the fact that framework programmes are established with the objective to contribute to the creation of the European Research and Innovation Area – ERA. The European Research and Innovation Area, its structuring and strengthening should contribute to better quality of life in the European Union and in Europe generally by the fact that the European competitiveness would increase, when compared with USA and Japan. This should be achieved by the better utilisation of funds invested in research and development (not only the public ones, but especially the private funds, incl. Private-Public Partnership) and by the increased efficiency of research and development and by the support of the research infrastructure. The Lisbon Strategy, commencing in 2000, should contribute to these objectives. Its goal is the “fast creation of the European Research and Innovation Area, while sustainable economic growth and social cohesiveness are considered. The final objective is to make the Union the most competitive and dynamic economy based on knowledge by 2010”. The Lisbon Strategy resulted in the so-called

Barcelona Objective – to achieve that the share of research and development expenditures should become equal in EU to 3 % of GDP by 2010 (1 % should come from the public sources, while 2 % should come from the private sector).

## 8.2. FRAMEWORK EU PROGRAMMES IN THE AREA OF RESEARCH AND DEVELOPMENT, AND EURATOM

### 8.2.1. GENERAL CONNECTION BETWEEN THE IMPORTANCE AND THE BENEFIT OF THE CZECH REPUBLIC PARTICIPATION IN FRAMEWORK PROGRAMMES FOR THE SCIENCE AND TECHNOLOGY

The co-operation in the area of research and development within the European Union takes place on the basis of the so-called framework programmes. Their creation and funding have been established even in the Agreement on the European Union. The EC framework programme is based on the Chapter XVIII in the European Union Agreement, and on Articles 163 and 171. The 6th Framework Programme of the European Community has been in place since 2002, as well as the programme EURATOM, which should finish in 2006. The 7th Framework Programme will start in 2007. The Directorate General for "Research and Innovation" within the European Commission is the main gestor of the co-operation.

A lot of attention was turned to the 6th Framework Programme in past issues of the "Guide". In this issue will provide basic information on the 7th Framework EU Programme. Parties, interested in the actual information about the 7th Framework Programme, should visit the Internet address: ***www.7rp.cz*** or ***http://cordis.europa.eu/fp7***.

### 8.2.2. 7th FRAMEWORK EU PROGRAMME

The proposed 7th Framework Programme was presented to the EU Council in April 2005 in the form of a Proposal of the Decision by European Parliament and the Council on the 7th Framework Programme of the European Community related to research, development, and demonstrations. The Proposal was discussed in all EU bodies and approved of in the so-called Partial General Approach (i.e. without the budgetary consequences) by the Competition Council in November 2005. The Proposal will be further discussed in bodies of the European Parliament. It is assumed that all approving procedures should be finalised at the date, which would allow for the first calls on project proposals filing at the beginning of 2007. Whereas the so-called financial perspective of EU for the period 2007–2013 (the budget) has been approved in the second half of December 2005, the budgetary information on framework programmes show the intention of the European Commission – 72 726 million euros. The final approved budget of the 7th Framework Programme is thus 53,272 million euros, and that has been distributed as follows: 7th FP ES 50,520 million euros and 7th FP EURATOM – 2,751 million euros. The contents of the 7th FP are in the document European Commission COM (2005), 119, the final of 6 April 2005. At the same time, there have been also proposals of specific programmes and rules for the participation of the Joint Research Centre (JRC) – direct actions in the nuclear and non nuclear areas, made public. The first calls on presentation of project proposals were announced on 22 December 2006.

#### 8.2.2.1. Structure of the 7th Framework EU Programme

The 7th Framework EU Programme has been divided, according to the approved proposal and the contents, into four areas: **Co-operation, Ideas, Capacities, and People**.

***Co-operation:*** This will include own research activities and it relates to the entire area of research activities taking place within the transnational co-operation. There are the following priorities:

- Health, food, agriculture, and biotechnology
- Information and communication technologies
- Nanoscience, nanotechnologies, materials, and new manufacturing technologies
- Energy
- Environment (including changes in the climate)
- Transport (including aeronautics)
- Social-economic science and humanities
- Safety
- Space.

***Ideas:*** It is the support of the basic (border) research of the "investigator-driven" – the bottom up – research implemented in all disciplines by individual or trans-national teams. It should make a base for the applied research and innovation on the "bottom up" principle and for the establishment of the European Research Council.

***Capacities:*** There will be the key aspects of European research and innovation capacities like, for example, research infrastructures, clusters at the regional level, and the development of the full potential of the convergence within the Community and in outside regions supported. It will be also the support of research done for the benefit of small and medium-size enterprises, the development of relations between science and the society, the development of policy coherences, and horizontal activities within the international co-operation. European research infrastructures, their construction and operations will be also supported within this part of the Framework EU Programme. The Strategic forum for research infrastructures published the so-called travelling map for research infrastructures in autumn 2006.

***People:*** This is about the strengthening of the quantitative and qualitative aspects of the human potential in research and technical development in Europe. It will be the support of human resources in research and development, including the support of researchers' careers, the support of young researchers and women working in research. This will include also the Marie Curie activities.

#### 8.2.2.2. Participation rules and instruments in the 7th Framework EU Programme

All topics will be implemented through the following: Collaborative research, Cooperative research, joint technological initiatives (JTI), co-ordination of research programmes, and the international co-operation. The following instruments will continue to be used for the support: "Grants for the integration" (the excellence networks) and "Grants supplementing the budgets" (the integrated projects). The European Commission does not define categories of the recognised costs anymore. Teams gain funds for project solutions in the form of advances to eliminate delays, which were

the feature of payments done by the European Commission within 5th FP. Partnership changes in solutions (additional partners or leavings) can be decided directly by partners without the prior approval by the Commission. The European research organisations (e.g. CERN, ESA, EMBOP, etc.) will be considered legal persons from the member countries. The rights related to the intellectual property will be formulated directly by the partners in the so-called Consortium Agreement, the conclusion of which makes one of the conditions on the gaining of a contribution by the European Commission. The funding category "Additional Costs" has been cancelled and only the category "Full costs" will be used in future.

**Who may participate?** The answer is each legal person. However, there will be the new countries (Croatia, and Turkey). They will participate under the same terms as those applying for the member countries. International European organisations will be considered the member countries.

**The minimal number of partners will be as follows:** Three partners for integrated projects and for the networks of top workplaces – two of them must be from the EU member countries or associated countries. In other cases: Two partners – one participant must be from the member or associated country. The participation of a single participant is possible in the case of scholarships and specific supporting activities. The minimal number of participants can increase in work programmes.

The following instruments will be utilised in the implementation of the framework programmes:

– **Workplaces' integration in the form of Network of Excellence** (it has been stressed that they do not have to be top workplaces at the beginning, but the "excellence" occurs through their integration). The "Network of Excellence" instrument will be implemented in the form of joint programmes covering a part or all research capacities of the participants in the given area with the objective to achieve the critical level of expertise and the European value added. The joint programmes can be focussed on the creation of independent virtual centres. The objective is to achieve a significant integration of research capacities and long-term and multi-disciplinary goals. The networks will be implemented with the aid of joint activity programmes. There should top virtual centres occur. It would be also beneficial if a certain level of autonomy management were achieved with the aid of the progressive integration of work programmes. This all will be based on calls on the project proposals presentation.

– **Integrated projects** must include a number of parts of the form of activities, the size and structure of which can change, according to task kinds. The integrated projects must include research, technical development and/or demonstration activities supporting innovations. The integrated projects should support competitiveness or they should focus on main social needs. The integrated projects should result in usable products, processes, or services. This all should be running within a significant autonomy of solution consortia. The implementation will take place on the basis of general financial plans.

– **The ERA-NET and ERA-NET + network scheme.** They are jointly implemented programmes (the joint implementation of national or regional programmes – Article 169 in the Agreement), e.g. with the aid of harmonized work programmes, joint or co-ordinated calls on the project proposal presentations. Specific implementation structures will be important for the implementation. This instrument can be utilised

in all activities within the framework programmes.

- Specific target-oriented research projects (STREP)
- Research and technological projects, demonstration projects, and classical projects
- Specific research projects for small and medium-size enterprises (MSE) (the co--operation research)
- Collective research projects for consortia of small and medium-size enterprises
- Support and development actions related to human resources and the mobility
- Co-ordination actions
- Specific support actions
- Integrated initiatives in the infrastructure
- Community participation in programmes organised by several member countries (Article 169 in the Agreement).

The new instruments – Excellence Networks, integrated projects and jointly implemented programmes – will be used immediately from the start of framework programmes as the priority instruments. However, traditional mechanisms are also maintained – specifically targeted research projects (STREP) and co-ordination actions.

### 8.2.3. 7th FRAMEWORK PROGRAMME EURATOM

The European Commission presented the proposal of the 7th Framework Programme EURATOM in April 2005 similarly as the 7th Framework EU Programme. However, it has been for the period 2007–2011. The Framework Programme EURATOM was not subjected to the joint decision of the European Parliament and the Council. It was decided by the Council only. With regard to the budget, the same information, as presented for the Framework EU Programme, applies also on the Framework Programme EURATOM – the originally proposed budget – Framework Programme EURATOM: 4,734.621 million euros and after modification 2,751 million euros.

#### 8.2.3.1. *Structure of the 7th Framework Programme EURATOM*

The implementation of the programme assumes a significant simplification. The programme should cover one specific programme and direct actions by joint research centres.

**The specific programme "Nuclear research and education"**

- **Topical priority "Research of the energy from the nuclear fusion"**

The objective is to develop the knowledge base for ITER (International Thermonuclear Experimental Reactor) and to implement ITER as the safe prototype reactor for power plants. The priority will cover the following activities: Implementation of ITER, the research of the preparation of ITER operations, technological activities within the DEMO preparation, the research activities of the long-term character, human resources, education and training, the infrastructure, and the responses to possible not envisaged political aspects. There has been an agreement on the founding of the international organisation ITER, as an independent legal person, concluded. The agreement participants are EU, USA, Japan, the Russian Federation, India, and the Korean Republic.

- **Topical priority "Nuclear fission and the protection against radiation"**

The objective is to support the safe utilisation of a nuclear fission and of other radiation utilisations in the industry and medicine. The priority will cover activities within the following areas: Management of the radioactive waste, reactor systems, the protection against radiation, the support of the infrastructure for the research and access, human resources and training, including the support of mobility.

**Direct actions by Joint Research Centres (JRC)**

In the consequence of the Lisbon Agenda and requests by many clients, JRC will organise significant effort in the area of education, training, and knowledge dissemination. JRC will implement research activities in the areas related to the waste management, the impact on the environment, and also traditionally in the area of the nuclear safety.

### 8.2.4. FRAMEWORK PROGRAMME COMMITTEES – PROGRAMME COMMITTEES AND NATIONAL CONTACT POINTS

Similarly as in the previous framework programmes, the member countries (and also the associated countries up to a certain level) participate in the programme management, mostly within a number of permanent or ad hoc committees and expert groups. Among those most important ones, they are the so-called Programme Committees – PC. The Programme Committees participate, together with the European Commission, in the creation and updating of work programmes within individual topical priorities. They also deal with calls on the presentation of project proposals and the members are informed about the project evaluation results, or they are consulted in some disputable or consultation worth cases of decision-making on the acceptance or refusal of project proposals (the European Commission legally decides on proposals and on the conclusion of contracts related to project solutions).

The structure of the Programme Committees follows the topical structure of the framework programmes. In the case of the 7th Framework Programme, on the basis of discussions between the Research and Development Council and MEYS and after receiving proposals by the Czech conference of university Chancellors, the Academy of Sciences of the Czech Republic, the Association of research organisations, and the University Council, the following scientists and research workers were appointed (the appointments are within the exclusive authority of the member countries and each Programme Committee has got one proper member and a deputy; The following Table does not present the scientific and pedagogic titles to make it simple).

*Table No. VI Members of the Programme Committees within 7th FP*

| Programme Committee | Name of PC member | Workplace | E-mail |
|---|---|---|---|
| **Cooperation** | Vladimír Albrecht | TC AV CR | albrecht@tc.cz |
| Cooperation/Health | Pavel Anzelbacher | UP Olomouc | anzen@upol.cz |
| Cooperation/Health | Radim Šrám | ÚEM AV CR | sram@biomed.cas.cz |
| Cooperation/Food | Peter Šebo | MBÚ AV CR | sebo@biomed.cas.cz |
| Cooperation/Food | Jana Hajšlová | VŠCHT Praha | jana.hajslova@vscht.cz |
| Cooperation/ICT | Jiří Kadlec | ÚTIA AV CR | kadlec@utia.cas.cz |
| Cooperation/ICT | František Plášil | UK-MFF | plasil@nenya.ms.mff.cuni.cz |
| Cooperation/NANO | Karel Šperlink | AIP CR | sperlink@aipcr.cz |
| Cooperation/NANO | Ivan Stibor | VŠCHT Praha | stibor@vscht.cz |
| Cooperation/Energy | František Pazdera | ÚJV Řež | paz@ujv.cz |
| Cooperation/Energy | František Hrdlička | ČVUT-FS | frantisek.hrdlicka@cvut.cz |
| Cooperation/Environment | Bořivoj Šarapatka | UP Olomouxc | borivoj.sarapatka@tunw.upol.cz |
| Cooperation/Environment | Miroslav Punčochář | ÚCHP AV CR | punc@icpf.cas.cz |
| Cooperation/Transport | Libor Beneš | University Pardubice | Libor.benes@upce.cz |
| Cooperation/Transport | Václav Fencl | Transport research centre Brno | fencl@cdv.cz |
| Cooperation/SOCIO | Ladislav Rabušič | MU-FSS Brno | rabu@fss.muni.cz |
| Cooperation/SOCIO | Petr Kratochvíl | AV CR | scicounc@kav.cas.cz |
| Cooperation/Security | Václav Jírovský | UK-MFF | jirovsky@ksi.ms.mff.cuni.cz |
| Cooperation/Space | Jan Kolář | ČVUT-FSv | kolar@fsv.cvut.cz |
| **Ideas** | Jan Hrušák<br>Jaroslav Koča | AV CR<br>MU-PřF | hrusak@kav.cas.cz<br>jkoca@chemi.muni.cz |
| **People** | Zuzana Došlá<br>František Turnovec | MU-PřF<br>UK-FSV | dosla@math.muni.cz<br>turnovec@mbox.fsv.cuni.cz |
| **Capacities**/Research infrastructures | Jan Palouš | AV CR | palous@kav.cas.cz |
| Capacities/Research infrastructures | Stanislav Kozubek | BFÚ AV CR | kozubek@ibp.cz |
| Capacities/Research for MSP | Miroslav Janeček | AVO | avo@avo.cz |
| Capacities/Research for MSP | Petr Porák | MPO Praha | porak@mpo.cz |
| Capacities/Regional knowledge | Václav Sklenička | ÚFM AV CR | sklen@ipm.cz |
| Capacities/Regional knowledge | Mikuláš Bek | MU-Fil.fakulta | prorektor.strat@muni.cz |
| Capacities/Science in the society | Adolf Filáček | FÚ AV CR | filacek@kav.cas.cz |
| Capacities/Science in the society | Jiří Kulhavý | MZLU Brno | kulhavy@mendelu.cz |
| Capacities/International cooperation | Ivan Netuka | UK-MFF | ivan.netuka@mff.cuni.cz |
| **EURATOM**/Fusion | Petr Chráska | ÚFP AV CR | chraska@ipp.cas.cz |
| EURATOM/Fusion | Milan Tichý | UK-MFF | milan.tichy@mff.cuni.cz |
| EURATOM/Fission | Ivo Váša | ÚJV Řež | vas@ujv.cz |
| EURATOM/Fission | Ladislav Musílek | ČVUT Praha | musilek@vc.cvut.cz |
| Legal and financial contact point | Vladimít Albrecht | TC AV CR | albrecht@tc.cz |
| Mobility | Emil Kraemer | TC AV CR | kraemer@tc.cz |
| JRC | Naďa Koníčková | TC AV CR | konickova@tc.cz |

### 8.2.5. INFORMATION TREATMENT OF THE FRAMEWORK PROGRAMMES

The management of this extensive and complex research and development programme – the Framework EU Programmes – must get an information background.

Information materials are printed, but they are also available on the Internet. The well-known information periodical publications are as follows:

RTD Info (Magazine for European Research) issued monthly. It is also accessible on-line at the address ***http://europa.eu.int/comm/research/rtdinfo.html***.

CORDIS focus published fortnightly. It is also accessible on-line at the address ***http://cordis.europa.eu/focus***.

The most extensive and probably the best electronic information system, covering research and development in Europe, is CORDIS (Community Research and Development Information Service) – ***http://cordis.europa.eu***.

A new web Articles on Innovation (***http://aoi.cordis.lu***) has been established for the information about innovations at the beginning of 2005.

ECHO – the journal for the European research, development, and innovation. It has been published by the Technological Centre of AS CR since August 2004. It is published six times in a year and it is also accessible on-line at the address ***www.tc.cz***.

There was the National Contact Organisation – Technological Centre of AS CR, appointed for the 6th Framework Programme and we assume that this will happen also in the case of the 7th Framework Programme. Detailed information on the role of the National Contact Organisation was presented in past issues of the "Guide" and it is also accessible at ***www.6rp.cz***.

#### 8.2.5.1. National Information Centre for the European Research (NICER)

NICER is a project by the Technological Centre of the Academy of Science of the Czech Republic (OK 448) providing for the complex support of Czech workplaces in their involvement in the European Research Area (ERA).

The Technological centre of AS CR procures within the NICER project the following activities:

- Activities of National Contact Personnel (NCP) for the 7th Framework EU Programme, who organise mass information and training actions related to the 7th FP and provide for professional consulting to individual teams, which participate in preparation and solution of specific 7th FP projects. Special attention is paid to small and medium-size enterprises,
- Management of the financial system supporting the preparation of big 7th FP projects,
- Publishing of ECHO – bimonthly journal focussed on information about ERA and the publishing of publications focussed on the 7th FP issues,
- Operations of the CzechRTD.info portal informing foreign workplaces about research and development structures in the Czech Republic. It also enables Czech teams to publicise suggestions of the European co-operation in specific areas of research, development, and innovation (***www.czechrtd.info.cz***),
- It is interconnected, through NCP activities, with the European National Contact Points' Network for the 7th FP and with the National Information Network

NINET and other contact places in the Czech Republic. It thus contributes to the creation of relations between the local workplaces and ERA,

- Co-operation with the European Commission and with Czech representatives in programme committees within the 7th FP and in the COST programme.

For more detailed information, see ***www.nicer.cz***.

### 8.2.5.2. Czech National Information Network for the framework EU programmes – NINET

The national information infrastructure for the 6th Framework EU Programme NINET (National Information NETwork) has become active during 2000 in order to ensure the successful participation of the Czech Republic in projects of the international co-operation in R&D. NINET is currently the Czech National Information Network for the framework EU programmes, which associates regional and professional contact organisations in the Czech Republic. The objective of the NINET network is the provision of information and consulting services, especially related to the research and development framework EU programmes. The network is financially supported by MEYS resources. For further information see ***www.ninet.cz***.

NINET associates regional contact organisations (RKO) and professional contact organisations (OKO). Their list is presented in **Table VII**.

***Table VII. – National Information Centre for European Research, RKO and OKO***

| **National Information Centre for European Research (NICER)** | | |
|---|---|---|
| Praha | **Technological Centre AS CR**<br>Rozvojová 135<br>160 28 Praha 6 | **RNDr. Vladimír Albrecht, CSc.**<br>tel.: +420 234 006 106<br>fax: +420 220 921 217<br>e-mail: albrecht@tc.cas.cz |
| **Regional Contact Organisations (RKO)** | | |
| Brno | **Brno University of Technology**<br>Antonínská 1<br>601 90 Brno | **Prof. RNDr. Jan Vrbka, DrSc.**<br>tel.: 541 145 209<br>e-mail: vrbka@ro.vutbr.cz |
| České Budějovice | **Institute of Systemic Biology and Ecology of AS CR**<br>Poříčí 3b, 603 00 Brno | **Prof. RNDr. Michal Marek, DrSc.**<br>tel.: 602 545 221<br>e-mail: emarek@brno.cas.cz |
| Liberec | **Research Institute of Textile Machines Ltd.,** U Jezu 4<br>461 19 Liberec | **Ing. Jaromír Ficek**<br>tel.: 485 302 486<br>e-mail: jaromir.ficek@vuts.cz |
| Most | **Research Institute of Brown Coal Ltd.**<br>Budovatelů 2830<br>434 37 Most | **Ing. Miroslav Seidl**<br>tel.: 476 208 602<br>e-mail: seidl@vuhu.cz |
| Ostrava | **BIC Ostrava, s.r.o.**<br>Mostárenská 38<br>703 00 Ostrava-Vítkovice | **Ing. Marek Valdmann**<br>tel.: 595 957 458<br>e-mail: valdman@bicova.cz |

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| Pardubice | **VÚOS, a.s. Pardubice**<br>(Research Institute of Organic Syntheses)<br>532 18 Pardubice 20<br>Rybitví 296-CETA | **Ing. Vratislav Černý**<br>tel.: 466 825 646<br>e-mail: vratislav.cerny@vuosas.cz |
| Plzeň | **University of West Bohemia in Plzeň**<br>Department of management, innovation, and projects<br>Husova 11, 306 14 Plzeň | **Ing. Jiří Vacek**<br>tel.: 377 633 204<br>e-mail: vacekj@kip.zcu.cz |
| Olomouc | **Palacky University in Olomouc**<br>Křížkovského 8<br>771 47 Olomouc | **Mgr. Hana Štoselová**<br>tel.: 585 631 400<br>e-mail: stoselo@risc.upol.cz |
| Praha | **ČVUT Praha**<br>Enterprising and Innovation Centre<br>Plzeňská 221/130<br>150 00 Praha 5 | **RNDr. Milan Press**<br>tel.: 257 199 912<br>e-mail: press@tic.cvut.cz |
| **Professional Contact Organisations (OKO)** | | |
| Praha | **Confederation of Industry and Transport of the Czech Republic**<br>Mikulandská 7<br>113 61 Praha 1 | **Ing. Stanislav Lička, CSc.**<br>tel.: 224 934 843<br>e-mail: slicka@spcr.cz |
| Praha | **Czech Society for New Materials and Technologies**<br>Novotného lávka 5<br>116 68 Praha 1 | **Doc. Ing. Karel Šperlink, CSc.**<br>tel.: 221 082 326<br>e-mail: sperlink@aipcr.cz |
| Praha | **Nuclear Research Institute in Řež Ltd.**<br>250 68 Řež | **Prof. Ing. František Klik, CSc.**<br>tel.: 266 172 000<br>e-mail: Kli@nri.cz; kli@ujv.cz |
| Praha | **Aircraft Research and Testing Institute Ltd.**<br>Beranových 130<br>199 05 Praha | **Ing. Karel Paiger**<br>tel.: 225 115 332<br>e-mail: paiger@vzlu.cz |
| Praha | **Sociology Institute of AS CR**<br>Jilská 1<br>110 00 Praha 1 | **PhDr. Marcela Linková**<br>tel.: 222 222 322<br>e-mail: marcela@zenyaveda.cz |
| Prah | **Association of Research Organisations**<br>Novodvorská 994<br>142 21 Praha 4 | **Ing. Václav Neumajer**<br>tel.: 239 041 998<br>e-mail: avo@avo.cz |
| Praha | **Engineering Academy of the Czech Republic**<br>Národní 3<br>117 00 Praha 1 | **Ing. Ivan Dobiáš, DrSc.**<br>tel.: 286 890 383, 286 890 391<br>e-mail: idob@it.cas.cz |
| Praha | **Institute of Theory of Information and Automation of AS CR**<br>Pod vodárenskou věží 4<br>182 08 Praha 8 | **Ing. Jiří Kadlec, CSc.**<br>tel.: 266 052 216<br>e-mail: kadlec@utia.cas.cz |

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| Brno | **VIP park.cz, s.r.o.**<br>Bulharská 37<br>612 00 Brno | **Ing. Vlastimil Veselý**<br>tel.: 541 147 250<br>e-mail: vesely@park.cz |
| Praha | **Engineering Academy of the Czech Republic**<br>Národní 3<br>117 20 Praha 1 | **Prof. Ing. Vladimír Kučera, DrSc.**<br>tel.: 224 310 386<br>e-mail: kucera@fel.cvut.cz |
| Praha | **BIC Brno**<br>Příkop 4<br>602 00 Brno | **Ing. Vít Hřiba**<br>tel.: 545 176 130<br>e-mail: bicbrno@bicbrno.cz,<br>circ.rko@bicbrno.cz. |
| Praha | **Charles University in Praha – MICEP**<br>Karlovo nám. 4 – Faustův dům<br>120 00 Praha 2 | **Doc. Ing. Miloslav Špunda, CSc.**<br>tel.: 224 962 846<br>e-mail: spunda@cuni.cz |
| Praha | **CZELO. Czech Liaison Office for R&D**<br>Bastion Tower, Level 21<br>Place du Champs de Mars 5 | **RNDr. Ivo Šanc, CSc.**<br>tel.: +32 (0) 2550 3785<br>mobil: +32 (0) 478 804 498 |
| Praha | **Centre of Joint Activities of AS CR**<br>Národní 3<br>110 00 Praha 1 | **Jindra Emmerová**<br>tel.: 221 403 249<br>e-mail: emmerova@kav.cas.cz |
| Praha | **Institute of Chemical Technology**<br>Technická 5<br>166 28 Praha 6 | **Anna Mittnerová**<br>tel.: 220 443 675<br>e-mail: anna.mittnerova@vscht.cz |
| Praha | **Caneton, s.r.o.**<br>Vinohradská 100<br>130 00 Praha 3 | **Stanislav Štěpánek**<br>tel.: 267 311 032<br>e-mail: stepanek@ceskahlava.cz |

### 8.2.6. CONTACTS IN THE CZECH REPUBLIC

The place of contact and the information resource for framework programmes in the Czech Republic:

**Technologické centrum AV ČR**
**(Technological Centre AS CR)**
Rozvojová 135, 165 02 Praha 6
Tel.: +420 234 006 100
Fax: +420 220 921 217, +420 220 922 698
e-mail: ***techno@tc.cas.cz***

**RNDr. Miloš Chvojka, CSc**
**Odbor mezinárodní spolupráce ve výzkumu a vývoji MŠMT ČR**
**(Department of the international co-operation in research and development of MEYS CR)**
Karmelitská 7, 118 12 Praha 1
Tel.: +420 257 193 511
Fax: +420 257 193 713
e-mail: ***milos.chvojka@msmt.cz***

## 8.3. LIAISON INFORMATION OFFICE OF THE CZECH REPUBLIC IN BRUSSELS – CZELO

There has been a Liaison Office of the Czech Republic, the so-called CZELO, established in Brussels in 2005. This office should improve the information flow between the European Commission and the Czech research professionals. Many other member countries have got similar offices in Brussels. The address of the office is as follows: Czech Liaison Office for R&D, Bastion Tower, Level 21, 5, Place du Champ de Mars, B-1050 Brussels, Belgium. The Office Manager is Dr. Ivo Šanc, CSc – Tel.: +322 550 3785, e-mail: ***sanc@tc.cas.cz***. CZELO is a project by the Technological Centre of AS CR supported by MEYS. The main task of CZELO is to help in the successful involvement of the Czech research in the European research co-operation, especially through framework programmes. The office provides for services to researchers from all different areas and research organisations in the Czech Republic. For further information, see the web: ***www.czelo.cz***.

## 8.4. RESEARCH FUND FOR COAL AND STEEL

The Czech Republic after the accession to the European Union has become automatically also a member of the European Society of Coal and Steel. The original focus of the Society progressively transferred basically to the research programme in the area of coal and steel. The gestor of the Czech membership in the Society is MIT and MEYS. The representatives of the Czech Republic in the Scientific and Technical Committee of the Society are Prof. J. Purmenský, DrSc. – Vítkovice výzkum (research), s.r.o., Ostrava and Ing. Zdeněk Urban (Ministry of Industry and Trade).

The Research Fund for Coal and Steel, founded at the beginning of 2003, distributes about 60 million euros a year and this sum will probably slightly increase, when the member countries would provide for contributions to the equity created during the existence of the European Society for Coal and Steel. The Fund makes a supplement to the EU framework programmes with similar global objectives (competitiveness, sustainable development, and the co-operation of the industry with the research sector). The call by the Fund on presentation of project proposals is permanent and the deadline is on 15 September every year. In the case of a positive result of the project assessment, the resources could be used for the coverage of 40 % costs of pilot and demonstration projects, 60 % research projects, and 100 % accompanying provisions (the mobility, conferences, etc.).

Additional information is at ***http://cordis.europa.eu/coal-steel-rtd/home.html***.

## 8.5. COMPETITIVENESS AND INNOVATION FRAMEWORK PROGRAM 2007–2013 – CIP

The first CIP programme is the coherent and integrated feedback from the objectives in the renewed Lisbon strategy. It will take place in the period 2007–2013 and the planned budget should be about 3.6 billion euros. CIP consists of the three specific programmes:

- Programme for the enterprising and innovation
- Support programme for the information and communication policy
- Programme for the intelligent energy industry in Europe

Its focus on the ecological innovations will be monitored across the board of the programme. CIP is one of the main programmes of the European Commission and it will run in parallel and in co-ordination with big programmes covering the topics like the cohesive activities, research, technological development, demonstration activities, and life-long education. The programme has been approved by the European Parliament on 24 October 2006. More detailed information is accessible at ***http://ec.europa.eu/enterprise/enterprise-policy/cip/com121_en.pdf***., where the entire programme is described in the communication by the European Commission COM (2005) 121.

## 8.6. INTERNATIONAL CO-OPERATION WITHIN EU – STCU, ISTC

The support of research and development in the Russian Federation and in Ukraine belongs among the activities of international co-operation in research and development by EU. They are the two agreements establishing the so-called International Science and Technology Centre in the Russian Federation and the Science and Technology Centre in Ukraine. These workplaces organise the scientific and technological co-operation among workplaces of the EU member countries (the so-called ISTC and STCU partnerships) and with the Russian Federation and Ukraine. Additional information is presented on the web pages of the Research Directorate of the European Commission (e.g. ***http://ec.europa.eu/research/nis/en/istc.html***).

## 8.7. MULTILATERAL GOVERNMENT CO-OPERATION

### 8.7.1. PROGRAMME COST

COST (European Co-operation in the Field of Scientific and Technical Research) is the European multilateral co-operation in the area of research and development focussed on the exploratory and applied research. The Czech Republic has become a member of COST in 1993. COST co-ordinates research and development with the so-called Actions, in which scientific and research workers from COST member countries can become involved with their own projects. The rule of the organisation and work in the COST programme is the use of the "bottom-up" principle. The actions are proposed by scientific and research workers. The top managing body is the Committee of High COST Representatives, in which all member countries of COST, the European Commission, the EU Council (its secretariat), and the European Science Foundation are represented. The top body of COST is the Congress of the member countries' ministers responsible for research. The congresses are usually organised after the period of five years. The recent congresses were in Praha (1997) and in Croatian Dubrovnik in May 2003.

The total number of actions exceeded 200 in 2005 (the number changes during a year because some actions finalise, while some new ones start). About 40 000 scientists from 32 European member countries and 50 science-research institutes from 14 other countries participated in the work.

COST has closely co-operated with the European Science Foundation, on the basis of an agreement concluded between COST and ESF, since 2003. ESF had received, on the basis of the project, funds from the 6th Framework Programme for the support of COST Office (the address of the COST Office: COST Office, 149 Avenue Louise, 1050 Brussels, Belgium, Office Director is Dr. Martin Grabert, Tel.: +322 533 3810, Fax: +322 533 3893, e-mail: ***mgrabert@cost.esf.org***, the COST Secretariat is supported by the General Secretariat of the EU Council) and other COST activities.

The selection of new activities currently takes place in two-round way with the support of the mechanism, which is called "open call". There are any topics presented during the first round (on the announced date – see the web pages COST) as the so-called expression of interest and these suggestions are assessed by domain committees. The selected proposals are then expanded into full proposals. The full proposals are assessed by independent experts. The success rate was about 5 % in the first announced "open call".

Management Committees of the Actions: The actions are co-ordinated by the so-called Management Committees. These committees include representatives of the member countries, which have accessed an action in the form of signing the so-called Memorandum of Understanding (see farther). The member countries participate in actions in the form of the so-called projects. When an action commences, the projects are assessed by the Technical Committee. The Management Committee decides on other application acceptation (after one year from the action commencement).

Domain Committees: There are the so-called Domain Committees (DC) established. The DC members (including experts) representing the Czech Republic make up the ad hoc COST Committee in the Czech Republic. The Committee deals with proposals and recommendations for the distribution of funds as subsidies for the COST projects for the given financial year and also the conception of scientific and also organisational activities within the participation of the Czech Republic in the COST programme.

The Domain Committees have been established in the following domains in June 2006:

1. Biomedicine and Molecular Biosciences – BMBS, a member of DV: Jaroslav Veselý, Olomouc
2. Food and Agriculture - F&A, a member of DV: Zdeněk Opatrný, Praha, the expert: Tomáš Vaněk, Brno
3. Forests, their Products and Services – FPS, a member of DV: Petr Kuklík, Praha, the expert: Bohumír Lomský, Praha
4. Materials, Physics and Nanosciences – PHYMANO, a member of DV: Jiří Švejcar, Brno, the experts: Václav Sklenička, Brno, Jarmila Kodymová
5. Chemistry and Molecular Science and Technologies – CHEMOL, a member of DV: Zdeněk Wimmer, the expert: Jaroslav Cihlář, Brno
6. Earth System Science and Environmental Management – ESSEM, a member of DV: Michal Marek, the expert: Petr Havránek
7. Information and Communication Technologies – ICT, a member of DV: Jan Šimša, Praha
8. Transport and Urban Development – TUD, a member of DV: Josef Mikulík, the experts: Olga Krištofíková, František Wald, Jan Spousta

9. Individuals, Society, Culture and Health – INSOCH, a member of DV: František Turnovec, the expert: Václav Beran.

In addition to the mentioned domains, there are COST activities taking place in the areas of nanotechnologies and bio-materials. There have been special working groups established for these areas.

Memorandum of Understanding (MoU): This is the document of the character of an international agreement, which, in the so-called Technical Annex, formulates actions from the professional and legal points of view. MoU binds the signatories, inter alia, to provide all results achieved during solutions to all other signatories of the relevant MoU. On behalf of the Czech Republic, the Memorandum is signed by the Manager of the Permanent Representation of the Czech Republic in the European Community on the basis of an authorisation by MEYS CR.

The participation in COST takes place in the form of accession to the existing COST action (especially at the action beginning) or in the form of a COST action proposal (the period between the filing of the proposal and the action approval is usually one year). Details are presented on the MEYS web pages related to the international co-operation in research and development and on the COST web.

The funding of research fundamentally takes place at a national level. COST does not have any funds for the research funding of its own. However, there are funds for the research co-ordination – the coverage of COST body meetings – reimbursements, the COST Office and Secretariat activities, and also the so-called Short Scientific Mission. The projects have been partly target-funded from the state budget of the Czech Republic since 1993. The funds are provided by MEYS on the basis of recommendations by the advisory COST body in the Czech Republic. The Management Committees of the COST actions assess the projects.

#### 8.7.1.1. Representation of the Czech Republic in the Committee of High Representatives of COST

**National COST Co-ordinator:**
RNDr. Miloš Chvojka, CSc.
Sekretariát COST v České republice, MŠMT ČR
(COST Secretariat in the Czech Republic, MEYS CR)
Karmelitská 7, 118 12 Praha 1
Tel.: 257 193 511, Fax: 257 193 713
e-mail: ***milos.chvojka@msmt.cz***

**Member of the Committee of High COST Representatives:**
Prof. RNDr. Jaroslav Cihlář, CSc.
Technická 2, 601 90 Brno
Tel.: 541 321 277, Fax: 541 211 309
e-mail: ***cihlar@umi.fme.vutbr.cz***

#### 8.7.1.2. Administrative management of the programme COST

The administrative management of the programme COST is organised by the Technological Centre of AS CR, Rozvojová 135, 165 02 Praha 6. The responsible person is Ing. Bedřich Pekárek, Tel.: 257 193 708, Fax: 257 193 713, e-mail: ***bedrich.pekarek@msmt.cz***, in co-operation with RNDr. Josef Janda (MEYS), Tel.: 257 193 720, Fax: 257 193 713, e-mail: ***josef.janda@msmt.cz***

#### 8.7.1.3. COST – Internet addresses

*www.cost.esf.org*
*www.msmt.cz*

### 8.7.2. PROGRAMME EUREKA – EUROPEAN CO-OPERATION IN THE AREA OF APPLIED AND INDUSTRIAL RESEARCH AND DEVELOPMENT

The programme EUREKA started in 1985 with the aim to support co-operation in between industrial businesses, research institutes and universities and to create, in this way, conditions for better technological advancement and performance of the European industry, to develop its common infrastructure, and to resolve problems related to more countries. The EUREKA projects serve civil purposes and they are focussed on the area of private and public sectors. Their outcomes are top products, technologies, and progressive services, which are the market competitive. The objective is the active involvement of research and development in market economy mechanisms. This means the necessity of the commercial utilisation of the research results.

The EUREKA programme neither determines any topical tasks, neither centralises funding and project selection. It is governed by the principle that proposals and initiatives must come from the bottom (the so-called bottom-up principle), from individual enterprises and research institutes, which are directly interested in the co-operation. That is the reason why total financial costs, project solution periods, the number of solvers, etc. are not limited.

EUREKA currently associates 33 European countries and the European Union is one of the regular members. From among the countries of the Central and Eastern Europe, the following countries are its members: The Czech Republic, Estonia, Croatia, Lithuania, Latvia, Hungary, Poland, Romania, Russia, the Slovak Republic, and Slovenia. The Czech Republic has become a regular member in 1995. There are organisation centres of the programme National Information Points (NIP) in the following countries, which have not been the regular members yet: Albania, Bulgaria, and Ukraine. The Czech Republic chairs the EUREKA programme from July 2005 to June 2006. Italy will chair the programme after the Czech Republic.

#### 8.7.2.1. EUREKA projects' focuses

Topical focuses of the projects have not been limited in principle and they imply from the priorities in the development of industries. The projects have been directed into the following areas:

- Information technologies
- Environment
- Biotechnology and Healthcare technologies
- New materials
- Robotics and Automation
- Communication technologies
- Transport
- Energy
- Lasers

#### 8.7.2.2. Preparations and the co-ordination of EUREKA solutions

A party interested in the project solution within the EUREKA programme can use one of the two possibilities. It can offer the necessary invention and a project topic with the objective to find other partners for the implementation, or it can apply for the solution of an approved project, if the party fulfils the requirements by the proposing party.

The quality preparation of an international project requires the period of 6–8 months. Each project is proposed and managed independently by the participants and it is subjected to minimal administration management.

Project proposals, on the relevant international forms, must be presented through the Secretariat of the National Programme Co-ordinator at any time during the year.

#### 8.7.2.3. Criteria of the EUREKA projects

- Co-operation of enterprises and research organisations from at least two member countries,
- Achievement of a recognised progress (the higher level innovation) in the technological and usable value of the developed product, technological process, or service,
- Perspectives in the market utilisation, financial profit from the project implementation,
- The solution and commercial project utilisation are determined for the civil sector,
- Project participants must have technological, financial and management capacities and competences for the solution.

#### 8.7.2.4. Funding of EUREKA projects

EUREKA does not create any financial fund supporting the project solutions. The participation in the projects is covered by the participants, but the co-operation within EUREKA allows for the fast accumulation of funds from private resources, subsidies, or loans from public funds because most member countries, including the Czech Republic, provide for funding possibilities, either from the public or other funds, supporting the participation in the EUREKA programme.

The government of the Czech Republic has decided on the funding support of the participation of industrial enterprises, research organisations and universities in the EUREKA project solutions and it provides funds from the state budget. The support of individual solutions can reach up 50 % of financial costs of the research part of solutions.

Applications for the support with state funds must be presented through the Secretariat of the National EUREKA Programme Co-ordinator.

#### 8.7.2.5. Organisational structure of the EUREKA programme

The EUREKA Programme Secretariat, of the registered address in Brussels, organises all necessary activities co-ordinating the EUREKA programme as, for example, the circulation of new projects, or looking for suitable foreign co-operation partners,

the publishing of information materials, and the administration of the public database. The EUREKA Secretariat pays its significant attention also to the protection of information, intellectual property, industrial rights, and standardisation.

The National Programme Co-ordinator manages activities of the EUREKA programme in individual member countries and organises all activities related to the programme. The Co-ordinator provides for all necessary information, consulting and advisory services, organises the international project assessments and transfers project proposals to the international network of the EUREKA programme. He also helps in the organisation of the financial support of project solutions.

The EUREKA Programme Council of the Czech Republic is also an advisory body of MEYS. Its members are independent experts from the industry and research. The Programme Council discusses new project proposals, in which Czech organisations participate, and presents its opinion on the presented requirements on the project co--funding from the state budget. The Programme Council members also supervise the projects, the solvers of which are Czech entities.

The governing board of the EUREKA programme is the Group of High Representatives. The Group consists of senior government officers from the member countries and a representative of the European Commission. This board is responsible for the preparation of the basic strategic documents, the exchange of information about possible co-operation areas in between the member countries, the approval of new project proposals, and the assignment of the EUREKA project status.

The highest body of the EUREKA programme is the Congress of Ministers. The Congress is attended by ministers of the member countries and a representative of the EU Commission, who are responsible for the area of research, development and technology. The Congress of Ministers decides on the development, focus and objectives of the programme and on the acceptance of new members.

#### *8.7.2.6. EUREKA – EUROSTARS*

EUROSTARS is a new European research and development programme, which belongs to the group of instruments utilising Article 169 in the Treaty and which provides for the chance of co-funding from the budget of the European Community. It means the support based on the EUREKA programme rules and on the utilisation of the bottom-up principle, together with the 7th Framework Programme, as understood in Article 169 of the Treaty. The objective of this programme is the creation of new project activities, in which international consortia would participate for the benefit of co-operating SME. They will mutually co-operate, but they will co-operate also with research organisations or big companies. The programme will support European SME, especially those with high potential of growth. It will create a new market presence and activities based on research and development results. That should allow for faster utilisation of new products, technologies, and services on the market. The programme was presented in the European Parliament on 21 November 2006.

The first contact point for getting information about the programme EUROSTARS is the national co-ordinator of the EUREKA programme.

#### 8.7.2.7. Contact addresses

National Programme Co-ordinator (NPC) of EUREKA in the Czech Republic

**Ing. Josef Martinec**
**Ministerstvo školstvi, mládeže a tělovýchovy**
**(Ministry of Education, Youth and Sports)**
Karmelitská 7, 118 12 Praha 1
Tel.: +420 257 193 512
Fax: +420 257 193 713
e-mail: ***josef.martinec@msmt.cz***

Member of the High Representatives' Group (HLG) in the programme EUREKA on behalf of the Czech Republic

**Doc. Ing. Karel Šperlink, CSc.**
Prezident Asociace inovačního podnikání ČR
**(President of the Association of Innovative Entrepreneurship of the Czech Republic)**
Novotného lávka 5, 116 68 Praha 1
Tel./Fax: +420 221 082 326
e-mail: ***sperlink@aipcr.cz***
***www.eureka.be***

### 8.7.3. SCIENTIFIC NATO PROGRAMMES (CIVIL RESEARCH)

The new phenomenon – terrorism – and especially the attack of 11 September 2001 has resulted in the new challenge for the scientific NATO programme – the effective involvement in the fight against the terrorism. Extensive discussions about the new mission and structure of the programme, which took place in 2002 and 2003, have brought a proposal of the new programme structure, which should better correspond with the current mission and objectives of the Alliance and which would also ensure more efficient utilisation of funds, thanks to the new way of funding. There was also the basic issue of the legitimacy of the civil scientific programme within the defensive military alliance discussed. The conclusions were unequivocal: Such a programme is legitimate, if it corresponds with the main current Alliance objectives – the defence against terrorism, the prevention of further security threats, and priorities of partner countries. The programme has been restructured in 2004 and the activities have followed the new structure since 2005. More detailed information about the restructured Scientific NATO Programme is available on the web "NATO Science Programme" at the address: ***www.nato.int/science***.

#### 8.7.3.1. Structure of the Science Programme

The change in the focus of the NATO Science Programme on security has required a complete fundamental programme restructuring. The new programme called "Security through Science" still focuses on making contacts among the scientific community of the NATO member countries and scientists in partner countries and the countries within the so-called Mediterranean Dialogue (the countries in North Africa, Israel, and Jordan). However, it requires, from the supported activities, to include security orientation. As it has been already mentioned in the introduction, the priority topics of the research will be selected within the following three main areas:

- Protection against terrorism
- Prevention of further security threats
- Priorities of the partner countries

The structure of advisory panels has been replaced in 2004 as follows:
- Chemistry / Biology / Physics (CBP) Panel
- Information and Communications Security (ICS) Panel
- Environmental Security (ESP) Panel
- Human and Societal Dynamics (HSD) Panel

#### 8.7.3.2. NATO Science Fellowships Programme

One of the sub programmes within the NATO Science Programme was the "Science Fellowships Programme" organised in a decentralised way through the national programmes of individual NATO member countries, i.e. each member country received a certain volume of funds, according to the beforehand determined key, and the national offices, authorised to administer the programme in the individual NATO member countries, then used them for the study stays of their researchers in other NATO member countries or partner countries, or for the support of study stays of scientists from the partner countries in the NATO member countries.

The newly focussed restructured programme has been fundamentally changed also in this area. The NATO Science Fellowships Programme will focus in future exclusively on the partner countries and will utilise new support forms, which should make the utilisation of funds more effective. The national programmes of the individual member countries have been finalised at the end of 2005 and the programme will be administered in the central way – in Brussels.

#### 8.7.3.3. Contacts and information

Milada Glogarová, prom. fyz. CSc., the Deputy Director of the Institute of Physics of AS CR, has been appointed the representative of the Czech Republic in the NATO Science Committee. She could be contacted at the following address:

**Milada Glogarová, prom. fyz. CSc.**
Deputy Director
Institute of Physics of AS CR
Na Slovance 2, 181 21 Praha 8
Tel.: 266 052 708
e-mail: ***glogar@fzu.cz***

Information could be accessed also at the following addresses:

***www.nato.int/science***
***www.msmt.cz***

### 8.7.4. CO-OPERATION WITH ESA

The European Space Agency (hereinafter called "ESA" only) is an international intergovernmental organisation for the development in the space research and of the space technologies, which was founded by the Treaty of 30 May 1975. The Treaty has become valid on 30 May 1980. ESA acts as an equal partner of other important space

agencies as, for example, the American NASA, Japanese NASDA, the Indian Agency, Russian Agency, and others. There are currently the following 14 European countries full ESA members: Belgium, Denmark, Finland, France, Ireland, Italy, Germany, the Netherlands, Norway, Austria, Spain, Sweden, Switzerland, and United Kingdom. A special position of a co-operating member has been given to Canada. In addition, ESA has concluded co-operation agreements with the other following European countries: with Hungary in 1991, Romania in 1992, Poland in 1994, and Portugal in 1996. ESA has concluded the Co-operation Agreement with the Czech Republic on 7 November 1996.

ESA has got its registered address in Paris, where the General Directorate and also the ESA Council – the top body of the organisation consisting of representatives of the member countries, are situated.

In addition to this address in Paris, the agency has got the following top equipped research centres:

The European Space Research and Technology Centre (ESTEC) placed in Noordwijk in the Netherlands. The Centre concentrates research in the areas of space physics and astronomy, micro-gravitation, telecommunications, and the Earth monitoring. The Space Science Directorate is also located in ESTEC, which is the biggest ESA research centre.

The European Space Operations Centre (ESOC) situated in Darmstadt in Germany organises activities of space objects on the orbit. ESOC manages operations of satellites, receives and processes data coming from different scientific experiments (e.g. scientific data, weather information, the Earth imagining, etc.).

The European Space Research Institute (ESRIN) is located in Frascati in Italy, close to Rome. ESRIN is responsible for solving the issues of data gaining, processing and distribution from satellite apparatuses determined for the Earth monitoring.

The European Astronauts Centre is situated in Köln am Rhine. It is responsible for the selection, the assessment of qualification capacities, and the organisation of training of future European astronauts.

The co-operation content is currently extensive and covers the most existing areas of the space research and its applications. Researchers co-operating with ESA have been given subsidies for projects on the basis of tenders announced within the CONTACT Programme since 1996.

Since 1997, there has been the Council for the Co-operation with ESA (RSE) working at MEYS. It has got experts for the following research areas: Space astronomy, space physics, the Earth monitoring, telecommunications and navigation, space biology and medicine, material processing, the engineering and the Earth segment, and the space legislature. The Council has been an advisory body of MEYS implementing this framework agreement and provisions agreed on by both contractual parties. The Council suggest the co-operation activity forms, assesses presented project proposals, monitors their fulfilment, and helps in dissemination of necessary information about the co-operation possibilities. The Council for the Co-operation with ESA has merged with the National Committee for the Space Research and Utilisation (founded by AS CR in 1998) in 2004. This single body has got clearly determined competences and it is now called the Council for Space Activities. It is an advisory body of MEYS

having the status approved by the Directive of the Minister of Education, Youth and Sports.

The framework agreement on the co-operation with ESA allows also for the training and gaining of practical experience by young scientists and post graduates directly in ESA research institutions. Written applications can be addressed to the Secretariat of the Czech Space Office – see farther. Similarly, the registration of a contact address of a workplace can be made free of charge within the official Catalogue of space institutions existing in Europe, which is published every year in Paris.

There has been an agreement on the accession of the Czech Republic to the programme PRODEX concluded in 2000. This scientific programme of the European Space Agency is open to participants from the member countries. The parties can apply for the participation in running projects, or propose their own projects. The funding of the Czech participation in the programme PRODEX has been based on the principle of "juste d'retour" – a contribution corresponding with the scope of the approved Czech participation increased by negligible administration costs. Parties, interested in the entry to this programme, should contact the Ministry of Education, Youth and Sports, or the Council for the Co-operation with ESA, where further information is available.

The ESA Council had adopted a Resolution on the establishment of a special programme for the European co-operating countries in 2001. It has got the working name PECS (the Plan for European Co-operating States) and it allowed for a wider scope of involvement in ESA activities also to perspective non member European countries (the Czech Republic, Hungary, Poland, and Romania) without the risk of over the top economic burden. The participating countries did not pay the member fee, but only a contribution at the level corresponding to their actual participation. They could also access industrial tenders announced by ESA.

The participation of the Czech Republic in ESA programmes envisages the financial contribution at the level of 1 million euros a year. The programme start was envisaged after the finalisation of legislative procedures by the Czech Republic and ESA. Consequently, after the signing of the Agreement on the European Co-operating State between the Czech Republic and ESA, which took place in November 2003, the Agreement had to be approved by both Houses of the Czech Parliament. This Agreement has replaced the previous treaty, concluded in 1996.

Tenders and ESA calls are available, in the best way, at ***www.czechspace.cz***.

#### 8.7.4.1. Contacts and information:

1) **EUROPEAN SPACE AGENCY**
   Headquarters:
   8-10 rue Mario Nikis
   F-75738 Paris Cedex
   FRANCE
   tel.: +33 (0) 1 53 69 76 54
   fax: +33 (0) 1 53 69 75 60/61/62
   ***www.esa.int***

2) **Czech Space Office**
Kateřinská 10
128 00 Praha 2
Tel.: +420 224 918 288
Fax: +420 224 914 121
e-mail: ***jan.kolar@czechspace.cz***
***www.czechspace.cz***

3) ***www.msmt.cz/***

## 8.8. OTHER MULTILATERAL CO-OPERATION

### 8.8.1. THE EUROPEAN SCIENCE FOUNDATION – ESF

ESF supports high quality scientific activities undertaken within the entire Europe. It is a European association of national organisations responsible for the funding support of scientific research (e.g. by grant agencies). The Foundation was founded in 1974 and it associated 78 member organisations in 2005 (scientific institutions, academies, grant agencies, etc.) from 30 countries. ESF is a non government institution, despite the fact that its members are often organisations funded mostly by governments. ESF closely co-operates with the European Commission in the area of science.

ESF's task is to mediate and make contacts of scientists from different countries easier in order to ensure co-operation within important projects related to their mutual interests. The co-operation should allow for more general utilisation of big and costly facilities and new research directions should be established on the basis of achieved scientific results.

ESF works continuously, in co-operation with its member organisations, on the development of the science policy, which is strategically important for Europe. ESF is involved in so-called EUROCORES – science projects involving the international participation – in the area of international co-operation in research and development.

The Grant Agency of the Czech Republic and the Academy of Science of the Czech Republic have been the ESF member organisations since 1999.

ESF closely co-operates also with COST and it organises activities of the COST Office – see the information about the COST programme.

The annual member contribution of the Czech Republic (i.e. the Grant Agency of the Czech Republic and the Academy of Sciences of the Czech Republic together) is about 45 000 euros. The membership costs of the Czech Republic in the European Science Foundation are covered with the subsidy by the Ministry of Education and Youth and Sports from the budget determined for the international co-operation in research and development.

Detailed information about the European Science Foundation is available on the ESF home web: ***www.esf.org*** and ***www.gacr.cz/gacr/Zakl_ramec.htm***

### 8.8.2. EMBC

EMBC – The European Molecular Biology Conference. The Czech Republic has accepted the Founding Agreement of EMBC in 1994 and become a regular member in 1995.

EMBC is an intergovernmental organisation organising the basic research co-operation of European countries in molecular biology and in related scientific fields. The agreement establishing EMBC was executed in February 1969 by France, Germany, the Netherlands, Norway, Sweden, Switzerland, Great Britain, Austria, and Denmark. Other European countries and Israel have progressively acceded to the Agreement. There are currently 24 members. Activities of EMBC are governed by the General Programme, which covers especially the assignments of research scholarships, the preparation of study course programmes, workshops, and symposiums.

Study stays, both long-term, or one or two year ones and short-term ones make the most important form of the co-operation for the Czech scientific community. Each candidate interested in some of the study stay forms must present his or her own project, which is then assessed by experts and the acceptance or refusal is exclusively governed by the importance and originality of the project.

Application forms, detailed information and records from EMBC meetings are at the disposal in the Department of international co-operation in research and development, Ministry of Education, Youth and Sports, Karmelitská 7, 118 12 Praha 1, Tel.: +420 257 193 242, Fax: +420 257 193 713. Further information is available also at the EMBC web page: ***www.embo.org*** and ***www.embc.org***.

### 8.8.3. OECD

OECD – Organization for Economic Co-operation and Development. The executive body of OECD in the area of research and development is the Directorate for Science, Technology, and Industry (DSTI), within which there are the three following closely co-operating committees: Committee for Science and Technology Policy (CSTP), Industry Committee (IC), and Information, Computer and Communications Policy (ICCP).

Basic priorities of DSTI in the near future are made by trends in the science and technological policies of OECD member countries, the knowledge-based economy, the globalization, and the international co-operation.

The work programme of CSTP consists mainly of the preparation of regular reports on the industrial and technological policies of the member countries (Science, Technology and Industry Outlook), the review of scientific and technological policy of the selected country (Country Review), and the review of selected specific issues in member countries (Thematic Review). It includes also the co-ordination in the area of statistical data covering science and technology, the monitoring of structural changes in economical performances, economic competition, and innovative systems in the member countries.

The main focus of the Ministry of Education, Youth and Sports within the co-operation with OECD in the area of research and development is focussed on the own activities of CSTP and on the work in work groups of this committee. They are the Working Group on Global Science Forum, the Working Group on Innovation and Technology Policy, and the Working Party on Biotechnology.

The Ministry of Education, Youth and Sports also participates in the co-ordination, together with other central authorities, of activities by the following working groups within CSTP: The Group of National Experts on Science and Technology Indicators, which are organised by the Czech Statistical Office, and the Joint Expert Group on

Technology, Productivity, and Job Creation, which is organised by the Ministry of Labour and Social Affairs.

The meeting of CSTP Committee at the ministerial level took place on 29 and 30 January 2004. The Committee, in a consensus of all member countries, prepared for the ministers' meeting the three following key topics: "Managing the science – innovation interface", "Meeting the challenges for human resources in science and technology", and "International co-operation in science and technology".

The activity called International Neuroinformatic Co-ordination Facility (INCF) has started with the initiative contribution of the Czech Technical University (ČVUT) at the end of 2005. It associates world renowned important experts on this issue and on its technological security applications. In addition, there have been activities in the area of nuclear safety supported for a number of years, e.g. the participation of the Czech Republic in the programmes ROSA, HALDEN, and others.

Further information is available at the address ***www.oecd.org***.

### 8.8.4. CERN A SÚJV DUBNA

Czech Republic is also a member of CERN and SÚJV Dubna – the international organisations researching the areas of nuclear and sub nuclear physics and the physics of elementary particles and high energy. The co-operation is managed by the Committee for the CERN Co-operation and the Committee for the Co-operation with SÚJV Dubna. Prof. Jiří Niederle, DrSc. from the Institute of Physics of the Academy of Sciences of the Czech Republic is the chairperson of the CERN Committee and Ing. Rostislav Mach, DrSc. from the Institute of Nuclear Physics of the Academy of Sciences of the Czech Republic is the chairperson of the SÚJV Dubna Committee. Both memberships had been supported with funds by the Ministry of Education, Youth and Sports, the Department 32 – International co-operation in research and development, until 2004. The CERN and SÚJV Dubna projects have been partly supported also with the INGO programme.

Since January 2004, the participation of Czech institutions in important CERN programmes, e.g. ATLAS, ALICE, KOMPAS, and some others, has been financially supported with target-oriented funds of the Ministry of Education, Youth and Sports within the National Research Programme I – the partial programme "International Research and Development Co-operation". Information is available from RNDr. Miloš Chvojka, CSc. (***milos.chvojka@msmt.cz*** – organisation affairs) and Mgr. Martina Hanžlová (***martina.hanzlova@msmt.cz*** – the financial support). Further information is available, for example, also at the addresses: ***www.cern.ch*** and ***www.hep.fzu.cz***.

### 8.8.5. CENTRAL EUROPEAN INITIATIVE – CEI

There is a research and development working group (for science and technology) active within the structure of the Central European Initiative. The chairmanship of this working group belongs to Italy and the headquarters are in Trieste. The Czech Republic is represented in this working group by Ing. Petr Křenek, CSc. – ***krenek@msmt.cz*** and RNDr. Josef Janda – ***josef.janda@msmt.cz***. The working group announces, together with CEI, research projects with both direct and indirect impacts on the countries within the Central European Initiative. CEI does not fund the support of these projects. These projects in the Czech Republic are supported with the funds from the programme KONTAKT.

The Internet address of the working group is: ***www.ceinet.org/view/02/02_14.htm***, the SEI address: ***www.ceinet.org***.

### 8.8.6. VISEGRAD GROUP

The Visegrad Group has also had a working group for science and technology. It is possible to get grants for solutions of research and development projects, but also for exchanges of researchers from the so-called Visegrad Fund. There are the three following grant kinds:

- Standard grants (the budget for 2007: EUR 2,200,000)
  - for co-operation projects of subjects from the V4 countries
  - Deadlines: 15 March and 15 September
  - Minimal grant level: EUR 4,000
- Small grants (the budget: EUR 512,000)
  - for co-operation projects of subjects from the V4 countries
  - Deadlines: 1 March, 1 June, 1 September, and 1 December
  - Maximal grant level: EUR 4,000
- Strategic Visegrad programme (the budget: EUR 300,000)
  - for important long-term strategic projects
  - Deadlines: 15 February and 15 May

Additional information is at: ***www.visegradgroup.org***, ***www.visegradfund.org***, ***www.msmz.cz***.

## 8.9. BILATERAL CO-OPERATION

Czech Republic has currently the most important undertakings in the area of research and development co-operation with the following countries (the so-called scientific and technological co-operation agreements): USA, France, Germany, Italy, Japan, Mexico, Greece, Slovenia, Spain, South Korea, Slovakia, People's Republic of China, Hungary, and Poland. In addition, there are a number of other agreements. They are especially the so-called cultural agreements, or trade, industrial, and science and technology co-operation agreements – see further. The Ministry of Education, Youth and Sports of the Czech Republic has been the gestor of organising and fulfilment of scientific and technological agreements.

There are also undertakings resulting from the so-called governmental agreements on the trade, industrial, and scientific and technological co-operation. They have been concluded mainly with the following countries: Belgium, Bulgaria, Finland, France, North Korea (this agreement has not been utilised because of well-known reasons), Hungary, Poland, Romania, and United Kingdom. The Ministry of Industry and Trade of the Czech Republic has been the gestor of the fulfilment of undertakings resulting from these agreements. Agreements are progressively superseded by new ones and there is a trend to resolve the area of research and development independently. In some cases, the fulfilment of these scientific and technological agreements is resolved by the invitation of a representative from the Ministry of Education, Youth and Sports to participate in bodies related to these agreements.

After 1993, there have been some new agreements on the trade, industrial, and scientific and technological co-operation concluded by the government of the Czech

Republic with several countries of the former Soviet Union – the Russian Federation, Kazakhstan, Tajikistan, Uzbekistan, Lithuania, Latvia, and Estonia. The so-called "pure science and technology co-operation agreements" have been concluded, after 1993, for example, with the People's Republic of China, South Korea, Mexico, Slovenia, USA, the Slovak Republic, Poland, and Hungary.

Bilateral science and technology co-operation agreements have been accessible, in addition to the area of education and the Academy of Science of the Czech Republic, also to all other legal persons active in research and development.

Undertakings in the area of research and development result also from the so-called cultural and scientific co-operation agreements – the Ministry of Foreign Affairs, in co-operation with the Ministry of Education, Youth and Sports (education and science) and the Ministry of Culture, has been the gestor of their fulfilment. The situation in the execution plans related to the cultural agreements (PPKD) is a bit more complicated as they include parts adjusting the scientific co-operation. PPKDs are the results of the co-operation of the Ministry of Education, Youth and Sports and the Ministry of Culture (and in the past also of the Czechoslovak Academy of Science, which was the state administration body) with the Ministry of Foreign Affairs in the role of the cultural agreements' gestor. The Academy of Science of the Czech Republic has got a new position and a different scope of competences in these PPKDs. The different scope of activities of the Ministry of Education, Youth and Sports in the area of education and in the field of research has been resolved in connection with the contents of programmes supporting the international co-operation in research and development.

We should mention herein also the agreement undertakings, which have been concluded by the Academy of Science of the Czech Republic. However, these agreements are not of the nature of government agreements. They are agreements concluded by non-governmental organisations. A number of them have been concluded well before 1989, when they had the character of inter-sector agreement documents focussed especially on the field of basic research.

### 8.9.1. *EU COUNTRIES*

In the EU countries, the biggest stress is put on multilateral research and development co-operation within the programmes and organisations like EUREKA, COST, ESF and some others, and on the co-operation within the European Union. However, there are bilateral agreements also concluded by countries belonging to the European Union. The biggest role is played, however, by direct contacts in between subjects, or these co-operation activities are not supported by proper legal acts of the international character. A very specific role is played by co-operation programmes of the European Union – the so-called Framework Programmes for the co-operation in research and development. A special chapter has been assigned to these programmes.

#### 8.9.1.1. *Germany*

The bilateral agreement on the scientific and technological co-operation with Germany was executed by the governments of the then Czech-Slovak Federation and Germany in 1990 and it transferred, by succession, to the Czech Republic. In 1996, the German Ministry of Education and Research (BMBF) initiated more intensive

co-operation and the signing of the Executive Protocol, in which the necessary changes have been anchored. Meetings of the Mixed Commission for the scientific and technological co-operation regularly take place and work is organised for the mutual bilateral Czech-German scientific and technological projects.

At the Czech side, the co-operation is managed by the Ministry of Education, Youth and Sports of the Czech Republic, while the Federal Ministry of Education, Science, Research, and Technology (BMBF) manages the co-operation at the German side.

The co-operation is open to all research workplaces and university teams, and other organisations, which have been involved in research or development.

In connection with the accession of the Czech Republic to the European Union, the German party re-valued the content and forms of the bilateral co-operation. In the effort to upgrade the quality of the existing co-operation, Germany wishes to progressively reduce the "classic" form of the scientific and technological co-operation based on the support of the scientists' mobility and exchanges within joint two or three years long projects accepted on the basis of annual calls announced at fixed dates with the understanding that national research programmes, open to the countries from the Central and Eastern Europe will become the base for the future bilateral co-operation.

Other important areas of the future bilateral co-operation are also the co-operation of Czech and German scientists in the preparation of topics for the 7th EU FP and the participation of Czech subjects within the networks ERA NET and ERANET+, where Germany acts in the role of a co-ordinator.

The official regional call, which opens German national research programmes to participants from the Central and Eastern European countries, together with all necessary information about possibilities and terms of the programmes' participation, might be found at the following web addresses:

***www.bmbf.de/foerderungen/2198.php***
***www.internationales-buero.de/foerderung_ib/WTZ/Europa/Announcement***

This is publicised also on the web page of the Ministry of Education, Youth and Sports of the Czech Republic under the title of the bilateral co-operation with Germany.

Co-operation projects in the area of the basic research should be directed to DAAD. There has been a new agreement concluded between the Academy of Science of the Czech Republic and DAAD in 2003. It allows for exchanges of scientists, especially young ones, within joint projects. In 2004, the Academy of Science of the Czech Republic concluded an agreement with the Ministry of Education, Youth and Sports of the Czech Republic, which allows for the involvement of scientific teams from universities in the programme. Their exchanges will be supported by programmes of the Ministry of Education, Youth and Sports.

More detailed information could be found at the address: ***www.cas.cz*** under the title of actual information by the Department of foreign affairs.

The co-operation in the field of agricultural projects continues in the original classic form of joint two or three-year projects, which have been supported on the German side by the Federal Ministry of Consumer Protection, Nutrition and Agriculture (BMVEL) and on the Czech side by the Ministry of Education, Youth and Sports (MEYS).

**Contact adresses:**

1) **Co-ordination of bilateral co-operation at the Czech side:**
   **MŠMT ČR**
   (Ministry of Education, Youth, and Sports of the Czech Republic)
   odbor mezinárodní spolupráce ve výzkumu a vývoji
   (Department of the international co-operation in research and development)
   Karmelitská 7, 118 12 Praha 1
   **Ing. Jan Talíř**
   Tel.: 257 193 838
   E-mail: ***jan.talir@msmt.cz***

2) **Administration of projects accepted for the support:**
   **Asociace inovačního podnikání ČR**
   (Association of the innovative entrepreneurship of the Czech Republic)
   **Ms. Iveta Němečková**
   Novotného lávka 5, 116 08 Praha 1
   Tel.: 221 082 275
   E-mail: ***nemeckova@aipcr.cz***

3) **Co-ordination of the bilateral co-operation at the German side:**
   Osteuropa-Verbindungsbüro Bonn
   **Karin Wedde-Mühlhausen**
   Königswinterer Strasse 522-524, 532 27 Bonn
   Tel.: 00 49 228 449 2453
   Fax: 00 49 228 449 2400

#### 8.9.1.2. France

France is a country with one of the biggest research potential in Europe. Because of historical but also different current reasons (the effort to strengthen its position in Europe), the country has always had big interest in wide ranging co-operation with the Czech Republic. There has been an agreement on the scientific and technological co-operation concluded with France in 1965. In 1996, there has been the so-called Programme of Integrated Actions BARRANDE started, which has been still continuing.

The programme "BARRANDE 2007–2008" is open to all research workplaces and team from universities and other organisations involved in research or development. They can focus on any area of science. The programme is supported with funds of two-year joint projects of Czech and French research teams from different areas of science. Each project must have one responsible solver on the Czech side and on the French side.

There are short-term exchanges of researchers and doctors supported (each party has got planned stays of 1–2× 2 weeks, but the length of the exchanges can be adjusted, according to the financial situation).

In the Czech Republic, this form of co-operation is supported by a purpose-oriented subsidy covering the stay of a French worker in the country and the travelling expenses, including insurance, related to travels to France. French partners cover the

stay of the Czech worker in France and their own travelling expenses, including insurance, when travelling to the Czech Republic. The funding is organised every year.

There was the meeting of the Mixed Commission selecting projects in November 2006. The meeting has passed also the programme timetable for 2007 and the following years.

From the administration of the programme point of view, the meeting has passed the decision that, starting with the call published in 2004, the solvers of accepted projects would not separately ask for support for the second year of their research.

Another call will be announced during 2007 and the meeting of the selecting commission and the project selection for the period of 2008–2009 is planned at the end of 2007.

Relevant forms, including conditions and basic information, are available at ***www.msmt.cz***.

**Contacts:**
For the French participants:
Agentura EGIDE, Paris, tel.: 00 31 1 40 40 57 48
For the Czech participants:
Asociace inovačního podnikání
(Association of the innovative entrepreneurship)
Mgr. Věra Mísařová
Novotného lávka 5, 116 68 Praha 1
Tel.: 221 082 274
Fax: 221 082 276
E-mail: ***misarova@aipcr.cz***

#### 8.9.1.3. Italy

With Italy, there has been an Agreement on the scientific and technological co-operation concluded in 1990. In 1998, the Co-operation Programme for this agreement has been concluded. Also, the first project selection took place. Another tender took place in the first half of 2001 and the selection of joint projects for the period 2002–2004 was organised at the beginning of 2002. The publishing of just another call on the presentation of joint Czech-Italian projects was envisaged in the second half of 2005. However, the Italian party was interested in making the period of the existing projects longer instead.

#### 8.9.1.4. Austria

Austria is a country with the strong feel for the Central European region and contacts with Austrian workplaces, despite the fact that its research potential does not represent the top European level, make the involvement in European structures much easier.

In 1997, an agreement on the expansion of the co-operation ACTION with Austria was concluded. Both the Czech party and the Austrian party have commenced specific co-operation in the form of announced joint research and development projects. They are accepted on the basis of the decision of the Joint Scientific Sub commission, which has been established for this purpose. The gestor of this co-operation at the Austrian side is the Federal Ministry of Education, Science, and Culture. They are two-year projects.

Administration is participated in by the representation of ACTION Czech Republic - Austria (the preparation and organisation of calls on the presentation of proposals and meetings of the Joint Scientific Sub commission) and the Association of the Innovative Entrepreneurship of the Czech Republic (the coverage of travel and stay expenses).

The date for presenting project proposals, for the period 2007–2008, was 13 October 2006. The support should be decided on in February 2007 by the bilateral selection commission.

More detailed information is available from the representation of ACTION Czech Republic – Austria and instructions and forms are at the Internet address: ***www.DZS.CZ/AKTION/aktion.htm***.

**Representation of ACTION Czech Republic – Austria**
(Jednatelství AKTION Česká republika – Rakousko DZS MŠMT ČR)
Senovážné náměstí 26, 111 21 Praha 1
Statutory representative: Ing. Helena Hanžlová
Tel.: +420 224 230 069
Fax: +420 224 229 698
E-mail: ***aktion@dzs.cz***

**Mgr. Věra Mísařová**
Asociace inovačního podnikání ČR
(Association of the Innovative Entrepreneurship of the Czech Republic)
Novotného lávka 5, 116 68 Praha 1
Tel.: +420 221 082 274
Fax: +420 221 082 276
E-mail: ***misarova@aipcr.cz***

### 8.9.1.5. Greece

There has been a bilateral agreement on the scientific and technological co-operation concluded with Greece in 1984. This has been intensively fulfilled, according to two-year protocols, which include the list of joint projects.

The Czech party provides solvers of accepted projects for mobility funds, which are covered by the Association of the Innovative Entrepreneurship of the Czech Republic.

The announcement of the call on the presentation of joint Czech-Greek project proposals, for the period 2005–2007, took place in the first quarter of 2005. The meeting of the Joint Commission took place in autumn 2005 and it has passed the list of joint projects which are running now. For information, see the web pages of the Ministry of Education, Youth and Sport.

**Contact address:**
**Ing. Jan Kofroň**
Asociace inovačního podnikání ČR
(Association of the Innovative Entrepreneurship of the Czech Republic)
Novotného lávka 5, 116 68 Praha 1
Tel.: 221 082 274
E-mail: ***kofron@aipcr.cz***

### 8.9.1.6. Belgium – the Flemish Community

The Czech-Flemish co-operation in research and development and the support of joint projects has started with the Flemish Belgian community in 2003. This co-operation takes place on the basis of the Agreement on Co-operation concluded by the government of the Czech Republic and the Flemish government, which was signed in 2002.

There was a call on the presentation of two-year Czech-Flemish project proposals announced in March 2003. The projects could relate to all areas of research and development planned for the period 2004–2005. In 2003, there were tenders on the projects organised in both countries. A meeting of the bilateral selection commission followed and the commission decided on the final selection of projects for the financial support by both parties.

There was the call for the period 2006–2007 announced in spring 2005. The meeting of the bilateral selection commission took place in December 2005. There have been 29 new joint projects accepted for the period 2006–2007. The next meeting is envisaged in 2007.

More detailed information about this co-operation, including the list of accepted projects, is published at ***www.msmt.cz***.

### 8.9.1.7. Hungary

Thanks to the way of funding in Hungary, a bilateral international research project can be subsidised from state funds only on the basis of a concluded intergovernmental agreement. The agreement on the scientific and technological co-operation was executed in Praha in June 2001. The mixed Czech-Hungarian commission had its meeting on 8 December 2006 and approved projects for the period 2007–2008.

More detailed information could be gained by interested parties from the Department of international co-operation in research and development of the Ministry of Education, Youth and Sports of the Czech Republic (MŠMT ČR), Karmelitská 7, 118 12 Praha 1, Tel.: 257 193 720, Fax: 257 193 713 – from RNDr. Josef Janda, e-mail: ***josef.janda@msmt.cz***.

### 8.9.1.8. Poland

Proposals from all research and development fields, with the duration of two-years, are accepted on the basis of the Agreement on the scientific and technological co-operation executed by the governments of the Czech Republic and the Polish Republic executed on 13 January 2000. The agreement allows for different forms of co-operation, from joint projects, exchanges of research workers, exchanges of information and documents, organisation of joint scientific meetings to joint utilisation and exchanges of technologies.

The financial requests of Czech solvers might relate, according to the agreement of the two parties, especially to mobility costs (stay and travel expenses).

It is assumed that the Polish partner would lodge, at the same time, the relevant project proposal on the Polish side.

There was a meeting at the beginning of 2006 and the next one is expected. The next meeting with the Polish partners should allow for the approval of joint projects for the next period.

More detailed information is available to interested parties in the Department of international co-operation in research and development of the Ministry of Education, Youth and Sports of the Czech Republic (MŠMT ČR), Karmelitská 7, 118 12 Praha 1, Tel.: 257 193 720, Fax: 257 193 713 – from RNDr. Josef Janda, e-mail: ***josef.janda@msmt.cz***.

#### 8.9.1.9. Slovenia

The agreement was executed in autumn 1995. This agreement has also replaced, in a formal way, the agreement on the scientific and technological co-operation with the former Yugoslavia concluded in 1989. Slovenia is an advanced country with both industrial and research traditions. Meetings of the Mixed Commission took place regularly every two years, but as from 2002, it is organised annually. Also, calls on the presentation of new joint projects have been announced every year since 2002. The last call was publicised in 2005. The presented project proposals were assessed at the end of 2006 and the Mixed Commission approved of the selected projects for the support in the period 2007–2008. Another joint call is planned in 2007.

#### 8.9.1.10. Slovak Republic

The agreement on the scientific and technological co-operation with the Slovak Republic was signed in June 1999. This has meant the supplementation of an important part of mutual relations with the Slovak Republic and the creation of the prerequisite for the commencement of official co-operation of experts from both countries.

There were project proposals presented in all areas of research and development fields with the duration of two years. The agreement allows for different activities, from joint projects and exchanges of research workers, exchanges of information and documents, organisation of joint scientific meetings to the joint utilisation and exchanges of technologies. The financial requests of Czech solvers might relate, according to the agreement of the two parties, especially to mobility costs (stay and travel expenses).

The Slovak partner presents, at the same time, the relevant project proposal to the Ministry of Education of the Slovak Republic in accordance with its publicised instructions.

The last tender, for the period 2006–2007, took place in October 2005. Another meeting is envisaged in 2007 in the Czech Republic.

More detailed information is available to interested parties in the Department of international co-operation in research and development of the Ministry of Education, Youth and Sports of the Czech Republic (MŠMT ČR), Karmelitská 7, 118 12 Praha 1, Tel.: 257 193 720, Fax: 257 193 713 – from RNDr. Josef Janda, e-mail: ***josef.janda@msmt.cz***.

### 8.9.2. USA

The support of joint Czech-American projects is based on the Agreement concluded between the government of the Czech Republic and the government of USA on the scientific and technological co-operation signed in 1998. The American Science Information Centre, o.p.s. has been authorised to collect applications for the support of bilateral co-operation, to organise the assessment and to prepare materials for the

meetings of the Joint Agreement Council. The Joint Council recommends projects on the basis of assessments of the individual proposals for discussions within the public tender announced every year by the Ministry of Education, Youth and Sports of the Czech Republic.

**Activity kinds:**

- Joint research project (the duration of 4 years at the maximum) is prepared by a Czech solver together with his or her American partner,
- Joint science conferences, seminars, courses, or workshops can take place either in the Czech Republic or in USA. The events must be precisely determined and participated by 10 scientists from each party at the maximum. Their usual duration is 3–5 days and they can include the relevant visits of scientific workplaces. Scientists from other countries can participate on their own expense, on the basis of an invitation by the event organisers.

The scope of co-operation within the Science and Technology Co-operation between the Czech Republic and USA includes the following research and development areas:

- Natural science and mathematics
- Technical science
- Healthcare and medical science
- Energy
- Agriculture
- Protection of the environment
- Standardisation
- Utilisation of natural resources
- Transport
- Science policy

Each party covers basic activity expenses taking place in its own country. The scope of the co-operation covers all science and technology areas: Natural sciences and mathematics and technical science, healthcare and medical science, energy, agriculture, the protection of environment, the standardisation, and the utilisation of natural resources, transport, and the science policy.

Funds serve only to supplement the already existing sources of the parties and they are determined for the support of the mutual co-operation. All Czech research institutions, both university and academic ones, or sector and private can apply for the support.

Additional projects for 2007 have been approved of in the mid 2006. Tenders are usually announced in May.

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The Protocol on the agreement on the scientific and technological co-operation concluded between the National Science Foundation of USA and the Ministry of Education, Youth and Sports of the Czech Republic was signed in 1994 and it replaced the Protocol on the agreement on co-operation in basic fields concluded by the National Science Foundation and the Czechoslovak Academy of Science. The National Science Foundation is responsible for the co-ordination of all American participation and the Academy of Sciences of the Czech Republic has been authorised to co-ordinate the Czech participation. According to this Protocol, both parties implement also the involvement of universities, research institutions, and other scientific subjects in the activities. The Academy of Sciences of the Czech Republic has established, in co-operation with the Ministry of Education, Youth and Sports, at its side, the Commission for the co-operation of the Czech Republic with the US National Science Foundation, which acts as the top body assessing and accepting joint research projects. Currently, there are more than 30 joint projects. The Czech solvers can apply for the support in public tenders announced within the programme KONTAKT.

The Czech Republic also participates in research organised in the area of high energies and elementary particles in FERMILAB laboratories – the D0 experiment. More detailed information can be received from RNDr. Miloš Lokajíček in FZÚ AV ČR – ***lokajicek@fzu.cz***. This co-operation is also financially supported from national resources.

Another programme within the science-technology co-operation between MEYS and NSF is the COBASE (Collaboration in Basic Science and Engineering) programme. It covers exchanges of Czech and American researchers, according to the established rules – the professional level of candidates, the given areas of science, topical priorities, etc. US National Science Foundation provides for the grants. There is also an initiative for the organisation of scientific conferences with participation of American researchers. Proposals of work stay exchanges must be initiated by the American presenters.

### 8.9.3. RUSSIAN FEDERATION (RF)

This country puts a significant stress on bilateral agreements on the co-operation in research and development, especially on the contractual connection of the trade, industrial, and scientific and technological co-operation. The area of the international co-operation in research and development is managed by the Ministry of Education and Science of the Russian Federation. Russia shows a significant interest in bilateral agreements on scientific and technological co-operation because of the possibility of receiving additional governmental resources for the concluded documents. Nevertheless, it offers an access to all areas of formerly closed cosmic and strategic research and the access to critical technologies.

Solvers of projects approved of by the International Commission can apply for subsidies within public tenders organised in connection with the programme KONTAKT (see 8.10.2.). There has been a programme created also on the Russian side, which allows for the support of Russian researchers.

There was the meeting of the Czech-Russian working group in October 2006, which has approved new projects for the period 2007–2008.

Parties interested in some of the forms of the bilateral scientific and technological co-operation with the Russian Federation can turn to the Department 32 in the Ministry of Education, Youth and Sports – RNDr. Josef Janda, Tel.: 257 193 720, e-mail: ***josef.janda@msmt.cz***.

### 8.9.4. ASIAN COUNTRIES

**Japan**

There was an agreement on the scientific and technological co-operation concluded with Japan in 1978, which managed exchanges of researchers, but it had stagnated after 1992 because of its out-of-date character. That was the reason why a number of meetings with the agencies JICA, JISTEC, JSPS, and some others were initiated by the Czech and Japanese parties and work related contacts were created with the Japanese STA (Science and Technology Agency) and JSPS. In January 1998, an inter-governmental Japanese-Czech workshop dealing with the co-operation in research and development was organised. The parties selected and accepted more than 60 joint projects from all different areas of research and development. A call on the presentation of project proposals for the period 2002–2004 was publicised in 2001. In addition to these activities, there were preparatory discussions under way for the preparation of an agreement between the Czech Ministry of Education, Youth and Sports and JSPS (Japan Society for Promotion of Science) and AS CR. The agreement should allow for the extension of joint projects by Czech and Japanese scientists. MEYS initiated a meeting with the Academy of Sciences of the Czech Republic with the objective to extend the agreement on co-operation between AS CR and JSPS with joint projects – for workers from all kinds of research and development organisations. Negotiations of MEYS, AS CR, and JSPS took place in Tokyo in May 2005. They resulted in an agreement on the extension. The agreement has been in fact extended, but with only two projects a year. The agreement will be effective and functioning from 2007.

**People's Republic of China**

The Czech Republic has inherited the agreement on the scientific and technological co-operation with the People's Republic of China, which was signed in 1952. The Chinese party, even after the changes, which have taken place recently, insisted on the performance of that agreement. A significant stress was put, for example, on visits of Chinese technicians in Czech companies, which had almost nothing in common with the real research. For that reason, there was a new agreement prepared in 1995. It has been more modern and it replaced the agreement of 1952. Currently, there are a number of high quality results of joint projects and there is a prerequisite in the now fast developing China that other suitable co-operation chances will occur in near future. Meetings of the Mixed Commission take place in alternative years and proposals can be presented on the basis of calls published on the web page of the Czech Ministry of Education, Youth and Sports (the expressions of interest). The last meeting of the Joint Committee took place in May 2004 and it approved of new joint projects. The projects have been implemented usually within the maximal period of three years since 2004. The list of approved projects, the researchers of which can apply for the financial support within the public tender, is published at the address: ***www.msmt.cz***. Another meeting, for the period 2006, was supposed to take place in Praha in 2006 and the call on expressions of interest was announced at the beginning of 2006. Because of not completely clear reasons on the side of China, the meeting of the Joint Committee did not take place in 2006 and it should take place, according to the information received at the end of 2006, in the first half of 2007. This has resulted in shifting of new projects by at least one year.

**South Korea**

The agreement with South Korea was signed at the beginning of 1995. There have been several joint research projects solved. They have been approved of by the diplomatic way. The Czech Republic is interested in the recovery and extension of the co-operation and it offered the conclusion of a co-operation agreement to the Korean party. At the Czech side, there is an interest in top technologies existing in all areas of research and development. South Korea has expressed its big interest in the extension of the scientific and technological co-operation in 2004. A call on the presentation of project proposals (the expressions of interest) was announced at the end of 2004. Further information is available at the address ***www.msmt.cz***. Last meeting of the joint commission of the Czech Republic and South Korea took place in May 2005 and it approved of two joint projects.

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### 8.9.5. OTHER COUNTRIES

**Republic of South Africa**

Negotiations with regard to the conclusion of an agreement on the science and technological co-operation between the Republic of South Africa and the Czech Republic started at the end of 2006. Additional information will be published on web pages of MEYS as soon as the agreement becomes valid.

## 8.10. SUPPORT OF THE INTERNATIONAL CO-OPERATION IN RESEARCH AND DEVELOPMENT BY THE MINISTRY OF EDUCATION, YOUTH AND SPORTS OF THE CZECH REPUBLIC

The assignment of subsidies to project solutions within the international co-operation in research and development, in the form of public tenders, takes place every year in the five following areas: COST, EUREKA, EUPRO, KONTAKT, and INGO. These programmes were progressively approved of in recent years. As the National Research Programme I, which covered the mentioned programmes of the international co-operation in the period 2004–2005, has finished, MEYS announces calls related to the five original programmes, which have been now approved until 2008. There is thus an assumption that MEYS will announce the calls repeatedly until then. After the end of the period, there will be negotiations on the extension of these programmes until 2012.

The programmes COST and EUREKA have been described in Parts 8.7.1 and 8.7.2.

### 8.10.1. EUPRO

The aim of EUPRO is to contribute to the integration of the Czech research and development in the EU workplace network, especially in the form of participation in EU research and development framework programmes (see Chapter 8.2). Czech participants in framework programme projects cannot get a direct financial support from the state budget because that would be in dispute with European standards and the Czech legislature related to the state intervention in competition terms. The main purpose of EUPRO is thus the support of the preparation of solvers' participation in Czech projects, especially with regard to the organisation of this preparation. The National Information Infrastructure – NINET and NICER, i.e. the National Information Centre for the European Research and the Regional and Professional Contact Organisations, is especially financially supported. A number of regional contact organisations and professional contact organisations – see **Table VII**, commenced their activities in 2000. The EUPRO programme has not been closed for this kind of activities.

As from 2004, individual solvers, during the preparation and filing their project proposals within the EU framework programmes, can get the financial support. Further information about the preparation support of projects is available in the National Contact Organisation in the Technological Centre of AS CR – RNDr. Vladimír Albrecht, CSc.

### 8.10.2. KONTAKT

KONTAKT allows for the support of participation of Czech research and development workers in multilateral research programmes ESA, SEI (the Central European initiative), OECD, and NATO and in some important bilateral programmes with the countries, with which the Czech Republic has got an agreement on co-operation in research and development concluded and also in programmes by the National Science Foundation – NSF. Activities based on intergovernmental programmes, which relate to exchanges of researchers within the projects of scientific and technological co-operation, are administered by the Association of Innovation Entrepreneurship of the Czech Republic.

### 8.10.3. INGO

INGO (International Non-Governmental Organisation) is the programme started in 1998.

The objective of INGO activities is to make the membership of research and development institutions, but also individuals in international non-governmental organisations, which are involved in research, easier. It supports the active participation of Czech researchers in managing bodies of international non-governmental science organisations and procures, on the basis of the government Resolution No. 560/2003, projects related to the participation of the Czech Republic in the international organisations CERN (European Organisation for Nuclear Research) and SÚJV Dubna (Joint Institute of Nuclear Research).

INGO activities are announced, according to the Act No. 130/2002 Coll. on the research and development support, in the form of public tenders. Proposals of individual projects are assessed by the advisory body of the Deputy Minister of Education, Youth and Sports who can ask for professional opinion other experts.

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### 8.10.4. PUBLIC TENDER 2007

The text of the announced public tender has been publicised on the Internet page of the Ministry of Education, Youth and Sports of the Czech Republic. The terms of the tender and rules of the financial support of research and development projects have been established in the Research and Development Support Act No. 130/2002 Coll. This Act covers also changes in some relating laws (the Research and Development Support Act) and the regulations are managed also by the government Directive No. 461/2002 of 8 November 2002.

The public tender 2007 was announced on 1st June 2006 and its period was till 20th September 2006. The assessment finished on 4th December 2006 by the announcement of the tender results on the Ministry web.

The public tender 2008 will be announced again in July 2007.

## 9. CONCLUSIONS

The "Guide 2007" has been significantly updated, when compared with the 8th issue. Big attention was paid to the National Research and Development Policy and to different implementation provisions. The Chapter "Funding of research and development from public funds" has been newly adjusted. It shows that this kind of support progressively transfers to the two sectors – Ministry of Education, Youth and Sports and Ministry of Industry and Trade. All chapters dealing with the providers of target-oriented funds have been updated and extended.

The information about the international co-operation of the Czech Republic in research and development makes an important part of the "Guide 2007". Chapter 8, which deals with this area, has been also supplemented and updated.

The readers, who need actual information, should refer the web of the Research and Development Council (***www.vyzkum.cz***), the web of the Association of Research Organisations (***www.avo.cz***), and the webs of individual sectors.

**STATE SUPPORTED R&D IN THE CZECH REPUBLIC – SHORT GUIDEBOOK 2007**


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| Translation: | Fiesta Publishing, s.r.o. |
| Published by: | Repronis Ostrava |
| Number of pages: | 124 |
| Edition: | 6th actualized and supplemented, 2006 |
| Typesetting and print: | Repronis Ostrava |

**ISBN 80-7329-143-6**