



**NATIONAL RESEARCH
FOUNDATION
OF UKRAINE**

REPORT

**on the activities
of the National
Research Foundation
of Ukraine**

2021

NATIONAL RESEARCH FOUNDATION OF UKRAINE

APPROVED

by decision of the Supervisory Board
of the National Research Foundation of
Ukraine

May 27, 2022
Minutes No 1

REPORT

on the activities of the National Research Foundation of Ukraine
for 2021

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INTRODUCTION

INTRODUCTION

The National Research Foundation of Ukraine (hereinafter - NRFU / Foundation) was established to develop the national research area and its integration into the world research community, build research infrastructure, promote research and technical cooperation between research institutions, higher education institutions and the real sector of the economy and services sectors.

The main vector of the NRFU activities in 2021 was aimed at grant support of:

- fundamental research in the field of natural, technical, social sciences and humanities;
- applied research and scientific and technical (experimental) developments in priority areas of science and technology.

During the reporting year, the Foundation organized and managed one call 'Science for Security and Sustainable Development of Ukraine' of grant support for research and developments. The purpose of this call was to finance the best research projects aimed at solving pressing problems of human and social security in Ukraine.

After reviewing of projects, according to the rating list, 57 projects were selected (won) (21% of the projects submitted for experts' reviewing and 13.2% of the total number of submitted projects). Among the winners there are: universities – 27 projects, research institutions of the NAS – 29 projects and one private institution of higher education. Among the winning institutions: Taras Shevchenko National University of Kyiv (4 projects), Palladin Institute of Biochemistry of the National Academy of Sciences of Ukraine (4 projects), Sumy State University (4 projects), Lviv Polytechnic National University (3 projects), Ivan Franko National University of Lviv (3 projects), Institute of Molecular Biology and Genetics of the National Academy of Sciences of Ukraine (2 projects), State Institution 'Institute of Food Biotechnology and Genomics of the National Academy of Sciences of Ukraine' (2 projects), State Scientific Institution 'Scientific and Technological Complex 'Institute for Single Crystals' (2 projects), O.O. Bogomoletz Institute of Physiology of National Academy of Sciences (2 projects), V. N. Karazin Kharkiv National University (2 projects). A total of 39 institutions of higher education and science are among the winners.

Based on the decisions of the Scientific Council of the Foundation in 2021, agreements for research and developments through grant support were concluded with 208 grantees, in

particular with the winners of two NRFU calls held in 2020 (72 projects in the call ‘Science for Human and Social Security’ and 136 projects in the call ‘Support for Research of Leading and Young Scientists’), as well as with 6 winners of the joint call for research projects F-81 of the State Fund for Fundamental Research (SFFR, Ukraine) and the German Research Foundation (Deutsche Forschungsgemeinschaft, DFG, Germany) in priority areas ‘Physics’ and ‘Mathematics’.

The total sum of funding under the concluded contracts for projects in 2021 is 660,804.8 thousand UAH, with the call ‘Science for Human and Social Security’ - 245,645.5 thousand UAH, the call ‘Support for Research of Leading and Young Scientists’ - 411,465.7 thousand UAH, and the joint call of SFFR and DFG - 3,693.6 thousand UAH. Compared to 2020, the total sum of agreements concluded for projects in 2021 increased by 405,503.4 thousand UAH.

In 2021, research institutions received funding for 116 projects with total budget of 402,852.4 thousand UAH (41 projects in the call ‘Science for Human and Social Security’ in the total sum of 165,941.8 thousand UAH, 71 projects in the call ‘Support for Research of Leading and Young Scientists’ in the sum of 234,642.9 thousand UAH and 4 projects for the joint call of SFFR and DFG in the sum of 2,267.7 thousand UAH).

In 2021, higher education institutions received funding for 97 projects with the total budget of 256,964.3 thousand UAH (31 projects in the call ‘Science for Human and Social Security’ in the sum of 79,703.7 thousand UAH, 64 projects in the call ‘Support for Research of Leading and Young Scientists’ in the sum of 175,834.8 thousand UAH and 2 projects in the SFFR and DFG joint call in the amount of 1,425.8 thousand UAH.

Other institutions in 2021 received funding for 1 project in the call ‘Support for Research of Leading and Young Scientists’ in the sum of 988.1 thousand UAH.

During the reporting period, representatives of the NRFU took an active part in the process of amending the legislation of Ukraine which determines the legal framework for its operation. In connection with the adoption on September 3, 2020 of the Law of Ukraine № 870-IX ‘On Amendments to the Law of Ukraine ‘On Scientific and Scientific-Technical Activities’ (to clarify certain provisions)’ the NRFU developed and sent to the Ministry of Education and Science of Ukraine for submission to the Cabinet of Ministers of Ukraine a draft decree of the Cabinet of Ministers of Ukraine ‘On Amendments to the Decrees of the Cabinet of Ministers of Ukraine of July 4, 2018 № 528 and December 4, 2019 № 1007’ in order to bring them into line with the Law of Ukraine ‘On Scientific and Scientific-Technical Activities’.

Representatives of the Foundation took an active part in the public discussion of the draft Law of Ukraine ‘On Amendments to the Law of Ukraine On Scientific and Scientific-Technical Activities’ about the National Research Foundation of Ukraine, developed by the Ministry of Education and Science of Ukraine. Based on the results of the discussion, remarks and proposals of the National Research Foundation of Ukraine were sent to the Ministry of Education and Science of Ukraine. Also, the NRFU staff took part in the public discussion of the draft Indicative Plan of the Ministry of Education and Science of Ukraine for public consultations for 2022. Based on the results of the discussion, proposals from the NRFU were sent to the Ministry of Education and Science of Ukraine.

Before participation in the Committee Hearings of the Committee of the Verkhovna Rada of Ukraine on Education, Science, and Innovation on the topic: ‘The first year of grant funding of the National Research Foundation of Ukraine: problems and prospects’, which took place on June 24, 2021, the Foundation prepared proposals for information and analytical materials on the issue of the Committee Hearings on the activities of the NRFU in order to resolve issues related to the determination of:

- the special status of the National Research Foundation of Ukraine;
- its status of the main administrator of budget funds;
- international cooperation;

- remuneration and establishment of remuneration rates for foreign scientists and recognized Ukrainian scientists as experts, as well as members of the call commissions of the National Research Foundation of Ukraine;
- the procedure for managing calls in other areas (except for research and developments);
- conducting bilateral / multilateral calls;
- territorial location of the Foundation on a permanent basis;
- methodological bases of formation of cost estimates at the expense of grant support of the National Research Foundation of Ukraine;
- increase in the maximum number of employees of the National Research Foundation of Ukraine;
- determination of some terms for procedures of call management.

Pursuant to the Decision of the Committee of the Verkhovna Rada of Ukraine on Education, Science, and Innovation (hereinafter - the Committee) 'On Approval of the Recommendations of the Committee's Hearings on the topic 'The first year of grant funding of the National Research Foundation of Ukraine: problems and prospects' (June 24, 2021) the Foundation carried out the following activities:

- developed amendments to the Procedure for Competitive Selection and Financing by the National Research Foundation of Ukraine of projects for implementation of research and developments, approved by the Decree of the Cabinet of Ministers of Ukraine of December 27, 2019 № 1170, which were approved by the Supervisory Board of the National Research Foundation of Ukraine and the Scientific Committee of the National Council of Ukraine for Science and Technology Development; a draft Decree of the Cabinet of Ministers of Ukraine 'On Amendments to the Procedure for Competitive Selection and Financing by the National Research Foundation of Projects for Implementation of Research and Development' was sent to the Ministry of Education and Science of Ukraine for approval by the authorized organs in accordance with the regulatory requirements and submission for approval to the Cabinet of Ministers of Ukraine (letter of 10.11.2021 № 1-1/553);
- a draft decree of the Cabinet of Ministers of Ukraine was developed 'On Amendments to the Procedure for Formation and Use of Funds of the National Research Foundation of Ukraine' and sent to the Ministry of Education and Science of Ukraine for approval by the authorized organs in accordance with regulatory requirements and submission for approval to the Cabinet of Ministers of Ukraine (letter of 22.10.2021 № 1-5 / 526);
- developed and sent to the Supervisory Board of the National Research Foundation of Ukraine proposals for draft documents on amendments to the Decree of the Cabinet of Ministers of Ukraine of July 4, 2018 № 528 'On the National Research Foundation of Ukraine' (letter of 19.10.2021 № 1-5 / 516).

As of December 31, 2021, the NRFU directorate processed 892 incoming letters (of which 229 did not require a response), including 765 letters from grantees, 228 of which were submitted to the Scientific Council. In addition, 663 outgoing letters were prepared and sent, 79 orders on main activities and 10 orders on administrative and economic activities were issued.

One of the achievements of international cooperation in 2021 was the inclusion of the NRFU in the Crossref Funder Registry, which greatly simplifies the mechanism of providing a link to support the NRFU projects in scientific publications that contain information on research results achieved with grant support of the Foundation.

A number of online and offline meetings were held during the year. Among the participants of such joint meetings were representatives of diplomatic missions (both foreign and Ukrainian embassies in other countries), international research organizations (Japan Society for Promotion of Science, German Research Foundation, Swiss National Foundation, Estonian



Research Council, National Center for Research and Development (Poland), The Scientific and Technological Research Council of Turkey, etc.), academies of sciences (Polish Academy of Sciences, Azerbaijan National Academy of Sciences). The meetings were aimed at:

- discussion of opportunities for establishing and developing scientific cooperation between institutions;
- involvement of foreign research in the reviewing of projects for the implementation of research and developments;
- conducting joint training seminars for the NRFU employees;
- launching bilateral calls.

In 2021, an agreement was prepared with the United Nations Industrial Development Organization (UNIDO) to implement the project 'Ukraine's Low Carbon Economy to Prevent Climate Change: Promoting Investment to Expand Innovative Environmentally Friendly Solutions for Low Carbon Economy and Climate Action'.

Draft versions of Memorandum of Understanding with the French Embassy in Ukraine, the Fund for Financing Science and Support of Innovation of the Republic of Uzbekistan, the Japan Society for Promotion of Science were prepared.

In 2021, the NRFU managing staff took an active part in international research and communicative events:

- Joint Ukrainian-German Commission on Science and Technology (March 26, 2021, Kyiv, online);
- Global Innovation Summit # GIS2021 (May 18, 2021, Graz, Austria, online);
- 2021 European Regional Meeting GRC (21.10 - 21.10.2021, Madrid, Spain, online);
- International Week of Innovative Ideas InnoWeek.Uz-2021 (November 22-November 21, 2021, Tashkent, Republic of Uzbekistan);
- Horizon Europe Launch Day (December 3, 2021, Kyiv).



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CHAPTER 1

INSTITUTIONAL PROVISIONS

1.1. FINANCIAL PROVISION

The general fund of the State Budget of Ukraine in the Fund allocated an estimate of revenues and expenditures in the sum of 732,814.6 thousand UAH for the Foundation under the budget program 2201300 'Ensuring the activities of the National Research Foundation, grant support for research, scientific and technical (experimental) developments'.

Actual revenues from the general fund of the State Budget to the National Research Foundation of Ukraine in 2021 amounted to 732,814.6 thousand UAH, of which 694,712.2 thousand UAH for financing grant research and developments and 38,102.4 thousand UAH for financial support of the NRFU activities (100% to the plan, table 1.1).

During 2021, funding of 2 grant projects totaling 1,830.1 thousand UAH was stopped by the decision of the Scientific Council. Funding of 2 projects totaling 7,303.5 thousand UAH was suspended in connection with the issue of changing the organizational and legal form of the grantees. Based on the results of the first stage of project implementation, the Scientific Council decided to terminate the funding of 8 grant projects, the amount of funding for which in the second stage of project implementation in 2021 was planned as 7,437.6 thousand UAH. While concluding agreements on research and developments at the expense of grant support with grantees at the NRFU calls and winners of the joint call of SFFR and DFG, and as a result of reporting on the first stage of implementation of projects on research and developments in 2021, the saving of budgetary allocations of the general fund of the State Budget amounted of 35 885, 2 thousand UAH. Therefore, in order to effectively use the funds and prevent growth of unallocated public finances, the NRFU initiated appropriate changes in the annual and monthly allocations of the general fund of the state budget for 2021 to return the savings under the budget program 2610 - subsidies and current transfers of enterprises (institutions, organizations).

In 2021, the National Research Foundation of Ukraine funded 208 projects in the calls 'Science for Human and Social Security' and 'Support for Research of Leading and Young Scientists', which were held in 2020 and will be completed in 2021-2022, and 6 scientific projects of the joint call (F-81) of the National Research Foundation of Ukraine and the German Research Foundation. Payments were made to experts to remunerate scientific and technical reviewing in the calls held in 2021.

TABLE 1.1

Financial provision for the activities of the NRFU in 2021

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№	Name of expenses	Budget allocations according to the estimate for the corresponding period, thousand UAH	Expenditures, thousand UAH
1.	Payment of salaries	24,492.5	24,492.5
2.	Accruals for salaries	5,388.4	5,384.6
3.	Items, materials, equipment and inventory	420.1	405.0
4.	Payment for services (except utilities)	2,445.4	2,240.4
5.	Travel expenses	400.0	152.3
6.	Payment for utilities and energy	454.0	182.1
7.	Capital transfers to enterprises (institutions, organizations)	4,440.0	4,022.9
8.	Separate development measures for the implementation of state (regional) programs, not classified as development measures	50.0	31.98
9.	Other current expenses	12.0	6.0
	Total	38,102.4	36,917.8

During 2021, the payment of salaries was carried out regularly, without delays and in full compliance with the Resolution of the Cabinet of Ministers of Ukraine of April 17, 2019 № 325 'On the conditions of remuneration of employees of the National Research Foundation of Ukraine' and the Collective Agreement of the National Foundation for Research of Ukraine for 2020-2025.

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CHAPTER 2

GRANT SUPPORT

FOR RESEARCH AND DEVELOPMENT

2.1 ORGANIZATION AND MANAGEMENT OF CALLS

The main task of the NRFU is grant support for research in the fields of natural, technical, social sciences and humanities, as well as applied research and scientific and technical (experimental) developments in priority areas of science and technology, including the provision of technical and organizational support for management and organization of calls by the Foundation, control over the implementation of projects.

An important area of the Foundation's activity is working with the reporting documentation of grantees.

This support is provided by three grant management departments: the Grant Support Division in the Field of Technical and Natural Sciences, Mathematics and IT; the Grant Support Department in the Field of Biology, Health and Bioresources; the Grant Support Department in the Field of Social Sciences and Humanities; as well as the Department of Grant Projects Financing and the Department of Monitoring of Grant Projects Implementation, which implement their functions in close cooperation with the Grant Support Department.

During the reporting period, the Foundation organized and managed one call for grant support of research and developments 'Science for Security and Sustainable Development of Ukraine' and two more calls for research projects were launched and are being held, namely 'Cutting-Edge Research In Mathematical, Natural and Technical Sciences' and 'The Human, Society and Science Facing Modern Challenges: Innovative Research In the Social and Humanitarian Sphere'.

To facilitate the preparation of documents submitted for calls by potential grantees, the Foundation's Directorate developed and the Scientific Council of the National Research Foundation of Ukraine approved the following:

- methodical recommendations on cost planning for applications for grant support and the agreement on research and developments at the expense of grant support of the National Research Foundation of Ukraine;
- model of documents (for the NRFU website) to be submitted by applicants together with

the application, as well as the application form for grant support;

- recommendations for filling out the application, a form of the contract for the implementation of research and developments through grant support.

During the reporting period, competitive selection was carried out in accordance with the Procedure for Competitive Selection and Financing by the National Research Foundation of projects for research and developments, approved by the Cabinet of Ministers of Ukraine of December 27, 2019 № 1170.

Scientific and methodological support in the organization and conducting of calls for research and developments, funded by the NRFU, was provided by the work of collegial bodies (Fig. 1.1, as of 31.12.2021):

- Scientific Council of the NRFU (58 meetings were held) ;
- Section of the Scientific Council of the NRFU in Natural and Technical Sciences, and Mathematics (12 meetings were held);
- Section of the Scientific Council of the NRFU in Biology, Medicine and Agrarian Sciences (12 meetings were held);
- Section of the Scientific Council of the NRFU in Social Sciences and Humanities (11 meetings were held);
- Commission of the call ‘Science for Security and Sustainable Development of Ukraine’ (21 meetings);
- Commission of the call ‘Cutting-Edge Research In Mathematical, Natural and Technical Sciences’ (8 meetings were held);
- -Commission of the call “The Human, Society and Science Facing Modern Challenges: Innovative Research In the Social and Humanitarian Sphere”.

NUMBER OF MEETINGS

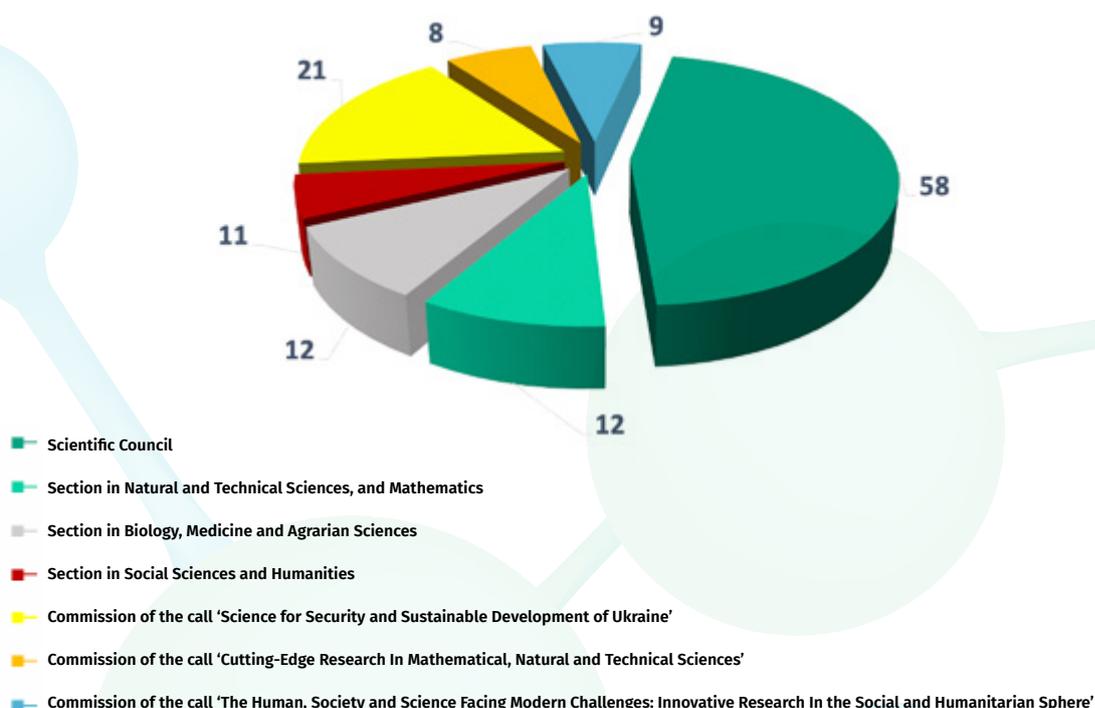


Fig. 1.1 The work of the collegial bodies of the NRFU in 2021

2.1.1 The call for grant support for research and developments 'Science for Security and Sustainable Development of Ukraine'

During the reporting year, the Foundation organized and completed selection for one call for grant support for research and developments 'Science for Security and Sustainable Development of Ukraine'. The purpose of this call was to finance the best research projects aimed at solving pressing problems of human security and Ukrainian society.

The thematic areas of this call included: research related to health, biological, environmental, food security, information and social security, responding to challenges in natural and technological emergencies, overcoming the biological, psychological and social consequences of the pandemic COVID-19 and related legal issues.

The terms and conditions of the call estimated the duration of projects to be selected for 2022-2023 (4 stages) and 2022-2024 (6 stages).

The selection procedures were held from July 5, 2021 to December 7, 2021.

Before the submission of applications by potential grantees, the NRFU Directorate held an online webinar explaining the terms and conditions of the call and the procedure for drawing up the relevant documentation.

A total of 432 applicants were submitted in the call (209 projects in technical sciences, 110 projects in biological sciences, 113 projects in social sciences and humanities). 164 applications were rejected for non-compliance with formal criteria, and the remaining 268 were submitted to experts' reviewing. The authors of these 268 applications were affiliated to 108 institutions of the National Academy of Sciences (57) and the Higher Educational Institutions (51).

The largest number of applications, which were selected on formal grounds and submitted to the stage of reviewing, were submitted by the following institutions were: Taras Shevchenko National University of Kyiv (20), Lviv Polytechnic National University (17), Sumy State University (15), Institute of Molecular Biology and Genetics of the National Academy of Sciences of Ukraine (10), National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (9).

After the reviewing of projects, according to the rating list, based on the decision of the Scientific Council of the NRFU, 57 projects (21% of the submitted for examination and 13.2% of the total number of submitted projects) were selected winners. Among the winning project were: HEIs - 27 projects, research institutions of the NAS - 29 projects and one private research institution (Private Higher Education Institution 'Dobrobut Academy'). Among the winning institutions: Taras Shevchenko National University of Kyiv (4 projects), Palladin Institute of Biochemistry of the National Academy of Sciences of Ukraine (4 projects), Sumy State University (4 projects), Lviv Polytechnic National University (3 projects), Ivan Franko Lviv National University (3 projects), Institute of Molecular Biology and Genetics of the National Academy of Sciences of Ukraine (2 projects), Institute of Food Biotechnology and Genomics of the National Academy of Sciences of Ukraine (2 projects), Bogomolets Institute of Physiology (2 projects), V. N. Karazin Kharkiv National University (2 projects). A total of 40 higher education and research institutions were among the winners.



TABLE 2.1

**Winners of the call 01.2021
'Science for Security and Sustainable Development of Ukraine'**

№	Name of institution	Governance	Number of projects		Recommended budget, UAH
			Submitted	Winning	
1	Palladin Institute of Biochemistry	National Academy of Sciences of Ukraine	4	4	30,274,750
2	Taras Shevchenko National University of Kyiv	Ministry of Education and Science of Ukraine	30	4	18,606,534
3	Sumy State University	Ministry of Education and Science of Ukraine	17	4	27,353,749
4	Ivan Franko Lviv National University	Ministry of Education and Science of Ukraine	9	3	29,860,425
5	Lviv Polytechnic National University	Ministry of Education and Science of Ukraine	25	3	24,832,341
6	State Scientific Institution Scientific and Technological Complex 'Institute for Single Crystals'	National Academy of Sciences of Ukraine	3	2	19,097,572
7	Institute of Food Biotechnology and Genomics	National Academy of Sciences of Ukraine	3	2	20,000,000
8	Institute of Molecular Biology and Genetics	National Academy of Sciences of Ukraine	13	2	19,716,900
9	Bogomolets Institute of Physiology	National Academy of Sciences of Ukraine	9	2	19,231,382
10	V. N. Karazin Kharkiv National University	Ministry of Education and Science of Ukraine	10	2	19,127,310
11	Luhansk Taras Shevchenko National University	Ministry of Education and Science of Ukraine	1	1	9,675,040
12	Vasyl' Stus Donetsk National University	Ministry of Education and Science of Ukraine	2	1	10,000,000

TABLE 2.1

Winners of the call 01.2021
'Science for Security and Sustainable Development of Ukraine'

№	Name of institution	Governance	Number of projects		Recommended budget, UAH
			Submitted	Winning	
13	V.P. Komisarenko Institute of Endocrinology and Metabolism	National Academy of Medical Sciences of Ukraine	1	1	9,901,520
14	West Ukrainian National University	Ministry of Education and Science of Ukraine	1	1	4,649,642
15	Ivano-Frankivsk National Technical University of Oil and Gas	Ministry of Education and Science of Ukraine	3	1	6,092,950
16	F. D. Ovcharenko Institute of Biocolloidal Chemistry	National Academy of Sciences of Ukraine	2	1	10,000,000
17	Institute of Cell Biology	National Academy of Sciences of Ukraine	5	1	10,000,000
18	V.P. Kukhar Institute of Bioorganic Chemistry and Petrochemistry	National Academy of Sciences of Ukraine	6	1	6,000,000
19	M.V. Ptukha Institute for Demography and Social Studies	National Academy of Sciences of Ukraine	1	1	1,792,000
20	V. M. Glushkov Institute of Cybernetics	National Academy of Sciences of Ukraine	4	1	6,500,000
21	D.K. Zabolotny Institute of Microbiology and Virology	National Academy of Sciences of Ukraine	4	1	5,850,000
22	The Institute for Problems of Cryobiology and Cryomedicine	National Academy of Sciences of Ukraine	1	1	9,984,000
23	Institute of Mathematical Machines and Systems Problems	National Academy of Sciences of Ukraine	3	1	6,074,104



TABLE 2.1

**Winners of the call 01.2021
'Science for Security and Sustainable Development of Ukraine'**

№	Name of institution	Governance	Number of projects		Recommended budget, UAH
			Submitted	Winning	
24	Frantsevich Institute for Problems in Material Science	National Academy of Sciences of Ukraine	6	1	9,970,000
25	O. Ya. Usikov Institute for Radio Physics and Electronics	National Academy of Sciences of Ukraine	4	1	4,486,540
26	Institute of Scintillation Materials	National Academy of Sciences of Ukraine	5	1	9,607,406
27	Institute Of Physics	Ministry of Education and Science of Ukraine	6	1	9,814,239
28	L. V. Pisarzhevsky Institute of Physical Chemistry	National Academy of Sciences of Ukraine	2	1	10,000,000
29	O. O. Chuyko Institute of Surface Chemistry	National Academy of Sciences of Ukraine	7	1	6,300,000
30	Ukrainian National Forestry University	Ministry of Education and Science of Ukraine	3	1	9,109,349
31	National Scientific Center 'Institute of Experimental and Clinical Veterinary Medicine'	National Academy of Agrarian Sciences of Ukraine	1	1	9,545,800
32	National Technical University Dnipro Polytechnic	Ministry of Education and Science of Ukraine	8	1	3,952,704
33	National Technical University 'Kharkiv Polytechnic Institute'	Ministry of Education and Science of Ukraine	5	1	8,226,360
34	National Technical University of Ukraine 'Igor Sikorsky Kyiv Polytechnic Institute'	Ministry of Education and Science of Ukraine	12	1	9,100,000

TABLE 2.1

**Winners of the call 01.2021
'Science for Security and Sustainable Development of Ukraine'**

№	Name of institution	Governance	Number of projects		Recommended budget, UAH
			Submitted	Winning	
35	Zaporizhzhia Polytechnic National University	Ministry of Education and Science of Ukraine	2	1	9,287,825
36	National University of Water and Environmental Engineering	Ministry of Education and Science of Ukraine	4	1	5,063,265
37	Yaroslav Mudryi National Law University	Ministry of Education and Science of Ukraine	2	1	4,102,826
38	Private Hogher Education Institution 'Dobrobut Academy'	-	1	1	9,988,400
39	Ukrainian Scientific and Methodological Center of Practical Psychology and Social Work	National Academy of Pedagogical Sciences of Ukraine	1	1	9,996,229
Together:				57	453 171 162

If we structurally describe the governance of institutions that were successful in the call 'Science for Security and Sustainable Development of Ukraine', we can observe the following affiliation proportion (Ill. 2.2): NAS of Ukraine - 19 institutions (26 projects); HEIs - 16 institutions (27 projects); National Academy of Pedagogical Sciences of Ukraine - 1 institution (1 project); National Academy of Agrarian Sciences of Ukraine - 1 institution (1 project); National Academy of Medical Sciences of Ukraine - 1 institution (1 project); private higher education institution - 1 institution (1 project) (Ill. 2.1).



Illustration 2.1. Departmental governance of institutions, winners of the call 'Science for Security and Sustainable Development of Ukraine'

Statistics of distribution of winning projects by geographical location of winners of the call 'Science for Safety and Sustainable Development of Ukraine': Kyiv – 28, Kharkiv – 10, Lviv – 8, Sumy – 4, Luhansk region, Vinnytsia, Ternopil, Ivano-Frankivsk, Dnipro, Zaporizhia, Rivne – 1 each (Ill. 2.2).



Illustration 2.2. Statistics of distribution of winning projects by geographical location of winners of the call 'Science for Safety and Sustainable Development of Ukraine'

Foreign experts who reviewed projects in the call 'Science for Safety and Sustainable Development of Ukraine' totaled 31. Total number of reviews done by them was 32.

Representing countries: USA – 10, Germany – 6, Poland – 5, France and Italy 2, Croatia – 2, Sweden, Greece, Great Britain, Norway – 1 each (Ill. 2.3).



Illustration 2.3. Statistics of Foreign experts who reviewed projects in the call 'Science for Safety and Sustainable Development of Ukraine'.

2.1.2 The call for grant support for research and developments 'Cutting-Edge Research in Mathematical, Natural and Technical Sciences'

In addition to the call mentioned above, in 2021 the NRFU launched the call 'Cutting-Edge Research in Mathematical, Natural and Technical Sciences'. The purpose of this call was to fund the best research projects aimed at solving fundamental and topical applied problems of mathematical, natural, technical, biological, agricultural and medical sciences.

The selection procedures were scheduled from October 1, 2021 to April 7, 2022. Submission of applications lasted from October 12 to November 16, 2021.

Funding for projects in this call is planned in the following thematic areas:

- fundamental scientific research in the field of mathematical, natural, technical, biological, medical and agricultural sciences;
- applied scientific research and scientific and technical (experimental) developments in the field of mathematical, natural, technical, biological, medical and agricultural sciences.

The topics of the projects correspond at least one of the priority areas of science and technology development (in accordance with Article 3 of the Law of Ukraine 'On Priority Areas of Science and Technology Development').



The duration of projects implementation that will be selected based on the results of the call and their types by deadlines:

1. projects for 2022-2024 (4 stages);
2. projects for of 2022-2025 (6 stages) (the start of implementation of projects is planned for June 2022).

Implementation of projects in 2023, 2024 and 2025 will be carried out taking into account and in accordance with budget allocations in the respective year.

The participants of this call were higher education and research institutions. Applications for grant support could be submitted by teams of project authors (PI and researchers) consisting of from 2 to 10 persons. The number of young scientists in the team could not be less than 1 in the team of authors from 2 to 4 persons inclusive, less than 2 in the team of authors from 5 to 7 persons inclusive, and less than 3 in the team of authors from 8 to 10 persons inclusive.

The total number of applicants who took part in the call was 186 (technical sciences – 149, biological – 35, social sciences and humanities – 2). 40 applications were rejected for non-compliance with the formal requirements of the call, and the remaining 146 were submitted to experts' reviewing.

2.1.3 The call for grant support for research and developments 'The Human, Society and Science Facing Modern Challenges: Innovative Research In the Social and Humanitarian Sphere'

In 2021 the NRFU also launched a call of research projects in the field of social sciences and humanities 'The Human, Society and Science Facing Modern Challenges: Innovative Research In the Social and Humanitarian Sphere'.

The selection was planned to be held from October 1, 2021 to April 7, 2022.

Applications were submitted from October 12 to November 16, 2021.

The purpose of this call was to finance the best team research projects and developments aimed at increasing competitiveness of Ukrainian society and development of human and research potential of Ukraine.

In terms of subject matter, it was a call of team projects in fundamental and applied research and developments in the areas of research aimed at solving important problems of scientific and technical, socio-economic, socio-political, human and research potential to ensure Ukraine's competitiveness in the world and its sustainable development in the context of global and regional challenges.

The duration of implementation of projects that will be selected based on the results of the call is as follows: projects for 2022 - 2024 (4 stages), projects for 2022 - 2025 (6 stages). The implementation of projects is scheduled to begin in June 2022; the implementation of projects in 2023, 2024 and 2025 will be carried out taking into account and in accordance with the budget allocations in the respective year.

The total number of applicants who took part in the call was 153. 49 applications were rejected for non-compliance with the formal requirements of the call, and the remaining 104 were submitted to experts reviewing.

2.2. EXPERT PROCEDURES, INFORMATION AND TECHNICAL SUPPORT FOR THE NRFU CALLS

Reviewing of projects submitted to calls is carried out in accordance with the Procedure for consideration and examination of projects for research and developments submitted by the NRFU for participation in competitive selections, approved by the decision of the Scientific Council of the NRFU (minutes of the meeting № 25 of 06.29.2021).

The organizational component of the Foundation's calls for receiving grant support is the organization of the Call Commissions' work.

For the call 'Science for Security and Sustainable Development of Ukraine', the Call Commission consisted of 44 persons, including 38 Doctors and 6 Candidates of Sciences (PhD's). 8 thematic panels were formed out of members of the Call Commission: physical and mathematical sciences (5 persons), technical sciences (5 persons), natural sciences (5 persons), biology (7 persons), agricultural sciences (5 persons), medicine (6 persons), legal and economic sciences, finance (5 persons), sociology and history (6 persons). Organizational and technical support of the work of the Call Commission and its 8 panels was provided by the secretaries of the Call Commission and of panels, who were appointed by the Directorate of the Foundation.

21 meetings of the Call Commission were held. 518 experts were involved in the reviewing of the application, including 485 Ukrainian experts and 31 foreign experts.

Regarding the participation of foreign citizens in the reviewing of projects submitted to the call 'Science for Security and Sustainable Development of Ukraine', in total, 31 foreign experts did the reviewing of projects. The total number of the reviews completed was 32. Experts involved were from the following countries: USA – 10, Germany – 6, Poland – 5, France, Italy and, Croatia – 2 each, Sweden, Greece, Great Britain, and Norway – 1 each.

For the call 'Cutting-Edge Research in Mathematical, Natural and Technical Sciences', the Call Commission consisted of 31 persons, including 27 Doctors and 4 Candidates of Sciences (PhDs). 3 thematic panels were formed in the Call Commission: 1) mathematical and natural sciences, 2) technical sciences, 3) biological, medical and agricultural sciences. 8 meetings had been held by the end of 2021. Involving of experts in the selection procedures will start in 2022.

Information and technical support of the NRFU calls is carried out by means of the automated system 'The NRFU Call for Projects' (further - AS). The AS operates for the purpose of information and technical provision of technical and organizational support in the organization and management of calls.

The circulation of information and documentation on the activities and results of the Call Commissions and the Scientific Council of the Foundation, the decisions of the Call Commissions and the Scientific Council of the Foundation during the competitive selection of projects was carried out in paper form, including the results of preliminary consideration of projects submitted to the call, the rating lists of possible experts for each project, the formation of the rating list of projects, the list of projects recommended for implementation through grant support of the Foundation, the list of winning projects, submission of call results to the Scientific Council of the Foundation for approval. Decisions of the Call Commissions and the Scientific Council of the Foundation are made on the basis of paper copies of relevant documents or electronic documents certified by a qualified electronic signature.

2.3. RESEARCH AND DEVELOPMENTS FUNDING

In 2021, agreements for financing of 208 winning projects in two NRFU calls held in 2020 (72 – projects in the call ‘Science for Human and Social Security’ and 136 – projects in the call ‘Support for Research of Leading and Young scientists’) were concluded, as well as for financing of 6 projects under the joint call of SFFR and DFG.

The total sum of planned funding for grant projects under the concluded agreements in 2021 was 660,804,825 UAH (with projects in the call ‘Science for Human and Social Security’ – 245,645,589 UAH, for projects in the call ‘Support for Research of Leading and Young Scientists’ – 411,465,748 UAH, for projects of the SFFR and DFG joint call – 3,693,488 UAH). Compared to 2020, the total budget of grant projects in 2021 increased by 405,503,397 UAH.

In 2021, research institutions received funding for 116 projects totaling 402,852,424 UAH (41 projects in the call ‘Science for Human and Social Security’ with the budget of 165,941,852 UAH, 71 projects in the call ‘Support for Research of Leading and Young Scientists’ with the budget of 234,642,872 UAH and 4 projects in the SFFR and DFG joint call with the budget of 2,267,700 UAH) (Fig. 2.2).

NUMBER OF PROJECTS OF RESEARCH INSTITUTIONS IN 2021



Fig. 2.2. Structure of financing of projects of scientific institutions under the NRFU calls

In 2021, higher education institutions received funding for 97 projects totaling 256,964,301 UAH (31 projects in the call ‘Science for Human Security and Society’ with the budget of 79,703,737 UAH, 64 projects in the call ‘Support for Research of Leading and Young Scientists’ with the budget of 175,834,776 UAH and 2 projects in the SFFR and DFG joint call with the budget of 1,425,788 UAH) (Fig.2.3).

NUMBER OF PROJECTS BY HIGHER EDUCATION INSTITUTIONS



Fig. 2.3. Structure of financing of projects of higher education institutions in the NRFU calls

In 2021, other institution received funding for 1 project under the call ‘Support for Research of Leading and Young Scientists’ with the budget of 988,100 UAH.



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CHAPTER 3

JOINT CALL FOR RESEARCH

OF THE STATE FUND FOR FUNDAMENTAL RESEARCH (SFFR, UKRAINE) AND THE GERMAN RESEARCH FOUNDATION (DEUTSCHE FORSCHUNGSGEMEINSCHAFT, DFG, GERMANY) IN PRIORITY AREAS 'PHYSICS' AND 'MATHEMATICS'

In order to finance winning projects in the joint call of research projects F-81 of the State Fund for Fundamental Research (SFFR, Ukraine) and the German Research Foundation (Deutsche Forschungsgemeinschaft, (DFG), Germany) in the priority areas 'Physics' and 'Mathematics' a Temporary Commission on confirmation of the relevance and possibility to implement the winning projects was created (consisting of 5 persons).

Based on the Decree of the Cabinet of Ministers of Ukraine dated November 18, 2020 № 1133 'On amendments to the Decree of the Cabinet of Ministers of Ukraine of July 4, 2018 № 528 and December 4, 2019 № 1007' by the decision of the Scientific Council of the NRFU of December 24, 2021 (Minutes 42), the Action Plan of the Temporary Commission to confirm the relevance and possibility to implement the winning projects was approved.

In order to implement the Action Plan, 11 meetings were held and 6 winning participants were selected.

During the reporting year, the Foundation supported 6 winning projects of this call:

1. F-81 / 41600 'Streitronics of quasi-two-dimensional materials with defects: coplanar heterostructures in comparison with lamellar' (PI: Valentin Tatarenko, G. V. Kurdyumov Institute for Metal Physics of the National Academy of Sciences of Ukraine), with the budget of 272,800.00 UAH.
2. F-81 / 41396 'Controlled transmission of quantum information in superconducting networks' (PI: Zhytlukhina Elena, Donetsk Institute of Physics and Engineering named after

O.O.Galkin of the National Academy of Sciences of Ukraine), with the budget of 260,000.00 UAH.

3. F-81 / 41481 'Cooperative kinetics of defects and domain structures in ferroelectrics' (PI: Morozovska Anna, Institute of Physics of the National Academy of Sciences of Ukraine), with the budget of 884,000.00 UAH.
4. F-81 / 41894 'Collective dynamics of ferromagnetic nanoparticles with finite anisotropy in a viscous fluid' (PI: Lutyi Taras, Sumy State University), with the budget of 325,788.00 UAH.
5. F-81 / 41842 'Microelipsometric studies of ordered plasmon nanostructures' (PI: Borshchahivsky Eugene, V. Lashkaryov Institute of Semiconductor Physics of the National Academy of Science of Ukraine), with the budget of 850,900.00 UAH.
6. F-81 / 41743 'Resistance and robustness to perturbations of attractors of nonlinear infinite-dimensional systems' (PI: Kapustyan Oleksiy, Taras Shevchenko National University of Kyiv), with the budget of 1,100,000.00 UAH.

The reporting documentation of grantees for the call of research projects conducted by the SFFR and DFG was reviewed from December 15 to 30, 2021. All reports were approved by the Scientific Council of the Foundation and a decision was made to confirm the implementation of all tasks planned for the projects.



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CHAPTER 4

INTERNATIONAL COOPERATION

One of the achievements of international cooperation in 2021 was the inclusion of the NRFU in the Crossref Funder Registry, which greatly simplifies the mechanism of providing a link to support by the NRFU of projects in research publications that contain information on research results conducted with grant support provided by the Foundation. Crossref currently has 5,000 publishers from around the world. Crossref's citation database includes more than 75 million journal articles and other types of scientific publications.

During the year, a number of meetings (both online and offline) were held (Table 4.1). Among the participants of such joint meetings were representatives of diplomatic missions (both foreign and Ukrainian embassies in other countries), international research organizations (Japan Society for the Promotion of Science, German Research Foundation, Swiss National Science Foundation, Estonian Research Council, National Centre for Research and Development in Warsaw, Scientific and Technological Research Council of Turkey, etc.), academies of sciences (Polish Academy of Sciences, Azerbaijan National Academy of Sciences). The meetings were aimed at:

- discussion of opportunities for establishing and developing scientific cooperation between the institutions;
- involvement of foreign researchers in the reviewing of projects for the implementation of research and developments;
- conducting joint training seminars for the NRFU directorate employees;
- launching bilateral calls.

During the meetings with foreign academic missions (Goethe-Institut, DAAD Information Center in Kyiv), agreements on the organization of joint events to promote scientific and technical activities in Ukraine were reached.

From November 22 to November 28, 2021, a delegation from the NRFU consisting of representatives of the Directorate and the Scientific Council visited the International Forum of International Week of Innovative Ideas 'InnoWeek.Uz-2021' which took place in Tashkent (Uzbekistan). During the visit, representatives of the Foundation got acquainted with the ex-

hibition of innovative ideas, took part in the award ceremony of the TechnoWays Marathon, held a series of meetings with representatives of the Technopark and employees of the coordination sectors of the Academy of Sciences of Uzbekistan. Based on the results of the meeting with the Director of the Fund for Financing Science and Innovation of Uzbekistan Bunyodjon Okhunov, the main provisions of the text of the Memorandum of Understanding between the foundations were discussed. It should be noted that drafts of Memoranda of Understanding with the French Embassy in Ukraine (based on the announcement of a call with the assistance of the Embassy) and the Japan Society for the Promotion of Science (for joint bilateral calls) were also prepared. Proposals to the Procedure for Competitive Selection and Financing of Research and Development Projects by the National Research Foundation, which were considered by the Verkhovna Rada Committee on Education, Science and Innovations and recommended to the Cabinet of Ministers of Ukraine will provide an opportunity to hold such calls in case of their inclusion in the relevant regulations.

In 2021, representatives of the NRFU participated in international conferences and forums. The Foundation participated in the Global Innovation Summit # GIS2021, which took place in Graz (Austria). Due to pandemic restrictions, the event was held online. One of the features of the Summit was holding of meetings with potential partners in the 'B2B' format in separately created virtual offices. The staff of the Directorate participated in 4 of such meetings. The Executive Director of the Foundation was also invited to the GRC European Regional Meeting. She joined several online discussions which raised issues such as new challenges and prospects for research and academic integrity, tools to promote international cooperation, career opportunities for early-career scientists, etc.

TABLE 4.1
International meetings of the NRFU managers

Contact person	Organization / institution	Areas of cooperation that were discussed
Georgy Dubnytsky	First Secretary of the Embassy Of Ukraine In The United States Of America	<ul style="list-style-type: none"> • organization and management of joint calls with the corresponding founding organizations in the USA; • popularization of scientific achievements of Ukrainian scientists in the USA; • information support of the NRFU activities; • involvement of American experts in the evaluation of the NRFU projects.
Denys Yakovenko	First Secretary of the Embassy Of Ukraine In Japan	<ul style="list-style-type: none"> • organization and management of joint calls with the Japan Society for the Promotion of Science (JSPS); • popularization of scientific achievements of Ukrainian scientists in Japan; • information support of the NRFU activities; • discussion of changes to the legislation of Ukraine on the organization and holding of joint calls, considering the experience of Japan

TABLE 4.1

International meetings of the NRFU managers



Contact person	Organization / institution	Areas of cooperation that were discussed
Alix De Gassar	Attaché for University and Scientific Cooperation of the French Embassy in Ukraine	<ul style="list-style-type: none"> • design of a call for research and developments with the support of the Embassy of France in Ukraine; • information support of the NRFU activities; • Involvement of French experts in the evaluation of the NRFU projects.
Joern Achterberg	Director of the International Cooperation Department of the German Research Foundation (DFG)	<ul style="list-style-type: none"> • organization and management of joint calls with the DFG; • conducting training webinars for the NRFU staff; • negotiations on the process of the NRFU's financing of joint call of research projects F-81 of the State Fund for Fundamental Research (SFFR, Ukraine) and the German Research Foundation (Deutsche Forschung Gemeinschaft, (DFG) Germany) in the priority areas 'Physics' and 'Mathematics'; • exchange of information on promising areas of research and developments; • involvement of German experts in the evaluation of the NRFU projects; • information support of the NRFU activities.
Mechtild Köhler	Specialist of the CIS, Central and Eastern European Cooperation Department, DFG	<ul style="list-style-type: none"> • organization and management of joint calls; • conducting training webinars for the NRFU staff; • negotiations on the process of the NRFU's financing of joint call of research projects F-81 of the State Fund for Fundamental Research (SFFR, Ukraine) and the German Research Foundation (Deutsche Deutsche Forschung Gemeinschaft, (DFG) Germany) in the priority areas 'Physics' and 'Mathematics'; • exchange of information on promising areas of research and developments; • involvement of German experts in the evaluation of the NRFU projects; • information support of the NRFU activities.



TABLE 4.1

International meetings of the NRFU managers

Contact person	Organization / institution	Areas of cooperation that were discussed
Argo Soon	Specialist of the International Cooperation Department of the Estonian Research Council	<ul style="list-style-type: none"> • organization and management of joint calls; • participation of the NRFU staff in webinars organized by the Estonian Research Council; • information support of the NRFU activities.
Rustam Rustamov; Esmira Alizhaeva	Specialists of the Department of International Cooperation; National Academy of Sciences of Azerbaijan	<ul style="list-style-type: none"> • organization and management of joint calls; • popularization of scientific achievements of Ukrainian scientists in Azerbaijan; • involvement of Azerbaijan experts in the evaluation of the NRFU projects; • possibilities of research cooperation; • information support of the NRFU activities.
Jerzy Duszyński	President of the Polish Academy of Sciences	<ul style="list-style-type: none"> • information support of the NRFU activities; • involvement of Polish scientists in the evaluation of projects submitted to the NRFU calls; • exchange of experience in organizing and conducting joint scientific calls; • further joint work of legislative regulation in the research field of Poland and Ukraine; • development of research infrastructure;
Kotaro Kudera	Head of the Department of International Scientific Cooperation of the Japan Society for the Promotion of Science (JSPS)	<ul style="list-style-type: none"> • organization and management of joint calls; • discussion of changes to the legislation of Ukraine on the organization and holding of joint calls, taking into account the experience of Japan; • exchange of information on promising areas of joint research and developments; • involvement of Japanese researchers in the evaluation of projects submitted to the NRFU calls; • information support of the NRFU activities.

TABLE 4.1

International meetings of the NRFU managers

Contact person	Organization / institution	Areas of cooperation that were discussed
Katarina Buk	Deputy Director of Goethe Institute in Kyiv	<ul style="list-style-type: none"> information support of the NRFU activities.
Gisela Zimmerman	Head of the DAAD Information Center in Kyiv	<ul style="list-style-type: none"> information support of the NRFU activities.
Krzysztof Szymanski	Elsevier Research Officer	<ul style="list-style-type: none"> providing access to the NRFU staff to the Scopus scientometric database; popularization of scientific achievements of Ukrainian researchers using the Elsevier platform; information support of the NRFU activities.
Cezary Blaszczyk	Head of the Department of the National Center for Development and Research (Warsaw, Republic of Poland)	<ul style="list-style-type: none"> design of the NRFU and NCBR joint call scheduled for 2022; involvement of Polish researchers in the evaluation of projects submitted to the NRFU calls; conducting training webinars for the NRFU staff; popularization of scientific achievements of Ukrainian researchers in Poland; information support of the NRFU activities.
Jan Osinski	Chief Specialist of the National Center for Development and Research (Warsaw, Republic of Poland)	<ul style="list-style-type: none"> design of the NRFU and NCBR joint call scheduled for 2022; involvement of Polish experts in the evaluation of the NRFU projects; conducting training webinars for the NRFU staff; popularization of scientific achievements of Ukrainian researchers in Poland; information support of the NRFU activities.
Ladina Knapp	Scientific specialist of the Swiss National Science Foundation (SNSF)	<ul style="list-style-type: none"> the opportunity to join AcademiaNet (AN) - an international database with more than 3150 profiles of high-level qualified women scientists from all disciplines from more than 40 countries;



TABLE 4.1

International meetings of the NRFU managers

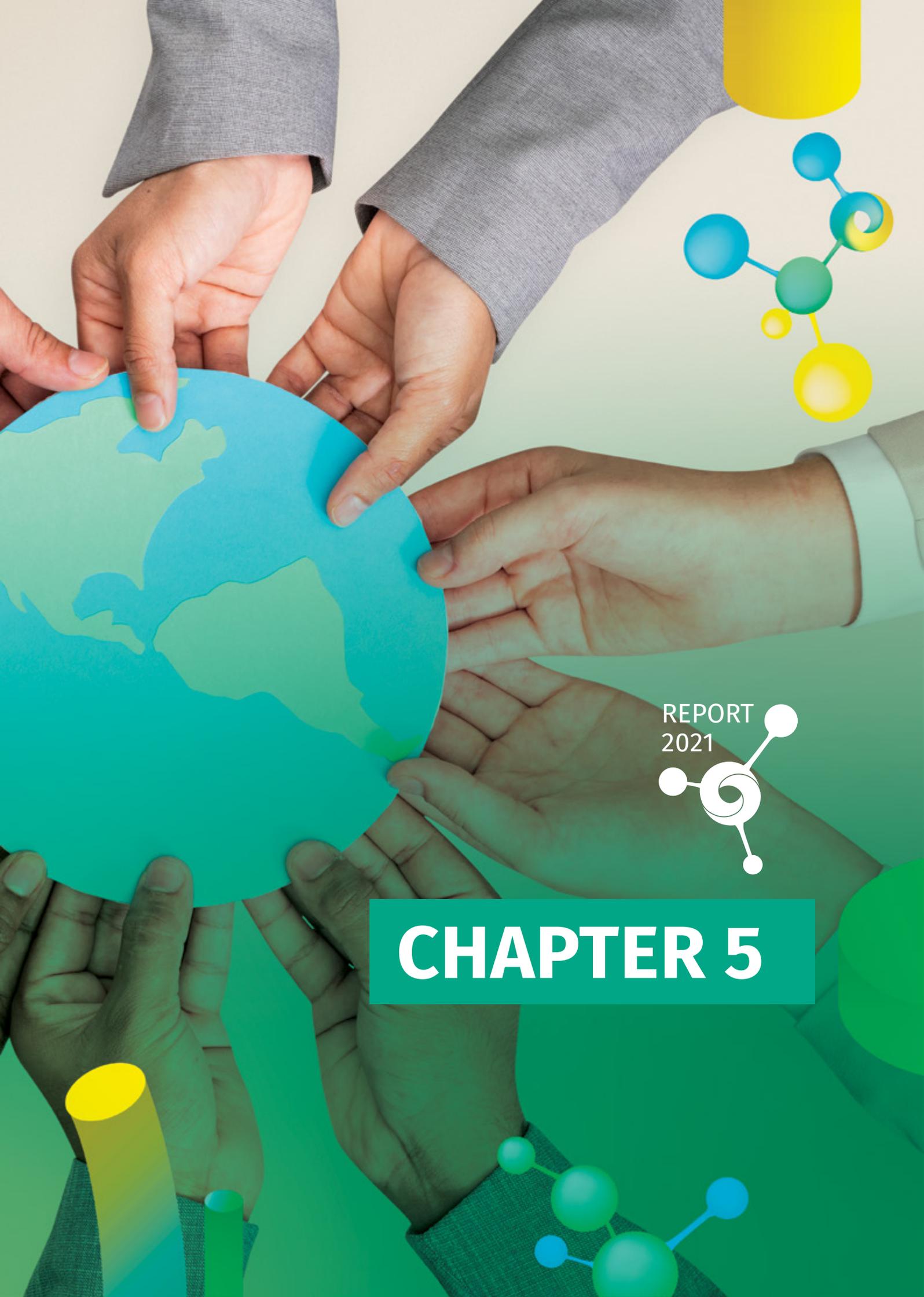
Contact person	Organization / institution	Areas of cooperation that were discussed
		<ul style="list-style-type: none"> • popularization of scientific achievements of Ukrainian researchers in Switzerland; • information support of the NRFU activities.
Ragib Bayram Bailey	Specialist of the International Cooperation Division of the Scientific and Technological Research Council of Turkey (TÜBİTAK)	<ul style="list-style-type: none"> • organization and management of joint calls; • popularization of scientific achievements of Ukrainian researchers in Turkey; • information support of the NRFU activities.
Bunyodjon Okhunov	Director of the Fund for Financing Science and Innovation of Uzbekistan	<ul style="list-style-type: none"> • organization and management of joint calls; • popularization of scientific achievements of Ukrainian researchers in Uzbekistan; • involvement of Uzbekistan experts in the evaluation of the NRFU projects;

In 2021, an agreement was prepared with the United Nations Industrial Development Organization (UNIDO) to implement the project 'Ukraine's Low Carbon Economy to Prevent Climate Change: Promoting Investment to Expand Innovative Environmentally Friendly Solutions for Low Carbon Economy and Climate Action.'

Draft versions of Memorandum of Understanding with the French Embassy in Ukraine, the Fund for Financing Science and Innovation of Uzbekistan, the Japan Society for the Promotion of Science were prepared.

During the year, the managerial staff of the NRFU took an active part in international scientific and communicative events:

- Joint Ukrainian-German Commission on Science and Technology (March 26, 2021, Kyiv, online);
- Global Innovation Summit # GIS2021 (18.05.2021, Graz, Austria, online);
- 2021 European Regional Meeting GRC (21.10 - 21.10.2021, Madrid, Spain, online);
- International Week of Innovative Ideas InnoWeek.Uz-2021 (22.11.-21.11.2021, Tashkent, Republic of Uzbekistan);
- Horizon Europe Launch Day (December 3, 2021, Kyiv).



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CHAPTER 5

COMMUNICATIONS

During 2021, the NRFU implemented a number of communicative activities to promote the scientific achievements of grantees and inform the research community about the main activities of the Foundation:

- the NRFU website was rebranded;
- communication strategy was developed;
- 2 videos were made: promo and video for the anniversary of Independence of Ukraine;
- questionnaires for surveying grantees and experts on the quality of the NRFU calls management were developed and analyzed;
- the number of the NRFU Facebook followers increased from 975 to 2410 persons;
- 166 posts on Facebook were posted;
- 107 posts were posted on the Ukrainian version of the Foundation's website;
- 58 posts on the English version of the Foundation's website;
- 41 posts were posted on Twitter;
- the rubric 'Success Stories' was launched;
- the concept of a web platform for popularization of scientific and scientific-technical activity was developed;
- two online events dedicated to the Science Days in Ukraine and World 'Scientific Supernova-1', 'Scientific Supernova-2' and 'Scientific Supernova' were held in a mixed format;
- 4 webinars for grantees and potential participants on the design of project applications and reporting documentation within the NRFU calls were held by the Foundation's staff;
- three webinars on the Foundation's activities, project management and the announcement of new calls (Yaroslav Mudryi National Law University and Chernihiv Polytechnic National University, Uzhhorod National University) were held;
- 7 open meetings with the managerial, research and teaching staff of higher education institutions dedicated to the Foundation's activities, project management and launching



new calls were held in Lviv (Lviv Polytechnic, Ukrainian Catholic University, I. Krypkyevych Institute of Ukrainian Studies, Ivan Franko National University of Lviv and Kharkiv (Kharkiv National University of Radio Electronics, Zhukovsky National Aerospace University, Education and Research Institute 'Karazin Business School');

- Memorandum of Understanding was signed to promote scientific and scientific-technical activities with V. N. Karazin Kharkiv National University, Ivan Franko National University of Lviv and Kyiv Academic University;
- Memorandum of Understanding with the Ukrainian Cultural Foundation was signed.



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CONCLUSIONS

Summarizing the results of the NRFU's activities in 2021 the following can be mentioned:

I. QUANTITATIVE INDICATORS OF THE IMPLEMENTATION OF THE NRFU STRATEGY IN 2021:

- the number of grantees' publications in journals indexed in international databases Web of Science and / or Scopus, in particular in publications belonging to the first two quartiles was 557;
- the number of monographs (sections in monographs), prepared within the framework of project implementation and published by leading publishers was 64 units;
- the number of projects that ended with acts of implementation was 41;
- the average budget per a grant equaled 3087.9 thousand UAH;
- the share of researchers under the age of 40 in the total number of project participants was 43% (805 out of 1878 project team members).

II. IMPLEMENTATION OF THE NRFU PLAN OF ACTIONS FOR 2021 CAN BE CONSIDERED GENERALLY PERFORMED

1. Organizational aspects performed:

- 1.1 Staffing of the Directorate.
- 1.2 Relocation of separate structural subdivisions of the Foundation to the new office.
- 1.3 Material and technical support of the Foundation.
- 1.4 Improving regulations related to the work of the Foundation as a state budgetary institution.
- 1.5 Systematizing of documents for grant support in 2020.
- 1.6 Analyzing of the organizational work of the Directorate of the Foundation in 2020 in order to optimize operational processes.
- 1.7 Transferring the documentation of the State Fund for Fundamental Research (SFFR) to the State Archives.
- 1.8 Increasing professional qualification of the Foundation's staff (participation in webinars and seminars, training of new employees, etc.).
- 1.9 Development of new mechanisms for evaluating the quality and effectiveness of projects funded by the NRFU.



2. Digitalization of the NRFU procedures:

- 2.1 Purchase of necessary office and computer equipment.
- 2.2 Creating a local Internet network on the new premises.
- 2.3 Construction of a comprehensive security system on the premises leased by the Foundation.
- 2.4 Completion of the redesign of the Foundation's website.
- 2.5 Creation of information and promotional materials.
- 2.6 Publications that inform the public and organizations about the activities of the Foundation, as well as their publication on information resources.
- 2.7 Development and modernization of the electronic automated system for submission and processing of projects submitted to the call (automated system 'The NRFU Call for Projects'); an electronic database of experts who conduct reviewing of projects submitted to the call; and an electronic database of research and developments funded by the Foundation.
- 2.8 Development of the NRFU experts' database, including involvement of new foreign experts.
- 2.9 Establishing cooperation with scientific and research institutions, as well as with representatives of the scientific community aimed at promotion research and technical activities.

3. Financing and management of winning projects:

- 3.1 Development of the necessary procedures for the implementation of grant funding.
- 3.2 Development and approval of new forms of contractual and reporting documentation.
- 3.3 Optimization of the criteria for selecting winning projects, as well as the procedure of reviewing and competitive selection, taking into account the experience of 2020.
- 3.4 Carrying out contractual work, concluding contracts with grantees for 2021.
- 3.5 Analysis, acceptance and approval of reporting documentation of grantees. Making a reasonable decision on continuation (or termination) of project financing on the basis of the procedure of consideration of scientific and financial reporting documentation.
- 3.6 Launching calls for research projects.
- 3.7 Formation of Call Commissions, organization of their work.
- 3.8 Acceptance of applications for calls.
- 3.9 Expert reviewing of applications.
- 3.10 Selecting the winners of the calls.
- 3.11 Work of the Temporary Commission to determine the possibility and relevance of the implementation of winning projects of the joint call (F-81), conducted by the State Fund for Fundamental Research (SFFR) and the German Research Foundation (DFG).
- 3.12 Concluding agreements with the winners of the joint call (F-81), conducted by the State Fund for Fundamental Research (SFFR) and the German Research Foundation (DFG), based on the relevant decision of the Temporary Commission.

- 3.13 Analysis, acceptance and approval of the reporting documentation of the winners of the joint call (F-81), conducted by the State Fund for Fundamental Research (SFFR) and the German Research Foundation (DFG). Making a reasonable decision on the continuation (or termination) of project financing on the basis of the procedure of consideration of scientific and financial reporting documentation.

4. Ensuring budgets for funding new winning projects in 2022:

- 4.1 Defining the topics of new calls to be held in 2021 and areas of grant support for the NRFU projects in 2022.
- 4.2 Development of the necessary regulatory framework for the provision of grant support in other areas except research and developments.
- 4.3 Preparation and justification of the draft budget request for 2022.

5. International cooperation:

- 5.1 Communication with the German Research Foundation (DFG) in order to obtain confirmation / denial in financing the projects by the Ukrainian side (for the winners of the joint F-81 call).
- 5.2 Negotiating with foreign funding organizations on the possibility of conducting joint research and developments calls.
- 5.3 Signing of Memorandums of Understanding with foreign funding organizations on the possibility of joint research and developments calls.
- 5.4 Communicating with representatives of international grant programs.
- 5.5 Development of the necessary legal framework for the organization and holding of joint calls with international partners.

6. Potential cooperation of the NRFU with Ukrainian partners:

- 6.1. Establishing contacts and communication with Ukrainian business structures and business associations in order to organize specific calls.
- 6.2. Carrying out of joint events for the popularization of the Foundation and research and technical activity.
- 6.3. Determining the possibility of cooperation with other foundations and investors.