

GOVERNMENT BUDGET APPROPRIATIONS OR OUTLAYS FOR R&D BY SOCIO-ECONOMIC OBJECTIVES (GBAORD) – METHODOLOGICAL INTRODUCTION

A. METHODOLOGY

Among main duties of the government in the science and technology area, respective in research and development area, belongs also the role of policy maker, who establishes the strategy of the research and development policy in medium-term period. In the Czech Republic, the national research and development policy is declared in the document *“National research and development (and innovation since 2009) policy of the Czech Republic”*¹. Appropriate indicators of the status and development of investment and human resources in research and development are necessary for the preparation of a draft national policy of research and development and the subsequent allocation of financial support for research, development and innovation. This data is provided by the Czech Statistical Office. GBAORD indicators fall into the group of input indicators (the investment in R&D is monitored), while for example innovations fall into the category of so-called output indicators (specific use of research and development).

The aim of GBAORD (Government Budget Appropriations or Outlays for R&D by Socio-economic Objectives) **is to provide data on the government support of R&D funding from public budgets broken down by socio-economic objectives**. The GBAORD data helps the member EU countries to decide which R&D fields need to strengthen funding in the forthcoming years.

A.1 Legislative background

Within the European Community, the GBAORD project is organized on obligatory base under **Commission regulation (EC) No 753/2004** of 22 April 2004 implementing Decision No 1608/2003/EC of the European Parliament and of the Council regarding statistics on science and technology. The collecting of GBAORD data is obligatory for the Czech Republic. The principal national regulation on research and development is **ACT No. 130/2002 Coll.**

A.2 Methodological sources

Methodological information about the GBAORD project can be found in the international manual *“Proposed standard practice for survey on research and experimental development”* known as **“Frascati manual”** (revised version 2002), which was initiated by the OECD. GBAORD data are broken down by socio-economic objectives on the basis of **NABS: Nomenclature for the analysis and comparison of scientific programmes and budgets** (rev. 1992, Eurostat 1994 and rev. 2007, Eurostat 2007).

A.3 Conception of GBAORD

Unlike other statistical surveys carried out in the field of research and development, GBAORD data are based on the analysis and identification of all appropriations spent on research and development (R&D) from public budgets. These government R&D appropriations are broken down by socio-economic objectives. This means that the approach is based on the funder of research and development activities (here the state represented by administration), unlike performance-based approach, which is adopted for example in the R&D survey (VTR5-01).

GBAORD covers all appropriations or outlays allocated to R&D from public budgets to support research and development, including all contributions to international R&D programmes or institutions abroad. Under definitions provided in the Frascati manual, pre-financing of projects financed by EU structural funds is excluded from GBAORD. The same approach is used for supporting innovation activities. The data are based on final budget appropriations (figures as voted by parliament for the coming year – provisional data) and actual outlays (money paid out during the year – final data). Public budgets cover the central government budget and provincial budgets. The central government is always included and provincial government is included when its contribution is significant. Local government funds are excluded.

GBAORD includes both current costs and capital expenditure. All support provided by repayable loans is excluded from GBAORD.

GBAORD also covers general university funds (SEO 10: General research financed by Ministry of Education), which have been defined using narrow definition in line with the Frascati manual as a sum of money given to universities by the Ministry of Education in support of their overall research activities.²

¹ The document *„National Research and Development Policy of the Czech Republic for 2009–2015“*, which takes into account the promotion of innovation in accordance with an amendment to the law on supporting research and development from public funds, is available on the following website: <http://www.vyzkum.cz/FrontClanek.aspx?idsekce=631>.

² In the case of the Czech Republic, the general university funds are not defined. For this reason, SEO 10 in line with the guideline of the Frascati manual covers money given to universities by the Ministry of Education in support of their overall research activities.

Codes of socio-economic objectives are distributed according to the purpose or general content of the R&D programme or project, or according to the research objective.

A.4 GBAORD in line with the system of the public support of research and development in the Czech Republic covers the following budget items

- Project funding (included in R&D&I Information System)
- Institutional funding – research intentions (included in R&D&I Information System)
- Specific research at universities (not included in R&D&I Information System)
- Funding to international research programmes and institutions (not included in R&D&I Information System)
- Other items – institutional funding of research organisations (not included in R&D&I Information System)

A.5 Short definition of terms

- **Project funding** – covers R&D projects.
- **Institutional funding** – covers research intentions.
- **Specific research at universities** – covers research performed by students in activities connected with accredited doctoral or master's programmes which is directly linked with the students' education.
- **Funding to international research and development programmes and institutions** – covers fees for participation of the Czech Republic in international programmes of research and development, fees for partnership in international R&D institutions or payments for the cooperation of the Czech Republic in R&D projects if they can be funded from public sources and if they are co-financed by EU or other international institutions.
- **Other items** – covers institutional funding of research organisations, R&D infrastructure (Academy of Science of the Czech Republic), specific research at universities (funded by Ministry of Defence) and other items connected with the administration and honours.

A.6 Transmission of GBAORD data

GBAORD data is to be send to Eurostat (on obligatory base) and OECD (on voluntary base of membership) twice a year as:

- Provisional data
- Final data

On the above mentioned legal act, Eurostat is provided with provisional GBAORD data (government R&D appropriations in the provisional budget – as approved by the Parliament at the beginning of the budget year) within 6 months of the end of the calendar year, and with final data (government R&D appropriations in the final budget) within 12 months of the end of the calendar year.

A.7 The Chapters (main socio-economic objectives) of the 1992 version of the NABS

Code	Main socio-economic objectives (SEO)	Number of sub-objectives SEO2	Number of sub-objectives SEO3
SEO01	Exploration and exploitation of the Earth	8	0
SEO02	Infrastructure and general planning of land-use	8	0
SEO03	Control and care of the environment	11	0
SEO04	Protection and improvement of human health	10	0
SEO05	Production, distribution and rational utilization of energy	8	4
SEO06	Agricultural production and technology	8	0
SEO07	Industrial production and technology	14	10
SEO08	Social structures and relationships	9	0
SEO09	Exploration and exploitation of space	6	0
SEO10	Research financed from General University Funds (GUF)	10	0
SEO11	Non-oriented research	10	0
SEO12	Other civil research	0	0
SEO13	Defence	0	0

NOTE: The complete list of all socioeconomic objectives can be found in the methodology annex. The classification NABS 1992 with detailed description of objectives is available in PDF format on the website of the Czech Statistical Office at http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NABS_1992&StrLanguageCode=EN&IntPcKey=&StrLayoutCode=HIERARCHIC.

B. GBAORD IN THE CZECH REPUBLIC

In the Czech Republic, the GBAORD project is realized in close cooperation with R&D Council and the Ministry of Education, Youth and Sports through the Information system of research and development and its related databases.

The concept of the GBAORD project takes into account existing legal rules as stated in the Legislative Act No. 130/2002 Coll. on the Support of Research and development and government regulations, especially the Government Regulation No. 267/2002 on the Information System of Research, Development and Innovation³. According to the current law, the R&D Information System administrator is the Research and Development Council. The CEP database (Central register of R&D projects) and the CEZ database (Central register of research intentions) are used for the needs of the GBAORD project. Supplementary data are obtained from the department of budget preparing at the R&D Council. EP and CEZ databases do not include all government appropriations on R&D, and that is why detailed information about contributions to international R&D programmes or institutions abroad and the specific university research must be obtained in cooperation with the Ministry of Education. Some data on socioeconomic objective SEO 10 (e.g. general university research broken down by fields of science) are taken directly from universities. Information about returnable loans was taken directly from providers (government departments), which fund R&D activities through their budgets. In the period of 2002–2005, this concerned only two providers. Since 2006 no returnable loans have been identified.

The processing of the GBAORD project and distribution of codes of socio-economic objectives (SEO) by NABS are carried out by employees of the Czech Statistical Office. According to the data in the CEP and CEZ databases and in line with methodological guidelines of the "Frascati manual", non-R&D appropriations must be excluded from GBAORD. In this case it regards returnable loans (only projects carried out before validation Act no. 130/2002 Coll.) and certain administrative costs. Adjusted data are classified by NABS at 3-digit level of socio-economic objectives. Multi-annual projects are processed by database software and new entered projects by the manual procedure according to a specific classification key based on the structure of the CEP and CEZ database.

Since 2006 there has been a system of sophisticated control tools that further improves the quality of data. Concerning GBAORD data 2006, the complex quality report was set up within the grant project Transition Facility 2004, which was granted by Eurostat. The quality report will be submitted to Eurostat every 2 years in accordance with the new legal act for quality report in R&D statistics.

Since 2006 new formulas for better estimation of preliminary data have been used as well. The methodology of these estimations will be further developed. Eurostat for GBAORD data also publishes its own estimations for every 2 forthcoming years (t+1, t+2).

Since 2007 the revised and much simpler classification NABS 2007 has been used for GBAORD data. Data are published simultaneously according to both the old (detailed) NABS 1992 and the new NABS 2007.

Since 2008 the CZSO has launched activities on linking GBAORD data with other surveys (especially with data from the research and development survey VTR5-01) and with the Business register. Now there is more data available according to additional breakdowns (for example: regions – NUTS3, beneficiaries, type of support) on the CZSO website.

In 2009, the further stage of GBAORD data enlargement based on Eurostat's and OECD's initiative was introduced. It covered the public support for international R&D programmes and institutions, especially 7th Frame programme. The stage also included a pilot coverage of the EU structural funds. The CZSO is actively involved in the process of forming new experimental indicators within the ERA project, which is led by Eurostat in cooperation with other statistical offices. The CZSO prepared pilot data from this project for the reference year 2008/2009. Data will be published on the regular basis starting from 2013 for the reference year 2010.

C. THE CHANGE OF THE METHODOLOGY OF GBAORD(I) IN THE CZECH REPUBLIC SINCE 2010

In 2010 the amendment of Act No. 130/2002 Coll. on research and development from public funds came into force. This led to a fundamental change in public support when the promotion of innovative activities was implemented in the public support. Public expenditure on research and development was renamed as public expenditure on research, development and innovation. The corresponding English abbreviation for the new name would be GBAORDI. However, such an indicator has been defined neither by Eurostat nor by the OECD yet. Therefore, the CZSO will attempt to eliminate the promotion of innovation, when possible, so that the data will match the existing GBAORD definition, as described in Chapter 8 in "Frascati Manual". In the purpose-oriented support it is not a problem to exclude promoting innovation, while concerning the institutional support that is difficult as research objectives gradually cease to exist.

³ For more information about the Information System of R&D&I, see the following website: <http://www.vyzkum.cz/>.