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Government budget appropriations for R&D, 2021/2022

− Research and development −

In 2021, 26.588.164 thousand RSD of budget funds were spent for research and development (R&D) activities in the Republic of Serbia, which is an increase of 5.3% compared to the previous year, 2020.

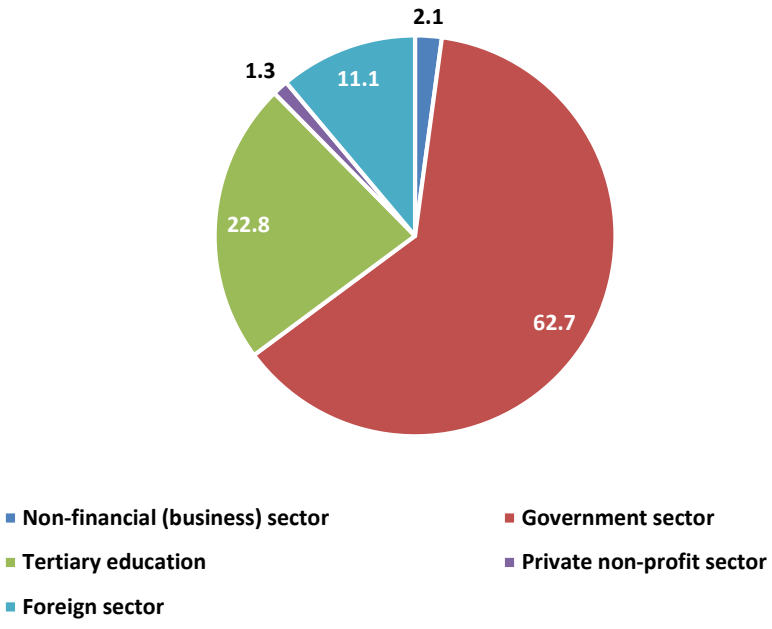
The share of total budgetary funds for R&D in GDP reached 0.42% in 2021.

The largest percentage of budget funds for R&D went to the government sector (62.7%), followed by the higher education sector (22.8%). Funds from international organizations participate with 11.1% in the total funds for financing scientific research work, the non-financial (business) sector participates with 2.1%, while 1.3% of funds were allocated for the non-profit sector.

Regarding to socio-economic goals, most of the budget funds allocated for R&D were spent for the goal Industrial production and technology (22.1%). 21.8% was spent for the goal General improvement of knowledge - Research and development financed from the general funds of the university, and the least funds were spent for the goal Research and exploitation of space (0.4%).

Funds planned for the R&D budget for 2022 (before the budget revision) amounted to 22.957.750 thousand. RSD. Most funds, 21.9%, are planned for the goal of General advancement of knowledge: from other sources – not from general university funds.

Graph. 1. Total expenditures for R&D in 2021, by sector, %

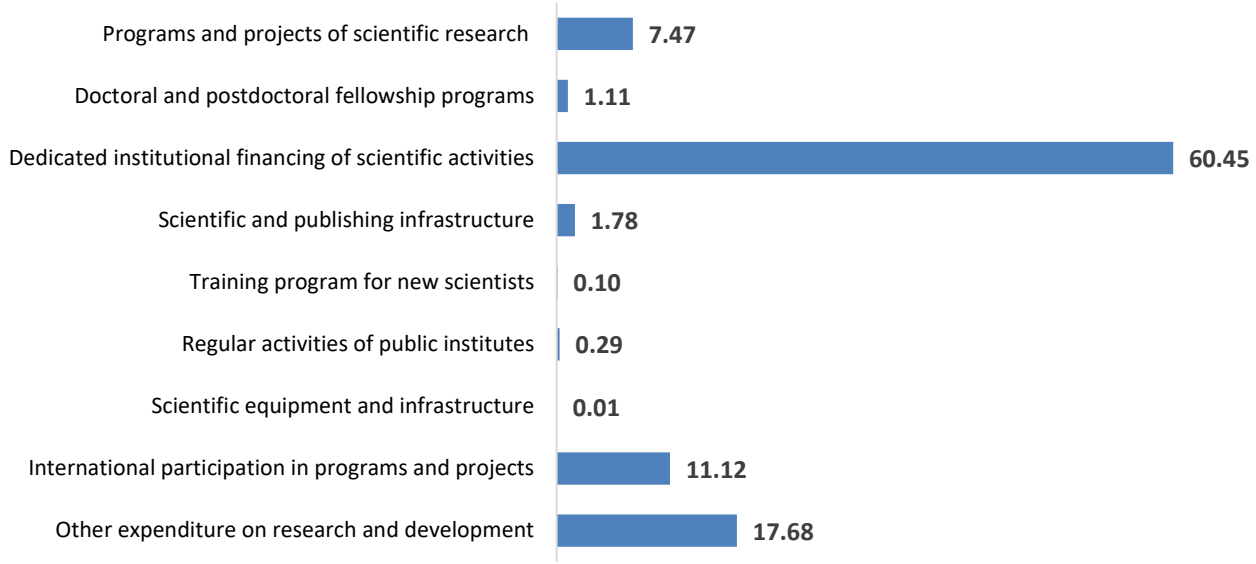


1. Budgetary funds of the Republic of Serbia for R&D (actual outlays) in 2021, by types of programmes and sectors

thous. RSD

Programmes	Total	Non-financial (business) sector	Government sector	Tertiary education	Private non-profit sector	Foreign sector[1]
Total	**26588164**	**571110**	**16672554**	**6051567**	**336972**	**2955961**
Programs and projects of scientific research	1985794	200	1826532	138062	21000	
Doctoral and postdoctoral fellowship programs	294063	-	4022	43013	247028	294063
Programs and projects of technological research and development activities	16070291	567448	9707274	-	-	-
Dedicated institutional financing of scientific activities	472735	3462	348987	58782	61504	-
Scientific and publishing infrastructure	25813	-	2232	16141	7440	-
Training program for new scientists	76790	-	76790	-	-	-
Scientific equipment and infrastructure	2857	-	2857	-	-	-
International participation in programs and projects that have the characteristics of research and development	2955961	-	-	-	-	2955961
- National contributions to transnational public R&D contractors	505103	-	-	-	-	505103
- National contributions to transnational public research and development programs across Europe	75389	-	-	-	-	75389
- National contributions to bilateral or multilateral public research and development programs established between the governments of EU countries, candidate countries and EFTA countries	50022	-	-	-	-	50022
- National contributions to other international programs and projects that have the characteristics of research and development	2325446	-	-	-	-	2325446
Other expenditure on research and development	4703860	-	4703860	-	-	-

Graph. 2 The share of budget funds for R&D in 2021 according to programs



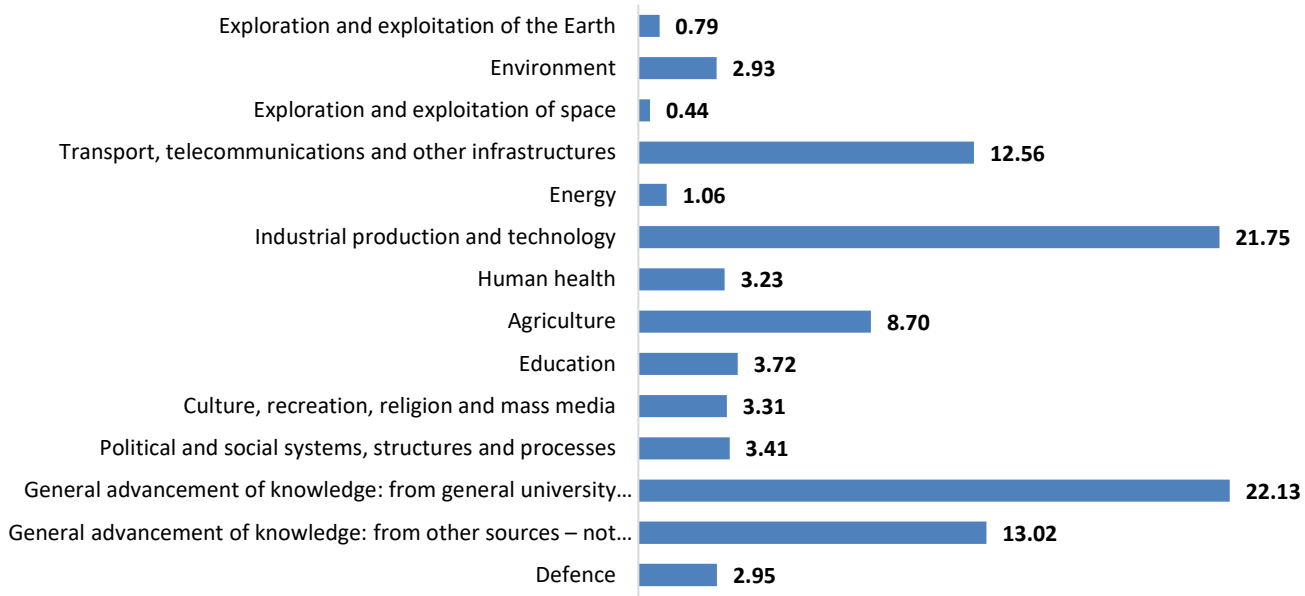
[1] The foreign sector includes organizations and individuals located outside the political borders of the country, as well as appropriate land owned by these organizations. It includes all international organizations, including their facilities in the domestic territory. The foreign sector should not include general contributions to organizations such as the UN, OECD, EU, etc., and should include allocations for all other organizations such as, among others, CERN, ESA, CGIAR, ESRF, EMBO, IAEA, COST and EUREKA

2. Budgetary funds of the Republic of Serbia for R&D (actual outlays) in 2021, by socio-economic objectives and sectors

thous. RSD

Socio-economic objectives of researches	Total	Non-financial (business) sector	Government sector	Tertiary education	Private non-profit sector	Foreign sector
TOTAL	26588164	571110	16672554	6051567	336972	2955961
Exploration and exploitation of the Earth	210838	23824	178914	8100	-	-
Environment	777914	13873	744541	13500	6000	-
Exploration and exploitation of space	116687	-	116687	-	-	-
Transport, telecommunications and other infrastructures	3339359	30174	3304382	4804	-	-
Energy	281926	6609	266117	9200	-	-
Industrial production and technology	5782061	310849	5452411	15100	3700	-
Human health	859187	6975	811332	40879	0	-
Agriculture	2314379	111078	2186205	11796	5300	-
Education	988016	3462	554632	108580	321342	-
Culture, recreation, religion and mass media	880732	200	866882	13650	-	-
Political and social systems, structures and processes	907502	1703	870200	35600	-	-
General advancement of knowledge: from general university funds	5884456	60311	45374	5778771	-	-
R&D related to natural sciences	1074384	3876	21620	1048888	-	-
R&D related to engineering and technology	1966317	44408	14768	1907141	-	-
R&D related to medical and health sciences	1027117	7413	8986	1010718	-	-
R&D related to agricultural sciences	421418	4614	-	416804	-	-
R&D related to social sciences	1064470	-	-	1064470	-	-
R&D related to humanities	330749	-	-	330749	-	-
General advancement of knowledge: from other sources – not from general university funds	3462025	2051	491795	11587	630	2955961
R&D related to natural sciences	743273	-	110821	1937	-	630515
R^D related to engineering and technology	2325446	-	-	-	-	2325446
R&D related to social sciences	1400	-	1100	300	-	-
R&D related to humanities	391906	2051	379874	9350	630	-
Defence	783082	-	783082	-	-	-

Graph. 3 The share of budget resources for R&D in 2021, by the socio-economic objectives (actual expenditure)

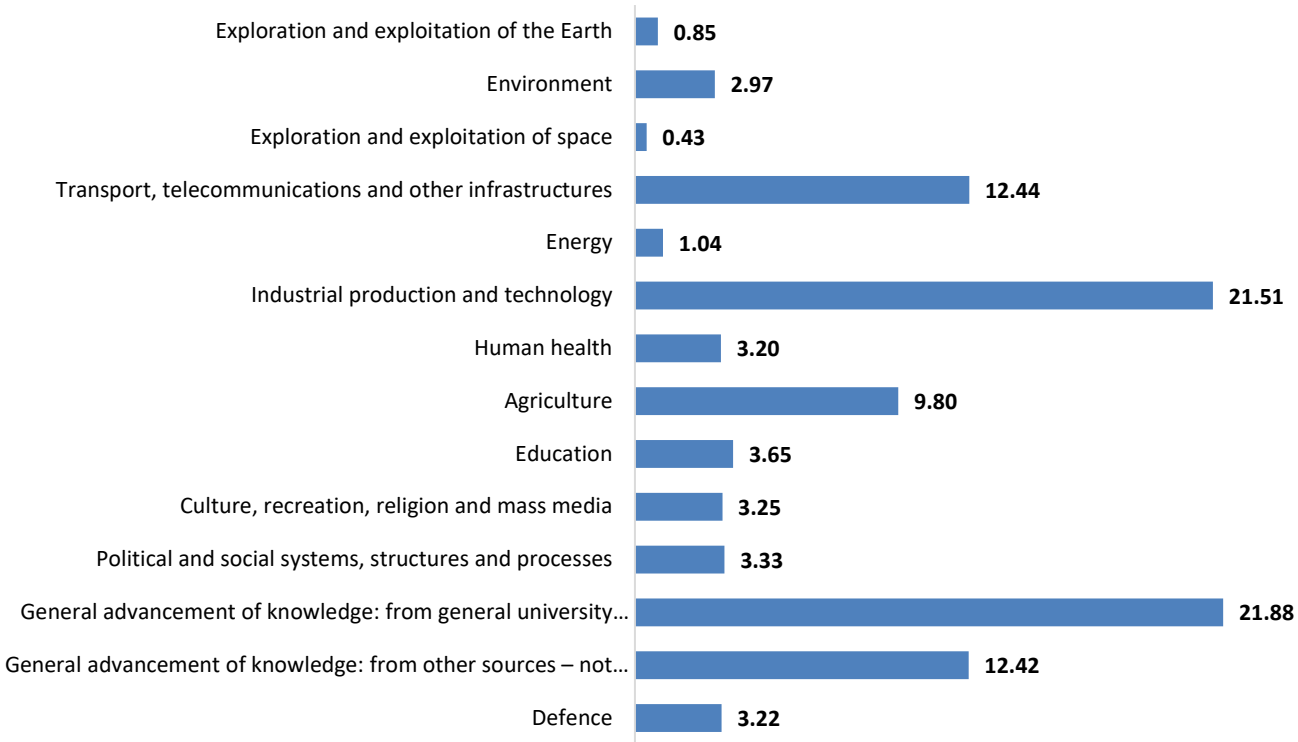


3. Planned budgetary funds of the Republic of Serbia for R&D by socio-economic objectives, (adopted budget, prior to budget adjustment), 2022

thous. RSD

Socio-economic objectives of researches	Planned budget for 2021
TOTAL	**22957750**
Exploration and exploitation of the Earth	196099
Environment	682234
Exploration and exploitation of space	99628
Transport, telecommunications and other infrastructures	2855069
Energy	239856
Industrial production and technology	4937715
Human health	733965
Agriculture	2249805
Education	838292
Culture, recreation, religion and mass media	746950
Political and social systems, structures and processes	764437
General advancement of knowledge: from general university funds	5024193
R&D related to natural sciences	917319
R&D related to engineering and technology	1678856
R&D related to medical and health sciences	876960
R&D related to agricultural sciences	359810
R&D related to social sciences	908852
R&D related to humanities	282396
General advancement of knowledge: from other sources – not from general university funds	2850688
R&D related to natural sciences	542400
R&D related to engineering and technology	1985484
R&D related to humanities	322804
Defence	738819

Graph. 4. The share of planned budget funds for R&D (adopted budget before adjustment), by the objectives, 2022



Methodological explanations and definitions

Data source

Data are the result of the processing of the survey on overall budgetary appropriations for science over 2021-2022 in the Republic of Serbia. The survey refers to institutions that finance the R&D activity, direct budgetary funds beneficiaries, which financed in 2021 or were expected to finance the R&D activity in 2022 – direct budgetary funds beneficiaries taking part in the allocation of financial resources for R&D in the Republic of Serbia.

Coverage and comparability

The survey is intended to collect data on budget appropriations and outlays for R&D by socio-economic objectives, including all financing of R&D international programmes or institutions abroad. The survey measures R&D government policy through its financing of R&D activities.

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 Researchand Experimental Development - Frascati Manual).

The Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets – NABS 2007, which is linked with the Frascati Manual, was used in monitoring the allocation of the Government Budget appropriations or outlays according to the socio-economic objectives. This Nomenclature classifies the spent funds for R&D in 13 categories.

Definitions of main concepts

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.

Applied research is a theoretical or experimental work undertaken in order to acquire new knowledge, and directed towards resolving any practical task, i.e. achieving any practical objective.

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.

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 civilization level of society and touse that knowledge in all fields of socio-economic development.

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

Current costs include: labour costs; other R&D employees' remuneration costs, 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.

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

Tertiary education includes higher schools and universities within corporate 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 economic 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 organizations and individuals being outside the politica lboundaries 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 organizations such as: UN, OECD, EU, etc.

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