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 2005. 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 5 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 2006:

- "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" (XA) – 2006–2010. A new programme,
- Grants of the significant exploratory character focussed on the research area currently developed mainly in AS CR (the grant projects) (IA) – 2002–2010,
- Additional publication grants (IC) – 2003–2010,
- Junior exploration grant projects (KJ) – 2003–2010.

7.1.2.1. Nanotechnologies for the Society (XA)

This new 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 2010.

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 interface”
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 interface"

- **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 parti-

cipate 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

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 code of the activity within the research and development information system: **IA**).

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 code of the activity within the research and development information system: **KJ**).

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 (the code of the activity within the research and development information system: **IC**).

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 of research grant projects is assessed on the basis of publication of their results in professional journals, or in some other relevant form. In the case of the additional publicising grant projects, the publication issuance is the project subject. This is the reason why the grantee must prove at least one independent publication in each supported grant project.

The grant programme of GA AS will continue with another round of public tenders on grants in 2006. In the case of standard and junior research grant projects started in 2007, there is the announcement envisaged on 15 March 2006. In the case of the additional publicising grant projects, the date is August 2006.

Contact address:
Secretariate of the Grant Agency of the Academy of Sciences of the Czech Republic
Národní 3, 117 20 Praha 1
acadga@kav.cas.cz
http://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 Act No. 300/1992 Coll. on the state support of research and development in the mid 1992 as an independent institution supporting basic scientific research in the Czech Republic. The intention for GA CR is to assign, every year, to the best basic research projects, from all science areas, grants on the basis of research and development public tenders. Another task for the Agency is to inspect, every year, the performance and fulfilment of project objectives and to assess the achieved project results after the project finalisations.

GA CR provides for grants or target-oriented funds from the state budget chapter, which is assigned to it. GA CR assigns to grants from this Chapter about CZK 1 400 million every year. There are about 1 600 to 1 800 grant applications lodged every year and about one third gets the grants.

The average annual costs of a project are about CZK 650 thousand. GA CR provides for the financial support the scientific projects within the so-called standard project programmes, doctor projects, post doctor projects, and projects within the European Science Foundation programmes.

The Grant Agency organises the following:

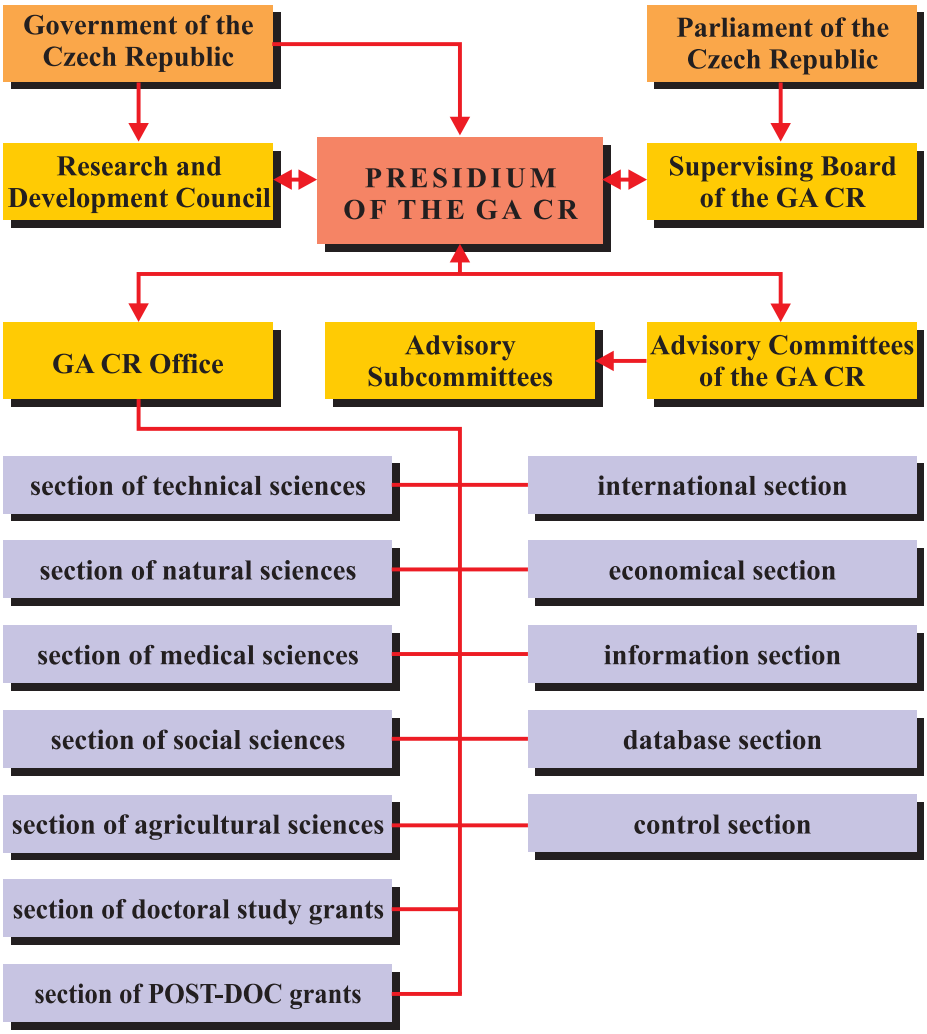
a) Preparation and announcements of public tenders in research and development for the support of research and development grant projects,
b) Assessment and selection of project proposals,
c) Provision of the target-oriented support projects on the basis of contracts on the provision of the support, or decisions on the support provision,
d) Inspections of the performance of the contracts on the support provision, or decisions on the support provision and the utilisation of the target-oriented support,
e) Assessment and inspections of the solution performance and fulfilment of the project objectives, and inspections of the achieved results,
f) Preparation of expenditure proposals for the Grant Agency and reports on its activities,
g) Performance of other tasks determined by special legal regulations.

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.
- 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.

Fig. 8 – Organisational structure of GA CR



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 science
- Natural science
- Medical science
- Social science
- Agricultural science.

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 biassed 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.

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 1999, 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 2006:

- Coping with Risk: Vulnerability, Risk Assessment and Decision Making in an Uncertain Europe (EUROCORIS)
- Cold Quantum Matter (EuroQUAM)
- The Evolution of Co-operation and Trading: From Microbes to Man (TECT)
- Quality Control of Gene Expression – RNA Surveillance (RNA Quality)
- Inventing Europe: Technology and the Making of Europe, 1850 to the Present

7.2.7. PUBLIC TENDERS

Public tenders on standard grants and post doctoral grants (Post-Doc), which should start in 2007, are expected to be announced in February 2006.

7.2.8. SOME ADDITIONAL INFORMATION AND THE CONTACT

a) **Home page:**
The home page of GA CR is ***http://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:**
Grant Agency of the Czech Republic
Národní 3, 111 21 Praha 1
Tel.: 224 240 588
e-mail: grantcr@kav.cas.cz
http://www.gacr.cz

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

MIT will provide, in 2006, for funds for project solutions within the following research programmes:

- "Project consortia" (FD) – 2001–2006. Projects solutions will finish in 2006. The programme was described in detail in the "Guide 2003".
- "PROGRESS" (FF) – 2002–2006. Projects solutions will finish in 2006. The programme was described in detail in the "Guide 2003".
- "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 2008. 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 2008. 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.

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**.

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,

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

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.

No public tender has been announced within this programme at the time of this "Guide 2006" publication. There is no further information for this reason. The announcement of the public tender is expected in January 2006.

7.3.5. INFORMATION AND CONTACT PLACE RELATED TO THE MIT PROGRAMMES

The Ministry and Industry and Trade of the Czech Republic (MIT)
Na Františku 32, 110 15 Praha 1
Department of the industrial research and development
Tel.: 224 852 556
http://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 has got a specific position among sectors involved in the state-supported research and development.

- "Department of research and development policy and its implementation" is the place, which formulates research and development conceptions in the Czech Republic and manages NRP II.
- "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.

MEYS will provide for the support of the following research programmes in 2006 (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) – 2000–2008 (the state administration projects). The programme will be finalised in 2006. Public tenders in the following years will be announced in accordance with the Public Tender Act No. 40/2004 Coll. within the MEYS activities. 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 sectional 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. THE PROGRAMME "RESEARCH CENTRES" (1M)

The programme "Research Centres" is a partial programme DP1 within the sectional programme PP2 – "Integrated Research" within NRP I. The programme has been announced for the period 2005–2009. No further public tender will be announced for 2007 and for the following years.

As this programme is very important for the Czech research, we present the list of solved projects – the Centres, the solutions of which commenced on 1 January 2005. The second and the last public tender on projects commencing on 1 March 2006 was announced on 27 September 2005. The tender was running at the time of publishing the "Guide 2006".

7.4.1.1. Review of currently solved projects

Table V presents the complete list of all projects approved and commencing on 1 January 2005.

Table V. – List of projects within the programme "Research Centres", solutions of which started on 1 January 2005

	Project ID	Project name	Grantee	Solver
1	1M0501	Aircraft and Space Research Centre	VUT-FSI Brno	A. Píštěk
2	1M0505	Targeted Therapeutics Centre	ÚJV Řež a.s.	V. Vikllický
3	1M0506	Molecular and Cell Immunology Centre	ÚMG AV ČR	V. Hořejší
4	1M0507	Research of the Engineering Manufacturing Technologies	ČVUT-FS Praha	J. Houša
5	1M0508	New Antivirus and Anticancer Drugs	ÚOCHB AV ČR	A. Holý
6	1M0510	Cardiovascular Diseases Research Centre	FÚ AV ČR	B. Ošťádal
7	1M0512	Powder Nanomaterials Research Centre	UP-PřF Olomouc	M. Mašláň
8	1M0517	Centre for Neuropsychiatry Studies 2005-2009 (Neurobiology in the Clinical Application)	Psychiatrické centrum Praha	C. Höschl
9	1M0519	Railway Vehicles Research Centre	ZČU v Plzni	P. Heller
10	1M0520	Applied Genomics Centre	ÚMG AV ČR	V. Pačes
11	1M0524	Centre for the Research of the Czech Economy Competitiveness	MU Brno	A. Slaný
12	1M0528	Stomatology Research Centre	MU Brno	J. Vaněk
13	1M0531	Musical Acoustics Research Centre	AMU v Praze	V. Syrový
14	1M0538	Cell Therapy and Tissue Replacements Centre	UK-2LF Praha	E. Syková
15	1M0545	Institute of Theoretical Informatics	UK Praha	J. Nešetřil
16	1M0553	Research Centre TEXTILE II	TU-FT Liberec	A. Richter
17	1M0554	Advanced Maintenance Technologies and Processes	TU-FM Liberec	J. Maryška
18	1M0556	Ecological Centre for the Applied Research of Non Ferrous Metals	VÚK Panenské Břežany	V. Očenášek
19	1M0567	Applied Cybernetics Centre	ČVUT-FEL Praha	V. Kučera

20	1M0568	Josef Božek II Combustion Engines and Cars Research Centre	ČVUT-FS Praha	J. Macek
21	1M0570	Research Centre for the Studies of Substances in Barley and Hops	MZLU v Brně	J. Ehrenbergerová
22	1M0571	Bioindication and Revitalisation of Toxic Anthropogenic Substrates and Water Sources: The utilisation of anabaena, algae, soil bacteria, and symbiotic fungi	Botanický ústav AV ČR	M. Vosátka
23	1M0572	Data, Algorithms, Decision-making	ÚTIA AV ČR Praha	M. Mareš
24	1M0577	Nanosurface Engineering Research Centre	Advanced Technology Group, s.r.o.	F. Peterka
25	1M0579	Centre for the Integrated Designing of Progressive Building Constructions	ČVUT-FSv Praha	J. Šejnoha

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7.4.2. THE PROGRAMME "BASIC RESEARCH CENTRES" (LC)

The programme objective is the support of co-operation of top research workplaces in the Czech Republic for the increase in their competitiveness in the European Research Area and the contribution to the training of young specialists. The centres are created by research workplaces of organisations, which equally share the efforts to achieve the project objectives. The research workplaces must have a joint research programme together with a foreign research workplace, or workplaces. The target-oriented support is provided in the form of a subsidy (for legal or natural persons) or by increasing the expenditures (in the case of state organisation units). The level of the target-oriented support can be 100 % of the recognised costs of the project solution.

7.4.2.1. Forms of expected results

1. A reviewed publication
2. A discussed methodology or diagnostics
3. A proposed technological standard, or recommendation
4. A new manufacturing technology, process, equipment, instruments, prototypes, etc.
5. A legally protected object

7.4.2.2. Review of currently solved projects

The programme "Basic Research Centres" is an important instrument for the removal of still existing obstacles in the interdisciplinary co-operation and the tool of the further development in the basic research in the Czech Republic. **Table VI** presents, because of its importance, the complete list of all projects approved for the commencement on 1 January 2005. The second public tender on the projects commencing on 1 March 2006 was announced on 27 September 2005. The tendering process was running at the time of the "Guide 2006" preparations. The announcements of public tenders for 2007 and the following years are unlikely.

Table VI. – List of projects within the programme "Basic Research Centres", the solutions of which started on 1 January 2005.

	Project ID	Project name	Grantees	Co-ordinator
1	LC505	Eduard Čech Centre for Algebra and Geometry	Masaryk University in Brno Institute of Mathematics of AS CR Charles University in Praha	J. Slovák
2	LC506	Recent Earth Dynamics	Research Geodetic, Topographic, and Cartographic Institute Czech Technical University in Praha Institute of the Mineral Structure and Mechanics of AS CR Astronomical Institute of AS CR	J. Kostelecký
3	LC510	Nanotechnology and Nanomaterials for Nanoelectronics Centre	Institute of Physics of AS CR Charles University in Praha Jaroslav Heyrovský Institute of the Physical Chemistry of AS CR	J. Kočka
4	LC512	Biomolecular and Complex Molecular Systems Centre	Inorganic Chemistry and Biochemistry Institute of AS CR Institute of Physics of AS CR Palacky University in Olomouc University in Pardubice Institute of Chemical Technology in Praha	P. Hobza
5	LC521	Christianity and the Czech Society in Middle Ages: Norms and the Reality (European context of the Czech Theme)	Institute of Philosophy of AS CR Charles University in Praha	P. Sommer
6	LC522	Ichthyological parasitology – Basic Research Centre	Masaryk University in Brno Parasitological Institute of AS CR Institute of Vertebrates' Biology of AS CR	M. Gelnar
7	LC523	Perspective Inorganic Materials	University in Pardubice Inorganic Chemistry Institute of AS CR	M. Frumar
8	LC527	Particle Physics Centre	Institute of Physics of AS CR Charles University in Praha Czech Technical University in Praha	J. Chýla
9	LC528	Laser Plasma Centre	Institute of Physics of AS CR Czech Technical University in Praha Institute of Plasma Physics of AS CR	K. Jungwirth
10	LC531	Centre for the Molecular Biology and the Physiology of Yeast Communities	Charles University in Praha Microbiological Institute of AS CR Physiological Institute of AS CR Institute of Inorganic Chemistry and Biochemistry of AS CR	Z. Palková
11	LC535	Dynamics and Organisation of Chromosomes during the Cell Cycle in the Norm and in Pathology	Charles University in Praha Masaryk University in Brno Institute of Biophysics of AS CR General Teaching Hospital in Praha	I. Raška

	Project ID	Project name	Grantees	Co-ordinator
12	LC536	Integrated Centre for the Computer Processing of Natural Languages	Charles University in Praha Masaryk University in Brno West Bohemia University in Plzeň Czech Language Institute of AS CR	J. Hajič
13	LC538	Biblical Studies Centre	Charles University in Praha Institute of Philosophy of AS CR	P. Pokorný
14	LC542	Centre for the Advanced Political-Economical Studies	National Economy Institute of AS CR Charles University in Praha	J. Švejnar
15	LC544	Research of technological functions in creations and performances of art pieces	Academy of Arts in Praha Masaryk University in Brno	I. Kurz
16	LC545	Functional Cell Organisation Centre	Institute of Experimental Medicine of AS CR Charles University in Praha Institute of Molecular Genetics of AS CR Institute of Microbiology of AS CR	P. Hozák
17	LC546	Research Centre for the Development in the Czech Language (from the old Slavic roots to the current situation)	Czech Language Institute of AS CR Masaryk University in Brno Palacky University in Olomouc	H. Karlíková
18	LC554	Neuroscience Centre	Institute of Experimental Medicine of AS CR Institute of Physiology of AS CR Institute of Clinical and Experimental Medicine Charles University in Praha	J. Syka

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7.4.3. 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. The review of topical areas within the mentioned topical programmes is presented in **Table VII**.

Table VII. – 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 T 2-1-2 Systems and methods for the assessment of healthy and sound food materials, foodstuffs, and feeds T 2-1-4 Non traditional utilisation of agricultural produce T 2-2-1 Development of new diagnostics based on molecular-biological methods T 2-2-2 Molecular genetics and biotechnology for new medicine T 2-2-3 Nanomaterials in biology and medicine T 2-2-4 Biomaterials for the medicine of transplants T 2-2-5 Genomics, proteomics, and pathophysiology of cardiovascular diseases T 2-2-6 Genomics, proteomics, and cell differentiation in oncological diseases T 2-3-1 Limitation of surface water pollution T 2-3-2 Bioremedy of the environment with the aid of microorganisms T 2-3-3 Modernisation of waste management T 2-3-4 Biodiversity 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 T 3-1-2 Opened and mobile systems for the Internet and industrial applications T 3-1-3 Security of information and encrypting T 3-1-4 Information infrastructure, e-learning, and virtual workplaces 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 T 4-1-2 Modernisation of the Czech public policy and administration within the EU context T 4-1-3 Migration issues and their impacts on the Czech society T 4-1-4 Modernisation of public services T 4-1-5 Institutional framework for the social-economic stratification processes 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 P 1-2 Strengthening of research at universities and in other scientific workplaces P 1-3 Improvement of the attractiveness of careers and the support of equal opportunities in research P 1-4 Making research popular P 1-5 Support of migration

7.4.3.1. The programme "Healthy and Quality Life" (2B)

Objectives of the topical programme

1) The procurement of new processing, distribution, control, and distinct identification processes of healthy and sound food, and the finding of their new sources.
2) The creation of new breeding systems for production organisms.
3) 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.
4) The increased therapeutic efficiency and drug safety.
5) The development of new processes in the area of genomics of serious diseases.

6) The creation of new materials and processes for medicine.
7) 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.
8) The preparation of innovative processes for the waste management.
9) 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 Genomics, 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.

7.4.3.2. 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 multi-lingual 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.

7.4.3.3 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.

7.4.3.4. 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 Sciences 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 Sciences 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.

7.4.3.5. 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.

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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 2006:

- "Population Health" (1A) – 2004–2006, 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 for 2006 was announced on 23 March 2005. The public tender for 2007 should be announced in March 2006.

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) **Internal Grant Agency of the Ministry of Health**
Palackého nám. 4, P.O.Box 81, 128 01 Praha 2
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MUDr. Ivan Pfeifer, CSc. – the Secretary of VR and SR IGA
M. Chumanová, the Secretariat, 224 972 637
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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
http://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 2006:

- 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 public tender for 2006 was announced on 28 April 2004. The public tender for 2007 should be announced in April 2006.

As from 2007, there should be projects solved within the new programme "Research Programme in the Agrarian Sector" (XA). The duration of this programme should be 2007–2012. No details have been known at the time of publication of this Guide.

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 OF THE MINISTRY OF AGRICULTURE 2005–2009 (QG)

The "Research Programme of MA 2005–2009" has been focussed especially on the actual issues of prevention and protection of nature as a whole. The requirement on the prevention has become an inseparable part of the worldwide research and development, which was caused by impacts of many economic factors.

The "Research Programme of MA 2005–2009" is characterised as a complex of selected areas in the agrarian sector, which corresponds with the Act No. 130/2002 Coll. on the support of research and development from public funds and on changes in some relevant laws (the Act on the support of research and development). It is divided into two sub programmes: the "Agricultural Research," with the priorities in research and development projects with the 100% funding from the budget of MA and "Other Research in the Agrarian Sector" with the priorities in research and development projects requiring the funding in accordance with § 2 in the government Instruction No. 461/2002 Coll. on the target-oriented support of research and development from public funds and on the public tenders in research and development.

7.6.1.1. Sub Programme – Agricultural Research

The objective of the sub programme.

Creation of prerequisites for the development of agrarian sector as the main factor influencing the quality of life and the countryside development, increasing the consumer trust in products offered by the Czech agrarian sector, and significant contribution to considerate but targeted utilisation of these resources within the entire complex of the agrarian sector, while knowledge and research results are taken into account. The reasoning of the sub programme fills in, in an addressing way, aspects of the high quality and safe food chain as one of the substantial factors necessary for the improved quality of life of our population. The increased trust of consumers in the quality and safety of food produced in our country is one of the fundamental conditions on the development of the agrarian sector and the countryside as a whole. It will be the development of new detection methods allowing for the identification of foreign and pathogenic compounds. At the same time, it is necessary to pay our attention to the landscaping function of the agrarian sector, to the elimination of factors, which impact our environment in a bad way, to the improvement of basic resources (the soil and water), and to their considerate and efficient utilisation, including possible alternative programmes.

The proposed topical areas for new research orders partly copy the EU trend existing in the actual agrarian issues, especially in priorities of the topical area No. 1: The production and the processing of agrarian produce, No. 2: The support of the development in the countryside and in the water management infrastructure, and No. 3: Forests and the forest management. The topical area No. 4: The soil protection, quality of water resources, and the arrangement of the agrarian landscape presents especially the Czech priorities related not only to the increased care after the protection of water resources, but also to the solution of consequences of floods. The area No. 5 relates directly to the accession of the Czech Republic to EU.

The not resolving of the priorities described in the presented topical areas would result, in its results, not only in a slowdown, but also in the termination of several fields and it would increase the risk of damage caused by floods.

The character of the sub programme

The sub programme has been based on the agricultural research, for which projects can be presented with the target-oriented support from the budget of the Ministry of Agriculture, up to the level of 100 %.

Topical areas

1. Production and processing of agrarian products
2. Support of the development of the countryside and of the water management infrastructure
3. Forests and forest management
4. Protection of soil, the quality of water resources, and the arrangement of the agricultural landscape
5. Social-economic impacts of the accession to EU on the quality of life of the agricultural and country population

7.6.1.1.1. Production and processing of agrarian products

Priorities

a) Possibilities for the influencing of quality and safety of the food chain

Objective:

Establishment of factors, which influence the quality of agrarian sector products, and the possibilities in the elimination of effects influencing the safety of the food chain.

b) Crops, races, and species ensuring the high quality production suitable for specific utilisation in the food industry and for the production of feeds

Objective:

Finding specific agrarian products usable as raw materials (or components) for special food, the food supplements and feeds, especially as replacements of components of the animal origin.

c) Ecological agriculture and the bio-foodstuffs

Objective:

Finding possible improvements of ecological agricultural products and the development of the bio-foodstuff market, and possibilities in the transfer of experience from this area to the conventional and integrated agriculture.

d) Innovation of systems and methods in the protection of plants ensuring the health of cultural plants

Objective:

Preparation of methodical processes and a technology within protection provisions, which would increase the quality of products, ensure the safety of food, and limit negative impacts of the plant protection on the environment. Development and verification of the effectiveness of biologic means used for the protection and other alternative ways of protection, including the development of resistant species, and the preparation of preventive protection methods, which would ensure the health of seeds and seedlings.

e) Preventive provisions in the animal production and the alternative ways of care after farm animals

Objective:

Preparation of the methodology for the feeding and nutrition of animals as the preventive provision and methodology for the alternative treatment of animals. Defining and proposing the application methods for the renewal of the balance state in animal organisms with the stress put on the animal health and reproduction.

f) Utilisation of bio-technologies and the molecular-genetic methods for the analysis and improvement of the gene pool and the health of farm animals

Objective:

Increases in the quality of the gene pool of farm animals with the utilisation of the methods of molecular genetics.

g) Solution of the issue of wastes in the agrarian sector

Objective:

Lowering of waste production and the extension of recycling and alternative use of biological waste in the agrarian sector.

h) Development and verification of technologies utilising confiscates of the animal origin, the slaughterhouse waste respectively

Objective:

Development and verification of technologies, which would ensure the use of slaughterhouse wastes for other than feeding purposes in accordance with the valid veterinary legislature and the legislature of the environment.

i) Research and development of technologies directed to the achievement of European standards BAT –Best Available Technique, in the area of farm animals

Objective:

Development of new processes for the achievement of standards, which would correspond with the European requirements as in the Act No. 76/2002 Coll. on the integrated prevention in the area of agriculture.

7.6.1.1.2. Support of the development of countryside and the water management infrastructure

Priorities

a) Possibilities in increasing the share of renewable resources of energies and heat from the agriculture and forestry

Objective:

Finding technical and energy plants suitable for the growing, while considering the land characteristics. Proposition of the technical utilisation of field crops and forest woods and the manufacturing possibilities for their energy utilisation, according to instructions and environmental requirements of EU. Proposition of complex solutions of the utilisation of renewable resources from the regional point of view.

b) The impact of penetration of waste water pre-treated by the aerobic and anaerobic ways on the quality of underground waters in relation to the amount of these waters, the soil and geologic profiles, and the way of the pre-treatment

Objective:

Finding the limit of the not harmful penetrating releases with the determination of the amount of penetrating water; Monitoring of the effects on the soil and geologic profiles; Monitoring of effects of the pre-treatment.

c) Issues in operational management of reservoirs and water management systems within the conditions of the climatic change with the impact on the organisation of drinking water and industrial water supplies

Objective:

Establishment of possible impacts of the climatic change defined on the basis of the recent accessible scenarios on improvement effects of specific reservoirs and water

management systems and on the organisation of water supplies both for drinking and industrial purposes. Finding tools for the reservoir and system management within the conditions of an increased uncertainty resulting from the possible climatic change and its scope.

d) Social and human capital of the countryside

Objective:

Organisation of the development of the settlement structure in relation to the development of multi functional agriculture within the conditions of developed services and crafts. Proposition of strategic provisions stopping the unfavourable trends of people moving out of the countryside and the support of diversification of activities and creation of jobs.

7.6.1.1.3. Forests and the forest management

Priorities

a) The complexity of woods withering

Objective:

Establishment of preventive provisions for the utilisation of forest functions and alternative ways of the woods protection. Determination of the impacts on forest health and the prediction of further deterioration from the locality and intensity points of view. Directing the utilisation of preventive forest caring provisions to newly threatened areas.

b) Possibilities and the speed of the forest environment renewal after the replanting of non forest and ravaged localities

Objective:

Analyses of the speed in the creation of non forest soils and in the renewal of forest ecosystem, i.e. soil, top soil form, phytocenosis, zoocenosis, and the indication of possible risks in the developments in ravaged localities.

c) Utilisation of geographically not origin woods in the poly-functional and permanently sustainable forest management

Objective:

Definition and specification of the roles of autochthonous and introduced geographically not original woods and the definition of their place in the systems of poly-functional forest management.

d) Complex research of the relation between wild animals and plants, including damage and impacts of wild animals on forest ecosystems and economic cultures

Objective:

Finding about damage caused by wild animals in connection with their numbers, which might exceed the tolerable numbers, including the real impact of wild animals on agricultural and forest cultures and forests.

7.6.1.1.4. Protection of soil, the quality of water resources, and the arrangement of the agricultural landscape

Priorities

a) Maintenance and development of functions of the agricultural landscape

Objective:

Proposition of possible ways influencing the economic and the environmental situations in country areas with the support of landscaping functions of the agriculture and forestry in the long-term utilisation of the country potential, the land planning in country areas, the arrangement of land lots in the country, and the differentiated protection of the land resources within regions. The utilisation of landscape aspects in the protection of agricultural, forest, and water ecological systems and the impacts of forest and water ecosystems on the landscape, especially in the role of stabilising ecological items.

b) Changes in the development of soil characteristics and the elimination of negative phenomena for the benefit of the protection of the land resources

Objective:

Establishment of the potential of degradation changes, including the proposal of their limitation. Finding about immediate changes in soil during different uses of technical means and technological processes used for the management of agricultural soils.

c) Utilisation of soil in mountainous and submontane areas

Objective:

Proposition of variants in the management from the maintenance of biodiversity and the protection of soil points of view.

d) Management of areas under a specific mode

Objective:

Ensuring the utilisation of preventive processes in favour to renewal processes in agriculture and its relation with water and other parts of the environment.

e) Protection of ponds and water reservoirs against sedimentation and the removal of its consequences

Objective:

Establishment of the amount of sediments and the speed of sedimentation in relation to the managed utilisation of the land and the proposition of provisions lowering water erosion of soils and thus also the sedimentation of ponds and water reservoirs. Finding a representative set of ponds and small water reservoirs, while considering the general distribution of water works in the Czech Republic.

f) Improvements in the water management

Objective:

Improvements in surface and underground water resources with the utilisation of fish communities as indicators of water cleanliness, including proposals of objects suitable for the bidirectional fish migration.

g) Revitalisation of water flows and works ravaged by floods

Objective:

Finding about the optimal ways of the revival of reservoirs and flows ravaged by floods. Proposition of key principles for the renewal of water resources after floods.

h) Research of the water retention time in the crystalline areas in the Czech Republic and its impact on floods and on the nitrate values in water

Objective:

Assessment of the water retention time in a saturated zone, including the assessment of draining effects and the removal of permanent growth in the crystalline area in the Czech Republic on the water quality.

i) Impacts of the climatic changes on agrarian systems

Objective:

Finding about the impacts of climatic changes on the plant growth and the establishment of variant sets of adaptation provisions, according to the assumed climate development scenarios.

7.6.1.1.5. Social-economic impacts of the accession of the Czech Republic to EU on the quality of life of the agricultural population in the countryside

Priorities

a) Prognosis of impacts of the reforms, according to the Joint Agricultural Policy, on the Czech agrarian area

Objective:

Solution of impacts of the terms‘ observation, according to the „Integrated prevention and limitation of pollution“ in the agrarian sector of the Czech Republic, on the environment and the economy of companies and the entire sector and proposals suggesting state provisions for more effective utilisation of structural support by EU in this area. Solution of impacts of the SZP reform in important industries on the economic situation of the agrarian sector in the Czech Republic and of its companies, and on the market development. Finding the possibilities of better solutions improving the institutional infrastructure of the agrarian sector in the Czech Republic.

b) Improvements of cross conditions on the provision for direct payments

Objective:

Proposition of the supplementation of binding EU cross conditions on the provision for direct payments within the SPS system with specific Czech conditions after 2006.

c) Management of the agricultural and food manufacture

Objective:

Organisation of the optimal management in the area of plant and animal produce and food manufacture with the focus on the organisation and controls of plant and farm animal health and on the quality of produced materials as understood by consumers, who require the health assurance.

7.6.1.2. Sub Programme – Other research in the agrarian sector

Objective of the sub programme:

According to the conception of the agrarian policy, to support the research and development of the enterprising sector that utilises resources within the agrarian sector. It is the development of new technologies and production utilising local specifics for the proportional development, especially in the so far mostly on agriculture focussed countryside areas.

Reasoning

In order to fulfil the conception of the agrarian policy and the development of the countryside, it is necessary to pay an increased attention to founding of small and medium-size manufacturing enterprises, which would be the bearers of the biggest progress in given areas. The founding of these new enterprises will be closely connected with research results in the field (the usual process of founding modern manufacturing enterprises, e.g. in USA and in advanced countries). The efficient involvement of research in this process is necessary and the development of this kind of enterprising could be considered as fundamental from the countryside development point of view.

Characteristics of the sub programme

The sub programme has been put together for the projects within the area of the agrarian sector, which might have the character of agricultural or industrial research. In the case of the industrial research, the co-funding is necessary in accordance with the valid legal regulations — the Act No. 59/2000 Coll. on the public support, the Act No. 130/2002 Coll. on the support of research and development from public funds and on changes in some relevant laws (the Act on the support of research and development), and the government Instruction No. 461/2002 Coll. on the target-oriented support of research and development from public funds and on public tenders in research and development.

Topical areas

1. Agrarian technology and products
2. New directions in research

7.6.1.2.1. Agrarian technologies and products

Priorities

a) Foodstuffs from local resources

Objective:

Identification of products having specific quality features and high adaptation to regional conditions.

b) Wood as the renewable resource

Objective:

Proposition of the utilisation and rationalisation of the wood use in different sectors

of human activities with the focus on possibilities in the production, manufacturing, and safety of its use.

c) Food related technologies

Objective:

Research and development of technologies focussed on the achievement of the European standards BAT - Best Available Technique, in the area of the food industry as required by the Act No. 76/2002 Coll. on the integrated prevention in the area of agriculture.

d) Long distance water transport and the research of bio-degradation parts of carbon in natural water (BDOC) and their influences on the bacterial contamination of drinking water during its transport.

Objective:

Improvements of the technical and biological treatment of drinking water and its sound transport.

7.6.1.2.2. New research directions

Priorities

a) New research directions in the agrarian sector

Objective:

The utilisation of new ideas and hypotheses with proposals of further research solutions with the clear chance of application within the agrarian sector, which have not been included in previous topical areas.

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 2006, funds for project solutions within the following research programmes:

- Hydrosphere II (1997–2006) – (SA), to be finished in 2006
- Wastes (1998–2006) – (SD), to be finished in 2006
- Biosphere (1997–2006) – (SE), to be finished in 2006

  Characteristics of these programmes will not be described in this Guide.
- 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 these programmes were described in the "Guide 2005". No more public tenders will be announced.

The Ministry of Environment expects the announcement of the public tender on the new "Sector Research Programme of ME" (SP) – (2007–2010) in 2006. Terms of the public tender and the date of its announcement have not been known at the time of publication of this Guide.

7.7.1. CONTACT

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