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SCIENCE AT RISK Monitoring Report

# Ukraine 2022-2023: Threats to science and higher education after the full-scale Russian invasion

**SCIENCE  
at RISK**

Emergency Office by akno e.V.

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SCIENCE AT RISK Monitoring Report  
Ukraine 2022/2023: Threats to science and higher education  
after the full-scale Russian invasion

*Revised version December 2023*

## About the authors

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# About the study

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Russia's war of aggression has had a dramatic impact on Ukrainian science. The study takes stock of the current situation in terms of damage to the research infrastructure, the financial situation of the sector and, most importantly, the damage to Ukraine's human capital. After Russia's full-scale invasion, Ukrainian scholars found themselves in extremely difficult living conditions, whether in a safer part of the country, in the occupied territories or abroad. They are exposed to permanent extreme conditions, including the death or injury of close relatives, direct threats to their lives, trauma and psychological problems, loss of work and income. Despite all these hardships, the majority of scholars continue their research activities. We at the SCIENCE AT RISK Emergency Office have made it our mission to supporting them. In the conclusions of this report, we make some recommendations on how to address these challenges in order to save Ukraine's scientific potential, which will become particularly urgent in the post-war recovery process.

This study is a pilot project of the SCIENCE AT RISK Emergency Office, which aims to collect data from Ukrainian scholars affected by Russia's full-scale invasion and aggressive war against Ukraine, while providing them with financial support. A remarkable number of respondents – 4,250 – from all regions of Ukraine except for the Autonomous Republic of Crimea took part in the survey. To achieve this broad coverage, the SCIENCE AT RISK Emergency Office was able to offer small grants to 30 researchers who conducted the survey. The survey provides information on the state and needs of the Ukrainian research community. The results of the survey are not representative, but given the scarcity of data in the midst of war, this comprehensive survey is highly relevant for planning and implementing assistance and cooperation in this area. In particular, our organisation will evaluate and adapt existing support formats to provide more targeted and tangible support to Ukrainian researchers.

We would like to express our gratitude to the team of researchers who helped us process the survey data: Oleh Mandryk and Ludmyla Archipova from the Ivano-Frankivsk National Technical University of Oil and Gas, Andrii Gorbachyk from the Taras Shevchenko National University of Kyiv and Olga Pylypovych from the Ivan Franko National University of Lviv.

Preceding this study, two articles were published by the SCIENCE AT RISK Emergency Office, which shed light on the overall situation of the education and science in Ukraine after Russia's full-scale invasion:

- Tetiana Folhina, Philipp Schmäddeke, Yuliia Yevstiunina. Kommentar: Zum Zustand der ukrainischen Wissenschaft in Zeiten des Krieges, Ukraine-Analysen Nr. 286, 27.06.2023.
- Yuliia Yevstiunina, Philipp Christoph Schmäddeke, Tetiana Folhina. Brief Overview of the State of Ukraine's Higher Education and Science in Times of War. Ukrainian Analytical Digest, No. 002, October 2023. DOI: 10.3929/ethz-b-000637349.

Philipp Christoph Schmäddeke,  
SCIENCE AT RISK Emergency Office

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# 1. Introduction

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In 2014, Ukraine clearly chose the European vector of development, but it has since then faced many challenges to its territorial integrity and national security in general, as well as to specific sectors of society. The outbreak of hostilities in Donbas and the annexation of Crimea caused significant damage to higher education and academic institutions in Ukraine, including the significant destruction of infrastructure, forced relocation of higher education institutions (HEIs) to safe areas and the loss of academic staff and students.

A new set of challenges was introduced with the commencement of Russia's full-scale invasion of Ukraine on February 24, 2022. Under conditions of military aggression, higher education and scientific institutions were once again forced to find new ways to continue their activities. As the constant bombing and destruction of higher education and research institutions became a reality, the challenges increased: they included the need to relocate the HEIs to safer areas, the temporary suspension of the educational process, the relocation of its participants both inside and outside Ukraine, the occupation of Ukrainian territories, the negative moral and psychological background associated with a direct threat to life, and other negative factors.

A large number of Ukrainian scholars suddenly found themselves in extremely difficult living conditions, whether in safer areas of the country, in the occupied territories or abroad. There are no exact statistics on the loss of personnel due to Russia's military aggression and forced migration, but partly due to the possibility of working remotely,<sup>1</sup> most sectors of Ukraine's HEIs managed to complete the 2022–2023 academic year and ensure the continued functioning of higher education and science in the country.

The experience of organising distance learning and other scientific and educational online activities – gained during the COVID-19 pandemic – proved to be extremely useful in this extreme situation. Within three weeks of the full-scale invasion, the main tasks of ensuring a safe environment and resuming the educational process could be implemented. This was supported not only by the administration and management of the HEIs, but also by the academic and teaching staff.

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<sup>1</sup> Letter of the Ministry of Education and Science of Ukraine No. 1/3463-22 of March 15, 2022, [mon.gov.ua](http://mon.gov.ua) (Accessed November 13, 2023).

In response to this situation, in 2023, the SCIENCE AT RISK Emergency Office of the Academic Network Eastern Europe (akno e.V.), in cooperation with a team of researchers in Ukraine,<sup>2</sup> initiated a study to obtain more detailed information and thus gain a better understanding of the current needs of higher education and science in Ukraine under the conditions of full-scale war.

A key part of the study is a survey of Ukrainian academics, including quantitative indicators and information on their working conditions, their status and their needs. This will allow for more effective planning and implementation of assistance and cooperation in this area.

In addition, the study analysed data from open sources, in particular from the Unified State Electronic Database on Education (USEDE), the official website of the Ministry of Education and Science of Ukraine, the information system [vstup.osvita.ua](http://vstup.osvita.ua), the National Agency for Higher Education Quality Assurance, and the Ministry of Social Policy of Ukraine, as well as from other open sources containing information on the higher education system, researchers and students.

**During the work we encountered several difficulties in collecting and processing the data, which were caused by the following factors:**

- different time periods for updating the data, which made it difficult to establish the correct relationships;
- partial data, as the current situation in the occupied territories is unknown;
- data on damaged and destroyed higher education and research institutions are constantly changing, due to the active hostilities;
- the situation regarding the migration processes of internally displaced persons and refugees with temporary protection in the European Union and other countries is unstable;
- some data cannot be found in open sources, and even in response to official requests, only partial information could be obtained.

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<sup>2</sup> Oleh Mandryk, Doctor of Technical Science, Professor, Ivano-Frankivsk National Technical University of Oil and Gas; Ludmyla Archipova, Doctor of Technical Science, Professor, Ivano-Frankivsk National Technical University of Oil and Gas; Andrii Gorbachyk, PhD in Physics and Mathematics, Professor, Taras Shevchenko National University of Kyiv; Olga Pylypovych, PhD in Geography, Associate Professor, Ivan Franko National University of Lviv.

## 2. The impact of the war on science and higher education in Ukraine

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The Russian military aggression against Ukraine has caused significant challenges to the Ukrainian scientific and educational sector: loss of personnel, destruction, damage and forced relocation of research and educational facilities, reduction of funding for research and higher education, etc. The National Academy of Sciences of Ukraine has called the consequences of Russia's actions "scienticide," accusing Russia of "deliberately destroying science in Ukraine."<sup>3</sup>

The outbreak of hostilities on February 24, 2022, and the imposition of martial law in Ukraine caused massive displacement, as citizens fled their homes in search of safety and protection. More than 6.2 million people have been registered worldwide.<sup>4</sup> The number of internally displaced persons (IDPs) in Ukraine is estimated at 4.9 million<sup>5</sup>

There are no precise statistics on how many members of the Ukrainian scientific community have left the country (some estimates put the number at around 22,000 scholars<sup>6</sup>), been internally displaced, remained in the occupied territories or near the war zones or been recruited for military service. The result of our survey discussed in the next part of this report – which however is not representative – nevertheless aims to shed light on the extent of these developments.

To ensure the continuity of research and educational processes under the extraordinary circumstances, the Ministry of Education and Science of Ukraine undertook several measures. Among other things, it granted teachers and lecturers' permission to work remotely while abroad.<sup>7</sup> At the same time, Ukrainian research and education facilities were forced to optimise their spending. This has often been implemented by reducing additional payments to academic staff, introducing compulsory unpaid leave or reducing staff numbers. The interviewed Ukrainian scientists reported cases where lecturers were forced to resign because of their absence from Ukraine, even if they had fled areas directly affected by active hostilities.

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3 Aisling Irwin. The fight to keep Ukrainian science alive through a year of war. February 22, 2023, <https://www.nature.com/articles/d41586-023-00508-0> (Accessed November 13, 2023).

4 UNHCR. Ukraine Refugee Crisis: Aid, Statistics and News | USA for UNHCR ([unrefugees.org](https://www.unrefugees.org)) (Accessed November 13, 2023).

5 Letter of the Ministry of Social Policy of Ukraine (MSPU), September 2023. This number refers to the registered IDPs receiving assistance; the actual number of IDPs in the country is higher.

6 Seven ways the war in Ukraine is changing global science ([nature.com](https://www.nature.com)) (Accessed November 13, 2023).

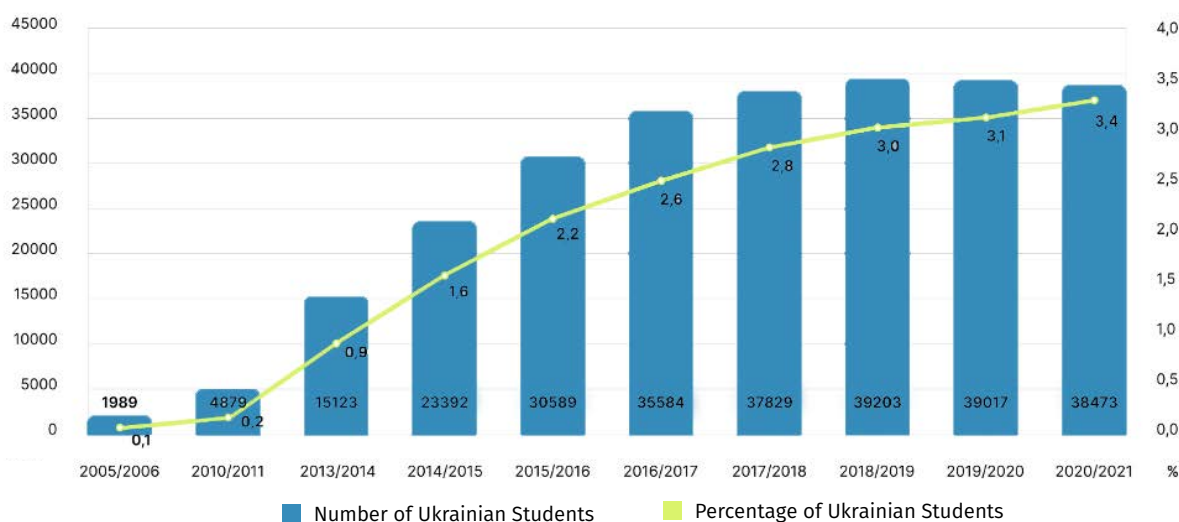
7 Letter of the Ministry of Education and Science of Ukraine No. 1/3463-22 of March 15, 2022, <https://eo.gov.ua/osvita-pid-chas-voy-ennoho-stanu-30-zapytan-ta-vidpovidey/2022/04/18/> (Accessed November 13, 2023).



The number of Ukrainian HEIs itself has decreased significantly (according to USEDE): from 736 in January 2023 to 576 in November 2023. There is no official explanation of the reasons for this significant reduction in a relatively short period of time (by 160 HEIs, of which 143 are state-owned). It is likely to be the result of an ongoing process of reorganisation of the higher education system in Ukraine, which involves the merging of HEIs in order to improve their efficiency and ensure transparency in Ukraine’s higher education system.<sup>8</sup> The need to allocate additional resources to defence and security in the wake of the Russian military aggression may have accelerated this process.

The low salaries of academic staff in Ukraine and the instability of academic employment are negative factors that have often led Ukrainian scientists to leave the profession for better paid jobs or to seek employment abroad. Together with the declining attractiveness of research careers, “brain drain” has long been a significant challenge for scientific institutions in Ukraine. The number of researchers in Ukraine fell sharply from over 52,000 full-time positions in 2013 to 41,000 in 2018.<sup>9</sup> The number of Ukrainians leaving school to study abroad is increasing every year. In Poland alone, the number of students from Ukraine increased from 1,989 to 38,473 between 2005/2006 and 2020/2021 (Figure 1). The general financial instability in Ukraine caused by the Russian war of aggression has also accelerated these trends.

Figure 1. Number of students from Ukraine studying at Polish HEIs



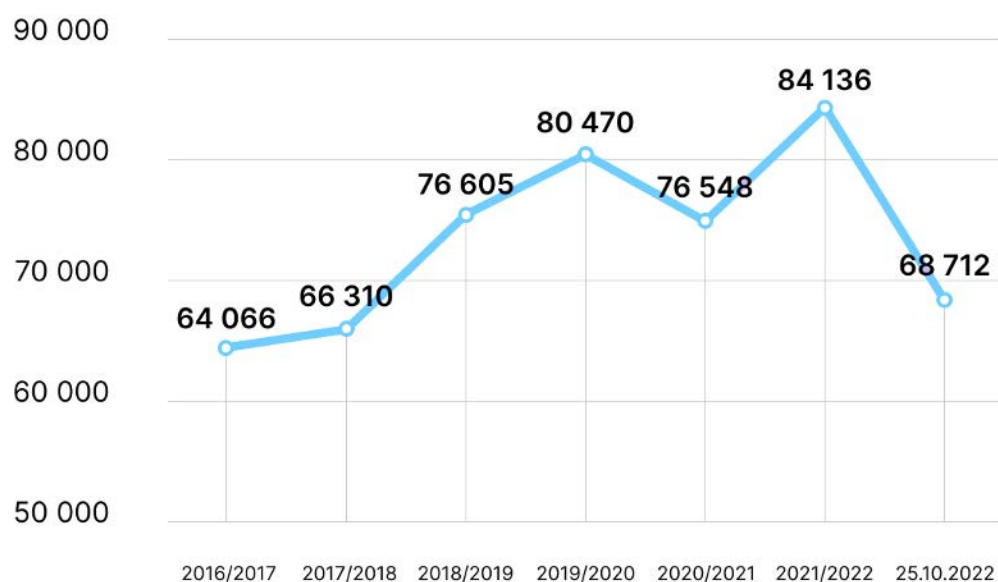
Another consequence of Russia’s military aggression has been the outflow of international students from Ukrainian HEIs. Before Russia’s full-scale invasion of Ukraine,

8 World Bank. Ukraine to Modernize Higher Education System with World Bank Support. May 5, 2021, <https://www.worldbank.org/en/news/press-release/2021/05/05/ukraine-to-modernize-higher-education-system-with-world-bank-support>. (Accessed November 14, 2023); V Ukraine mogut zakryt' nekotoryye universitety: nazvana vazhnaya prichina. Vesti. UA. April 24, 2021, <https://vesti-ua.net/novosti/ekonomika/180284-v-ukraine-mogut-zakryt-nekotorye-universitety-nazvana-vazhnaya-prichina.html> (Accessed November 14, 2023).

9 The future of science in Ukraine ([oecd.org](https://www.oecd.org/)) (Accessed November 10, 2023).

more than 84,000 international students were studying at Ukrainian HEIs.<sup>10</sup> In October 2022, this number had fallen to 68,712 (Figure 2). As many of the most popular academic disciplines among international students, such as medicine, dentistry or pharmacy, are not suitable for distance learning, the study of these disciplines became inaccessible.

Figure 2. Number of international students in Ukraine from 2016 to 2022



Access to education hence was affected tremendously by Russia's military aggression, with the difference being most pronounced between the end of the 2021–2022 academic year and the 2022–2023 academic year. At the beginning of the full-scale invasion, the main challenge was to create safe conditions for studying and scientific work. The subsequent disruptions of electricity, stable access to the internet and heating have led to an even greater crisis, which mainly affected distance learning in Ukraine. Students and teaching staff were only able to use certain periods of time when there was electricity and internet access in their homes.

The financial accessibility of higher education also became more acute. Even before the full-scale invasion, the number of university places funded by the state or local budgets had been permanently reduced. Under martial law, an even greater reduction can be expected. In the current situation of financial uncertainty, the participation of companies in financing the education of their future specialists is also decreasing. As a result, more students are having to pay for their own tuition fees. Given the decline in real incomes, the significant income disparities, the underdeveloped student loan market and the general uncertainty caused by Russia's military aggression against Ukraine, higher education is becoming less accessible, especially for low-income groups.

10 [Study in Ukraine – Ukrainian State Center for International Education](#) (Accessed November 13, 2023).

To ensure the continuity of the educational process, the effective organisation of distance learning based on electronic resources has become a crucial factor. In this context, the security of server equipment is important. For various reasons (e.g., high costs and the technological complexity of implementation), Ukrainian educational institutions did not previously practise duplicating important information on “mirror” servers physically located in another region of the country or abroad. Therefore, displaced HEIs in particular were at high risk of losing access to important electronically stored information. Their need for additional computer and server equipment to support their activities remains high.

Russia’s military aggression has caused significant damages to the scientific infrastructure of Ukraine. According to some estimates, Russia’s military actions have destroyed at least 15% of Ukraine’s overall research infrastructure.<sup>11</sup> According to the Ministry of Education and Science of Ukraine, four HEIs (all located in the Donetsk region) have been destroyed as a result of Russia’s military aggression as of September 1, 2023. A total of 84 HEIs have been damaged, with the regions of Kharkiv (23), Donetsk (9), Odesa (9), Zhytomyr (5), Zaporizhzhia (5) and Mykolaiv (5) and the city of Kyiv (6) suffering the most. The bombing and shelling continue, with destruction recorded on a weekly basis. The Ministry of Education and Science of Ukraine has created an interactive map to provide up-to-date information on the destruction and damage to education and research infrastructure.<sup>12</sup>

According to the Ministry of Education and Science of Ukraine, 31 HEIs and 65 separate structural subdivisions of HEIs have been relocated (including in the first wave of relocations in 2014) from the Donetsk, Luhansk, Zaporizhzhia and Kherson regions, the Autonomous Republic of Crimea, and the city of Sevastopol; almost 60,000 students and more than 10,000 teachers are studying and working in relocated HEIs.<sup>13</sup>

In addition to the physical destruction and damage, there are problems related to funding cuts for higher education and science during the war in Ukraine. The state budget of Ukraine for 2022 allocated UAH 392.2 billion to finance research and education.<sup>14</sup> However, the war forced the state to make adjustments, and the Cabinet of Ministers reallocated spending to finance defence and security needs.<sup>15</sup> There is no official information on the actual expenditure on higher education and science for the year 2022. In the state budget for 2023, funding for research and education decreased to UAH 156 billion.<sup>16</sup> Given an inflation rate of almost 30%, the extent of the financial

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11 Nataliya Shulga. Science in postwar Ukraine, January 12, 2023, <https://www.science.org/doi/10.1126/science.adg5733> (Accessed November 13, 2023).

12 Ministry of Education and Science of Ukraine: <https://mon.gov.ua/ua/news/ministerstvo-osviti-i-nauki-ukrayini-zapuska-ye-interaktivnu-mapu-zrujnovanih-i-poshkodzenih-zakladiv-osviti> (Accessed November 16, 2023).

13 Ministry of Education and Science of Ukraine (Letter No. 3/4693-23 dated 25.08.2023).

14 Cabinet of Ministers of Ukraine ([kmu.gov.ua](http://kmu.gov.ua)) (Accessed November 15, 2023).

15 Osvitni vtraty kriz' pryizmu viyny. <https://progresylni.org/blogs/edulost> (Accessed November 13, 2023).

16 Ministry of Finance of Ukraine ([mof.gov.ua](http://mof.gov.ua)) (Accessed November 13, 2023).

cut is even higher. In the draft state budget of Ukraine for 2024, spending on research and education increases compared to 2023 – to UAH 192,7 billion (179,1 billion for education and 13,6 billion for science and research)<sup>17</sup> – but this is still only about half of the spending for education and science before Russia’s full-scale invasion.

It thus is only to be expected that scientific project activity has been significantly affected by the war as well. According to the National Research Fund of Ukraine, no scientific research was supported by the Fund in 2022, as the state was forced to confiscate previously allocated budget funds for the country’s primary defence needs. In 2023, UAH 505 million was allocated to research projects, which is 16% less than in 2021.<sup>18</sup> However, in some cases the implementation of these projects was impossible, because project team members moved abroad, scientific equipment was damaged, or there was no stable access to electricity. In the state budget for 2024, funding for research projects has increased to UAH 610.4 million,<sup>19</sup> which exceeds spending in 2021.

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17 Ministry of Finance of Ukraine ([mof.gov.ua](https://mof.gov.ua)) (Accessed November 13, 2023).

18 Cabinet of Ministers of Ukraine ([kmu.gov.ua](https://kmu.gov.ua)) (Accessed November 13, 2023).

19 Ministry of Education and Science of Ukraine ([mon.gov.ua](https://mon.gov.ua)) (Accessed November 13, 2023).

## 3. Results of a survey among Ukrainian scientists

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The online survey of Ukrainian scientists was conducted to obtain more detailed information and a better understanding of the current needs of higher education and science in Ukraine under the conditions of full-scale war. The survey was carried out between August and September 2023. It provides quantitative indicators and information on the working conditions, status and needs of Ukrainian scientists and can be used for planning and implementing assistance and cooperation in this area.

4,250 respondents from all regions of Ukraine except for the Autonomous Republic of Crimea participated in the survey. Of the respondents, 56.3% were women and 43.7% were men. The proportion of people with a scientific degree is 79.3%. 66.1% of the respondents are engaged in research and teaching activities, 11% are exclusively engaged in research activities, 19.6% hold managerial positions, and 10% are students (postgraduate students and doctoral students). In terms of field of expertise, humanities and natural sciences, education/pedagogy, and social and behavioural sciences are the most common fields of expertise among the respondents (Figure 3).

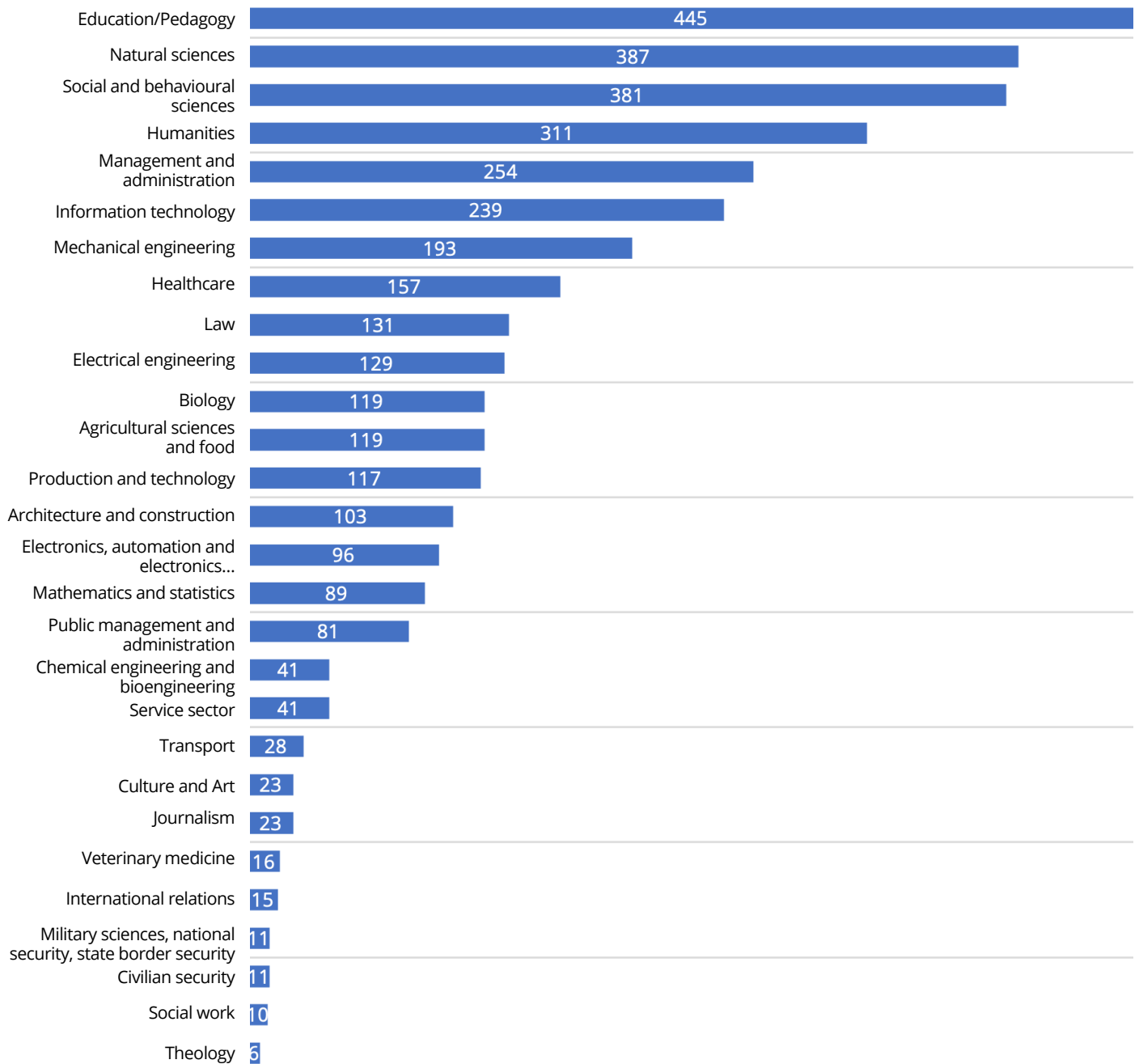
Simple random sampling was used to select the respondents. The results of the survey are not representative but given the scarcity of data in the midst of war, they can provide important insights into the state and needs of the Ukrainian research community.

Below are some facts obtained from the survey:

### **Place of residence**

- Almost 25% of scientists have changed their place of residence since the beginning of the full-scale invasion. As expected, the percentage of those who changed their place of residence after the full-scale invasion was higher among women (30.9%) than among men (16.3%).
- Among those who have not changed their place of residence, 10% want to leave Ukraine, while 3% want to move to a safer place within Ukraine. The overwhelming majority of respondents (86.6%) indicated that they did not want to change their place of residence.

Figure 3. Fields of knowledge of the respondents



### Personal issues

- 20% of scientists have close relatives (husband, wife, children, parents, or siblings) who have been killed or seriously injured as a result of the war in Ukraine.
- 21% have been forcibly separated from their families as a result of the war.
- More than 5% of the respondents serve in the territorial defence and Armed Forces of Ukraine.
- A significant proportion of the respondents, namely 28%, have family members or close relatives (husband, wife, children, parents, or siblings) serving in the Armed For-

ces of Ukraine. Among those scientists who do not have relatives serving in the Armed Forces of Ukraine, 53.4% feel psychologically well, while among scientists whose relatives serve in the military, this percentage is 46.9%.

- The need for financial resources increased significantly from the beginning of the full-scale invasion until September 2023 among the surveyed researchers (from 15.3% to 49%), which indicates the financial impoverishment of higher education and research institutions in the state of war.

### **Workplace**

- Some 34% of respondents reported that their workplace had been destroyed or damaged.
- 9.4% of respondents work or have worked in a displaced university or research institution.

### **Scientific work**

- The majority of respondents (88.3%) continue their research even under the most difficult war conditions, while 11.7% of the respondents were forced to stop their research activities. Among the respondents who stopped their research activities, 47.9% did so voluntarily, while 18.8% experienced administrative pressure and 33.3% did so as a result of the war.
- Of the 34% of the respondents involved in research activities, 43% were forced to suspend their research projects.
- 44.3% of respondents have experienced a decrease in labour productivity. 42.4% experienced no change. 11.7% of respondents reported an increase.

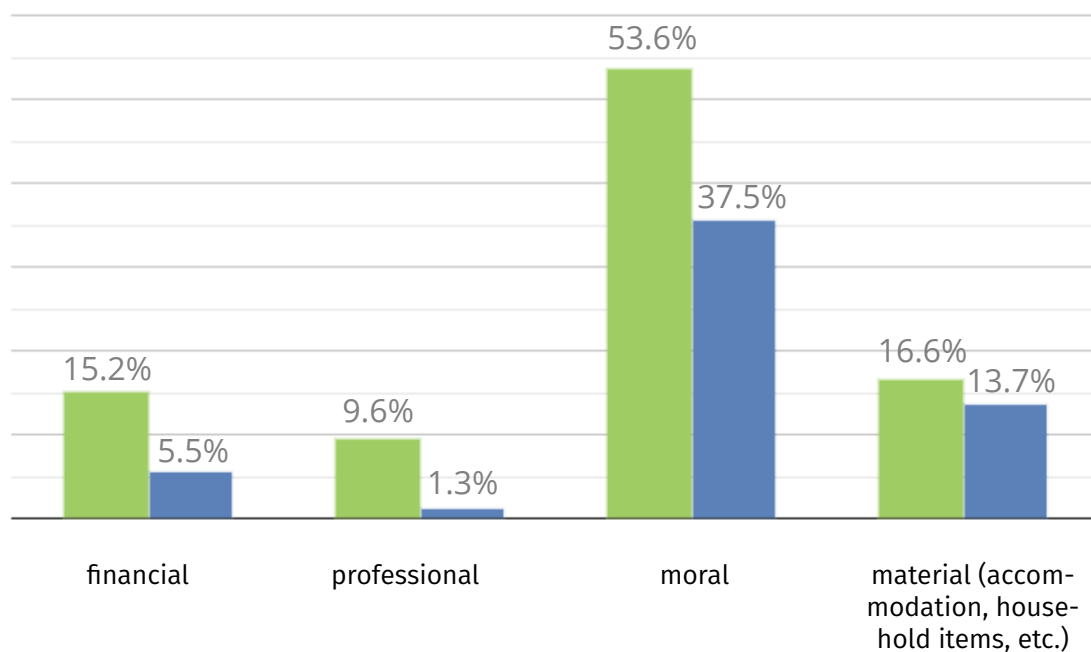
### **Social Issues**

- The data obtained on the ability of scientists to use their own professional contacts to solve problems caused by the war are interesting. For example, when faced with problems at the beginning of the full-scale invasion, almost 25% of the respondents were able to use their own professional (academic) contacts to solve the problems related to financial support (29.6%), finding an internship or training place (28.1%), finding accommodation (15%), and finding a new job (9.9%).
- Our survey shows that a relatively high percentage of Ukrainian scientists have been involved in volunteer work since the beginning of the war – 52%. The percentage is higher among the respondents whose close relatives serve in the Armed Forces of Ukraine – 62.8%, while this percentage is lower among those whose close relatives do not serve in the Armed Forces (47.5%).

## Perceived needs

The survey asked respondents to compare the support they wanted and received during the first few months of the war. The distribution of responses is shown in Figure 4. According to the answers, 53.6% of the respondents needed moral support, but only 35.7% of the respondents felt that they received this support; 15.2% needed financial support and 5.5% received it; 16.6% needed material support (such as accommodation, household items, etc.) and 13.7% received it; 9.6% needed support in terms of professional self-realisation (looking for a job, internship, scholarship, etc.) and 1.3% said that they received this support.

Figure 4. Support sought and received by Ukrainian scholars at the beginning of Russia's full-scale invasion of Ukraine



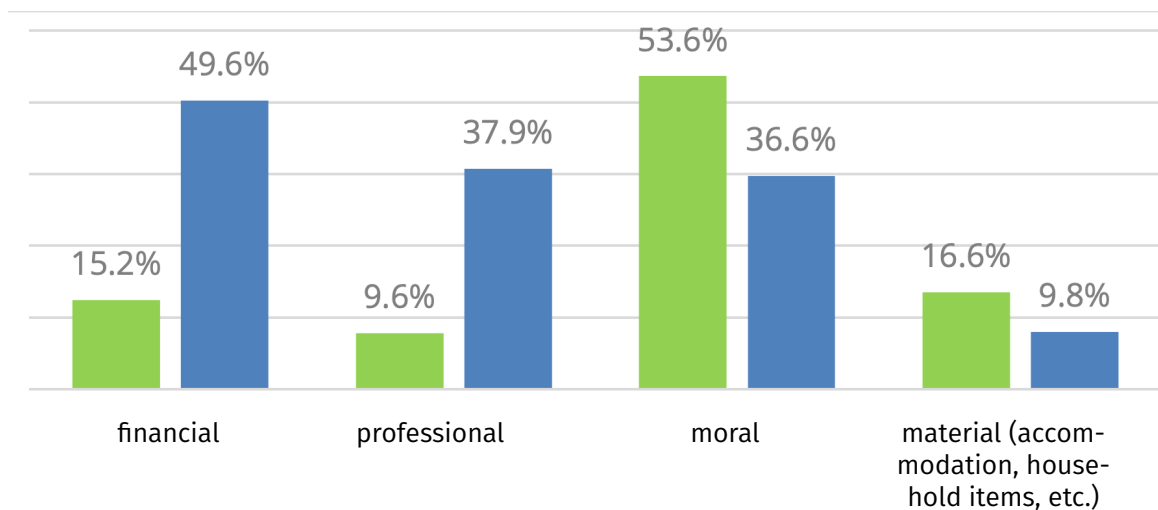
- What kind of support did you need in the first months of the war?
- What kind of support do you need most now?

The changes in the needs of Ukrainian scholars after more than 1.5 years of full-scale military aggression against Ukraine are presented in Figure 5. In summary, the need for financial resources has increased significantly, from 15.3% to 49%, indicating the financial impoverishment of higher education and research institutions in a state of war. The need for support in terms of professional self-realisation (finding a job, internship, scholarship, etc.) has also increased significantly, from 9.7% to 38.2%. At the same time, the need for moral support has decreased (from 54.4% to 36.8%), which



means that Ukrainians have begun to get used to life in a state of war. The need for material assistance (including accommodation, household goods, etc.) has also decreased (from 15.5% to 9.7%).

Figure 5. The needs of Ukrainian scientists at the beginning of Russia's full-scale invasion of Ukraine and today



- What kind of support did you need in the first months of the war?
- What kind of support do you need most now?

## 4. Conclusions

Russia's aggressive war against Ukraine has had a dramatic impact on Ukrainian science in a number of ways. The physical damage to scientific and educational facilities and the financial losses to the educational and scientific system can be assessed and overcome in a post-war Ukraine. The damage to human capital is however more difficult to assess now and to repair in the future. As one result of the war, the "brain drain," which has long been a challenge for the country, accelerated even further. According to some estimates, 22,000 scholars had left the country by July 2022.<sup>20</sup> Despite many short-term hosting programs for Ukrainian refugee scholars at research institutions around the world, not all of them have been able to find a place in the highly competitive international academic environment. Without affiliation to an academic institution in the host countries, many Ukrainian refugee researchers may decide to change their career direction and abandon their research careers altogether.

Many of the approximately 100,000 Ukrainian scholars who have remained in the country<sup>21</sup> are experiencing psychological problems that are reducing their work productivity. Moreover, many scholars in Ukraine have lost the opportunity to conduct research due to severe budgetary pressures or damage to research infrastructure, have lost their jobs involuntarily, or have found it impossible to remain in the profession due to financial instability. Thus, the impact of Russia's military aggression on Ukraine's scientific potential is now enormous and may pose a challenge to the long-term future of Ukrainian science.

At the same time, the Ukrainian science and education system has shown remarkable flexibility and adaptability under the extraordinary conditions. The educational process in Ukrainian HEIs resumed three weeks after the full-scale invasion and continues to use new tools and approaches to teach, study and do research at a distance. The high level of mutual support within the Ukrainian scientific community has helped scholars to overcome the problems posed by the full-scale Russian invasion (such as financial support, search for housing, etc.), especially at the beginning.

The analysis of the overall situation in the country, together with the results of our survey of 4,250 Ukrainian scholars, allows us to conclude that the most urgent short-term issue for Ukrainian science is to save the critical mass of scholars and their potential. In terms of directions, priorities and forms of international assistance and support, the following recommendations can be made:

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20 Seven ways the war in Ukraine is changing global science ([nature.com](https://www.nature.com)) (Accessed November 13, 2023).

21 The future of science in Ukraine ([oecd.org](https://www.oecd.org))

- The survey results highlight the financial challenges faced by the scientific community in Ukraine. Direct financial support is crucial to prevent researchers from abandoning their careers. The SCIENCE AT RISK Emergency Office has consistently prioritised providing such support. Based on our experience, small grants for participation in conferences or publishing, rather than fully funded scholarships, appear to be more helpful in covering current living costs. This is particularly important for scholars who are based in Ukraine.
- Additionally, organising networking events for Ukrainian and European scholars can address the need for professional support and development expressed by the survey participants. International collaborative research projects, including those involving junior researchers, are necessary to provide Ukrainian scholars with a knowledge of European scientific practices and standards and to enhance their research competences. To ensure effective international communication and collaboration, it is also important to focus on developing the English language skills of Ukrainian scholars.
- Remote working practices, virtual access to scientific data and publications and distant participation in international networking and collaborations also contribute to the continuation of scientific work under the conditions of war.
- To prevent refugee scholars from Ukraine from quitting their research careers and to further develop their skills and competences, support is needed in finding training and research opportunities, grants and scholarships.

In the long term, these measures will facilitate sustainable cooperation and further integration of Ukraine into the European scientific environment after the war. This will encourage Ukrainian refugee scholars to return home, transforming the “brain drain” into a “brain circulation.” As our survey demonstrated, most respondents wish to remain in Ukraine provided they have suitable working conditions and adequate remuneration.

Ukrainian science has been severely affected by Russia’s aggressive war. Therefore, to safeguard Ukraine’s scientific potential, which is of utmost importance for its post-war future, more international support for Ukrainian scholars is required.



[www.science-at-risk.org](http://www.science-at-risk.org)