INSTRUCTIONS
for filling in the form

"REPORT ON GOVERNMENT BUDGET OUTLAYS FOR RESEARCH AND DEVELOPMENT, 2021 – 2022"

Belgrade, 2022.

INSTRUCTIONS FOR FILLING IN THE FORM BIN

In the beginning when filling in the form **BIN,** distinction should be made between the R&D activity and activities other than R&D. The main difference between the R&D activity and activities other than R&D is in a larger presence or absence of novelty or innovation elements.

Activities not falling within R&D are excluded from the coverage:

- Routine testing and analysis of all kinds, whether serving for the control of materials, components or products, whether to control their quality and quantity (testing and analysis being part of a R&D process should be however included);
- Market research, operational researches, working studies, cost analysis, management activities, etc;
- Experimental production which primary objective is not to improve a product;
- Design costs for following up changes in fashion trends and following up work on artistic design;
- Legal and administrative work connected with patent application and registration, work connected with patent and licence sale, experimental work serving only patent registration.

Table 1

Row 01 is the sum of rows 02 + 03 + 04 + 05 + 06 + 07 + 08 + 09 + 10 + 11 + 16 + 17 + 18 + 19

Row 11 is the sum of rows 12 + 13 + 14 + 15. Funds intended for participation in international programs and projects with an R&D function are presented here.

Line 12 National Contributions to Transnational Public Contractors for Research and Development presents funds from the state budget intended for financing transnational public contractors for research and development, ie intergovernmental bodies or bodies of the European Commission that conduct research and development in their own research facilities. This category includes the six largest and most well-known transnational public contractors in Europe: CERN (European Organization for Nuclear Research), EMBL (European Molecular Biology Laboratory), ESRF (European Synchrotron Radiation Facility), ILL (Laaue-Langevin Institute), ESO (European Southern Observatory), JRC (European Commission Joint Research Center).

In line 13, show national contributions to transnational public R&D programs across Europe, which fall into two categories:

a) Transnationally co-financed public and R&D programs with cross-border funding. This category includes cross-border funding flows from EU Member States, candidate countries (Albania, Montenegro, Macedonia, Serbia, Turkey) or EFTA countries (Iceland, Liechtenstein, Norway, Switzerland) to the common central budget. Such programs are used to fund national research activities using national research and development capacities. However, these programs usually include some form of transnational coordination (common goals / research plan, transnational consortium of projects, etc.).

b) Transnationally co-financed public research and development programs / schemes without cross-border funding - this category includes cross-border coordination of research plans, research objectives, etc., but does not include cross-border funding. National authorities coordinate activities with other participating countries, but pay R&D contractors on their territory from their own budget (ie each country funds its own research teams).

Examples: HERA JRP UP (Joint Research Program); ERA-NET SmartGridPlus; GeoERA; ESA programs; ECF - European Collaborative Research Projects in the Social Sciences (ECRP); Eureka; COST actions; ECF - EEUROCORES.

Line 14 National contributions to bilateral or multilateral public research and development programs established between the governments of EU countries, candidate countries and EFTA countries show the national budget funding of public research and development programs not funded by the European Commission. They may or may not involve cross-border flows of funds.

Examples: Polish-French cancer research program, French-German DEUFRAKO transport agreement, Nordic joint research funding programs (NordForsk, NICE), etc.

In line 15 National contributions for other international research and development programs and projects, show the funds allocated for participation in international research and development programs and projects that are not presented in the previous three categories. Enter the amount spent on international projects in multilateral and bilateral cooperation with non-EU countries, EFTA or candidate countries, international projects of the Seventh Framework Program for Research and Technological Development of the European Union, OVERVIEW 2021, national contribution to EU-funded programs and any other payments abroad for the direct promotion of international research.

Lines 16 and 17 list the funds intended for higher education institutions to support their research and development activities within higher education institutions. The cost of training new researchers is not included here (show these investments in line 07).

Table 2

The assets shown in Table 1 are classified in Table 2, according to research areas, socio-economic objectives and performance sector.

Row 01 is equal to the sum of rows 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 20 and 27.

Row 13 is equal to the sum of 14, 15, 16, 17, 18 and 19.

Show the funds that the Ministry of Education, Science and Technological Development intended for the higher education sector for research and development in line 13. General university funds refer to the financing of regular teaching and research activities of higher education institutions by the Ministry of Education, Science and Technological Development.

These include funds provided by the Ministry to higher education institutions to support all research or teaching activities.

Row 20 is equal to the sum of 21, 22, 23, 24, 25 and 26.

The purpose of the research and development program or project for which budget funds are allocated is presented according to the socio-economic goals determined by the Nomenclature for the analysis and comparison of scientific programs and budgets (NABS 2007). The socio-economic goal is the basic purpose of the funds allocated for research and development set by the OECD.

It is important to determine the socio-economic goal of the program or project to be financed according to its purpose, and not according to the content of that program or project.

According to the Fraskati manual, the purpose is more important than the content of the program or project from the aspect of research and development policy of the Republic of Serbia, and if the program or project has more goals, the data should be presented according to the basic goal.

Table 3

Table 3 shows the planned financial resources according to the adopted budget for 2021 (before the budget revision) according to the socio-economic goals stated in the Nomenclature for analysis and comparison of scientific programs and budgets (Annex 2).

Row 01 is equal to the sum of rows 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 20 and 27.

Row 13 is equal to the sum of 14, 15, 16, 17, 18 and 19.

Row 20 is equal to the sum of 21, 22, 23, 24, 25 and 26.

Methodoligal explanations

1. Legal framework

The stastistical survey on budget appropriations and outlays for research and development is regulated by the Law on Official Statistics ("Official Journal of the RS" ", number 104/09).

2. Methodological basis

The methodology for the survey is harmonised with the international standards set up by OECD and published by the latter in the Frascati Manual *(The Measurement of Scientific and Technological Activities - Proposed Standard Practice for Surveys of Research and Experimental Development - Frascati Manual,* 2002 and 2007; publisher: OECD*).*

2.1. Objective and scope of the statistical survey

The survey on government budget appropriations and outlays for research and development (form **BIN**) is aimed to obtain data on budgetary funds of the Republic of Serbia devoted to R&D. Those are funds that the Republic has devoted for R&D according to the type of incentive and intended socio-economic objective. The aim of the survey is to enable the monitoring of the R&D policy of the Republic through its financing of the R&D activity. Unlike surveys undertaken by organisations engaged in R&D, this survey is focused on organisations that finance R&D.

2.2. Coverage

The statistical report on government budget appropriations and outlays for research and development (BIN) is to be completed by all direct beneficiaries of the budget of the Republic that participate in the allocation of funds for R&D in the Republic of Serbia.
Reporting units (financiers of R&D) indicate the realised budgetary funds for R&D (after budget adjustment) and planned budgetary funds for R&D (before budget adjustment).
Data on government budget appropriations and outlays for R&D include also the financing of current costs and capital expenditures of R&D.

2.3. Definitions of main concepts

When speaking of R&D the most frequent terms are "science and technological development", "scientific research and research-development work", i.e. "research and development – R&D" or only "s*cience, technology and innovation – STI".* To avoid possible ambiguity but also for comparison with the situation in the rest of the world and use of common terms used in various reports of the UNESCO, OECD, EUROSTAT and other similar organisations the following is to be taken into consideration: science development shall imply the development of scientific research activity; technological development shall imply, mostly, the development of research development activity; technological development shall imply, mostly, the development of research-development activity; development of technology, i.e. the concept "research and development" (R&D) is in a way synonym of "scientific and technological development, the abbreviation "IR" corresponding to the abbreviation "R&D".

Science is a set of systematised and argument-based knowledge, i.e. facts, concepts, principles, data, information, theories, laws and patterns in a selected historical period about objective reality, i.e. nature and society, obtained through the application of objective scientific methods, and which main purpose and objective is to apprehend the laws and patterns about the past, the present and future of natural and social phenomena, as well as to improve efficient work in all fields of human activities.

Scientific research is theoretical or experimental work undertaken for acquiring new scientific knowledge and increasing human stock of knowledge. Scientific research implies basic and applied research.

Basic research implies research that increases the general stock of scientific facts and knowledge, and determines new fields of human knowledge and perception, but not involving or not necessarily involving any direct application of the obtained results. Basic research discovers phenomena, processes, cause-and-effect relationships and patterns in nature, society, as well as human thoughts primarily in order to improve human knowledge and create basic knowledge that serves as a base for applied and experimental (development) research, and which does not have any direct commercial objectives.

Applied research is theoretical or experimental work undertaken in order to acquire new knowledge, and directed towards resolving any practical task, i.e. achieving any practical objective. Applied research broadens and deepens existing knowledge in order to solve certain problems. It is undertaken for possible application of the results of a basic research or for establishing new methods or procedures for achieving an objective set in advance. Therefore applied research is directed towards acquiring new scientific knowledge and applying the latter in order to achieve certain commercial objectives.

Experimental (development) research is systematic work, based on knowledge acquired through basic or applied research, i.e. practical experience, which is primarily directed towards introducing new processes, products and services. Those are processes occurring between invention and production: experiments on drawings, development of prototypes, experiments, pilot projects, models, new solutions. This research has an extremely practical objective. Its main characteristic is a clear purpose and direct and quick profit in a specific field. Experimental (development) research is also called technological improvement.

Scientific development work is a systematic activity which, through the application of scientific methods, brings new scientific knowledge, i.e. uses creatively existing knowledge for new applications. This is creative work on acquiring new knowledge, which is aimed to raise the general civilisation level of society and to use that knowledge in all fields of socio-economic development. Scientific development work is undertaken by scientists and researchers selected in respective scientific, scientific-teaching and research titles.

Expenditure on research and development by types are divided into current costs and capital expenditures.

Current costs include:

a) labour costs (gross wages and salaries for all employees in the R&D activity); other R&D employees' remuneration costs, e.g. scholarships, gratuities, etc.

b) other current costs (material costs for R&D work – raw materials, supplies, energy; payments based on work by contract and work for hire; daily allowances, travel costs, representation, etc).

Capital expenditures include expenditures on land and buildings; machines and equipments; patents, licences, studies and projects; software and hardware (implying total expenditures related to the purchase of computers, devices, systems, components and equipment, as well as purchase costs or costs for software development for own account), and other expenditures.

According to the Frascati Manual, sectors are defined by the economic activity of the entity dealing with research development work. The definitions of the sectors are generally based on the System of National Accounts (SNA), the sector of tertiary education being observed separately, while households are attached to the non-profit sector. The decisive criterion for classification into sectors is the major source of financing of the business entity.

Non-financial (business) sector includes business entities and organisations which primary activity is the market production of goods and services and their sale at economically significant prices, as well as R&D incorporated units.

Tertiary education includes higher schools and universities with incorporated units, faculties, academies and R&D institutes, whatever the sources of finance and legal status. This sector covers also research institutes and clinics under the direct control or administration of a tertiary education organisation.

Government sector includes organisations, offices and other bodies, except tertiary education, furnishing to the community free common services which could not be provided under market conditions, and which reflect the economical and social policy of the society; by definition this sector covers the activities of the administration, defence and public order enforcement; health, education, culture, recreation and other social services.

Non-profit sector includes non-market private non-profit organisations serving households without charging or at a low price. Those organisations may be founded by citizens' associations, for providing goods and services to the members or for general purposes.

Sector abroad includes organisations and individuals being outside the political boundaries of a country, as well as corresponding land owned by those organisations. It covers also all international organisations, including their buildings on domestic territory. Are to be excluded from the sector abroad general contributions to organisations such as: UN, OECD, EU, etc, but are to be included appropriations and outlays for all other organisations such as: CERN, ESA, CGIAR, ESRF, EMBO, IAEA, COST and EUREKA..

ANNEX 1

CLASSIFICATION OF FIELDS OF SCIENCE

1. Natural sciences

- **101** Mathematics
- **102** Computer and information science
- **103** Physical sciences
- **104** Chemical sciences
- **105** Earth and related environmental sciences
- **106** Biological sciences
- **107** Other natural sciences

2. Engineering and technology

- **201** Civil engineering
- **202** Electrical engineering, electronic engineering, information engineering
- **203** Mechanical engineering
- **204** Chemical engineering
- **205** Materials engineering
- **206** Medical engineering
- **207** Environmental engineering
- **208** Environmental biotechnology
- **209** Industrial biotechnology
- **210** Nano-technology
- **211** Other engineering and technologies

3. Mecical and health sciences

- **301** Basic medicine
- **302** Clinical medicine
- **303** Health sciences
- **304** Medical biotechnology
- **305** Other medical sciences

4. Agricultural sciences

- **401** Agriculture, forestry and fisheries
- **402** Animal and dairy science
- **403** Veterinary science
- **404** Agricultural biotechnology
- **405** Other agricultural sciences

5. Social sciences

- **501** Psychology
- **502** Economics and business
- **503** Educational sciences
- **504** Sociology
- **505** Law
- **506** Political science
- **507** Social and economic geography
- **508** Media and communications
- **509** Other social sciences

6. Humanities

- **601** History and archeology
- **602** Languages and literature
- **603** Philosophy, ethics and religion
- **604** Arts (arts, history of arts, performing arts, music)
- **605** Other humanities

Source: *FOS - Fields of Science and Technology, OECD – 2006*

ANNEX 2

CLASSIFICATION OF SOCIO-ECONOMIC OBJECTIVES

Objective codes	SOCIO-ECONOMIC OBJECTIVES
001	**Exploration and exploitation of the Earth**
	- Exploration and exploitation of the Earth's crust, mantle, seas, oceans and atmosphere
	- Climatic and meteorological research, polar exploration and hydrology
	- Mineral, oil and natural gas prospecting
	- Exploration of the sea-bed
	- Hydrology
	- Seas and oceans
	- Atmosphere
002	**Environment**
	- Control of pollution, aimed at the identification and analysis of the sources of pollution
	- Pollutants, their dispersion in the environment and their effects on man, species (fauna, flora and microorganisms) and the biosphere
	- Development of monitoring facilities for the measurement of all types of pollution
	- Elimination and prevention of all forms of pollution in all types of environment
	- Protection of atmosphere and climate
	- Waste management
	- Water purification
	- Protection of soil and groundwater
	- Reduction of noise and vibrations
	- Protection of species and their habitats
	- Protection against natural hazards
	- Protection against radioactive pollution
003	**Exploration and exploitation of space**
	- Civil scientific exploration of space
	- Applied research programmes
	- Launch systems
	- Space laboratories and space travel
004	**Transport, telecommunications and other infrastructures**
	- Infrastructure and land development, including the construction of buildings
	- Protection against harmful effects in rural and urban planning
	- Transport systems
	- Telecommunication systems
	- General planning of land-use
	- Construction and planning of building
	- Civil engineering (bridges, roads, machinery, etc.)
	- Water supply
005	**Energy**
	- Production, storage, transportation, distribution and rational use of energy
	- Processes designed to increase efficiency of energy production and distribution
	- Energy efficiency, energy conservation study
	- Capture and storage of CO_2
	- Sources of renewable energy
	- Nuclear fission and fusion
	- Hydrogen and gas fuel cells
	- Other electrical energy and storage technology

Objective codes	SOCIO-ECONOMIC OBJECTIVES
006	**Industrial production and technology**
	- Improvement of industrial production and technology
	- Increasing of economic efficiency and competitiveness
	- Manufacturing
	- Waste recycling (metallic and non-metallic)
007	**Health**
	- Prevention, surveillance and control of communicable and other diseases
	- Monitoring of the health situation
	- Health promotion
	- Occupational health
	- Public health legislation and regulations
	- Personal medical care for vulnerable and high-risk populations
008	**Agriculture**
	- Promotion of agriculture, forestry and fisheries
	- Chemical fertilizers, biocides, biological pest control and mechanization of agriculture
	- Environmental impact of forestry activities
	- Production and technology in the foodstuffs industry
	- Agriculture, forestry and fishing industry
	- Veterinary science and other agricultural sciences
009	**Education**
	- General education, including training, pedagogy and didactics
	- Special education (to gifted people, people with learning difficulties)
	- Pre- and primary education
	- Secondary education
	- Tertiary education
010	**Culture, recreation, religion and media**
	- Impact of cultural activities, religion and recreation on life in society
	- Racial and cultural integration and socio-cultural changes in these areas
	- Includes sociology, religion, arts, sport and leisure
	- Culture includes: language, social integration, libraries, archives and external cultural policy
	- Recreational and sporting services
	- Cultural services
	- Broadcasting and publishing services
	- Religious and other community services
011	**Political and social systems, structures and processes**
	- Socio-political systems
	- Public administration and economic policy
	- Regional studies and multi-level governance
	- Social change, processes and conflicts
	- Development of social security and social assistance
	- Social aspects of the organisation of work
	- Gender discrimination
	- Development of methods of combating poverty at local, national and international level
	- Protection of specific population categories
	- Methods of providing social assistance
012	**General advancement of knowledge: R&D financed from general university funds:**
012.1	**R&D related to natural sciences**
	- Mathematics, computer and information science, physical sciences, chemical sciences, biological sciences, earth and related environmental sciences, other natural sciences

Objective codes	SOCIO-ECONOMIC OBJECTIVES
012.2	**R&D related to engineering sciences**
	- Civil engineering (bridges, roads, machinery, etc.), electrical engineering, electronic engineering, information engineering, mechanical engineering, chemical engineering, technology, health engineering, environmental protection, biotechnology, nano-technology, other engineering and technology
012.3	**R&D related to medical sciences**
	- Basic medicine, clinical medicine, medical biotechnology, other medical sciences
012.4	**R&D related to agricultural sciences**
	- Agriculture, forestry, fishery, animal and dairy science, veterinary science, agricultural biotechnology, other agricultural sciences
012.5	**R&D related to social sciences**
	- Psychology, economics and business, educational sciences, sociology, law, political sciences, economic and social geography, media and communications, other social sciences
012.6	**R&D related to humanities**
	- History and archeology, languages and literature, philosophy, ethics and religion, arts (arts, history of arts, applied arts, music, theatre) and other humanities
013	**General advancement of knowledge: R&D financed from other sources – other than general university funds**
013.1	**R&D related to natural sciences**
	- Mathematics, computer and information science, physical sciences, chemical sciences, biological sciences, earth and related environmental sciences, other natural sciences
013.2	**R&D related to engineering sciences**
	- Civil engineering (bridges, roads, machinery, etc.), electrical engineering, electronic engineering, information engineering, mechanical engineering, chemical engineering, technology, health engineering, environmental protection, biotechnology, nano-technology, other engineering and technology
013.3	**R&D related to medical sciences**
	- Basic medicine, clinical medicine, medical biotechnology and other medical sciences
013.4	**R&D related to agricultural sciences**
	- Agriculture, forestry, fishery, animal and dairy science, veterinary science, agricultural biotechnology, other agricultural sciences
013.5	**R&D in social sciences**
	- Psychology, economics and business, educational sciences, sociology, law, political sciences, economic and social geography, media and communications, other social sciences
013.6	**R&D related to humanities**
	- History and archeology, languages and literature, philosophy, religion and ethics, arts (arts, history of art, applied art, music, theatre) and other humanities
014	**Defence**

According to the OECD methodology - NABS 2007
(Nomenclature for the Analysis and comparison of Scientific programmes and Budget)

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