

What do Ukrainian science & scientists need?

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Ministry of Education
& Science of Ukraine:
Education of Ukraine
under martial law.
Information &
analytical digest/
Освіта України в
УМОВАХ ВОЄННОГО
стану. Інформаційно-
аналітичний збірник,
August 2022, p. 198-
209

Research in Ukraine before the war:

2021 state budget for (non-classified) R&D:

- **UAH 7832,94 million**, incl. NAS (59.2%), MES (20.7%), NAAS (7.5%) and NAMS (6.4%)
- **8,5 %** for competitive grants

Horizon 2020:

- Over **2,800 proposals** submitted
- **228** grants/ **EUR 45,75 million** received
- **29** projects for over **EUR 8 million** were coordinated by a Ukrainian organisation
- The success rate (submitted/supported projects) of Ukrainian participants was **9.2%** (while the average rate was almost **12%**)
- Among the 16 associated countries of the Horizon 2020 program, Ukraine was among the TOP-7 in 2 main indicators: the number of supported proposals and the amount of funds raised

Strategy & SWAT-analysis of the HE system of Ukraine

On approval of the Strategy for the Development of HE in Ukraine for 2022-2032: Order of the Cabinet of Ministers of Ukraine dated 23.02.2022/
Про схвалення Стратегії розвитку вищої освіти в Україні на 2022–2032 роки: розпорядження Кабінету Міністрів України від 23.02.2022 №286-р.

Higher Education of Ukraine before the war:

- In 2022 planned budget for education was to exceed **7%** of the GDP
- Completed the transition to a **3-level system of HE** (Bachelor/Junior Bachelor as a short cycle, Master & PhD/ Doctor of Arts; moved to the **establishment of structured PhD training: doctoral schools/ programmes**)
- There are about **7 HEIs** (universities, academies & institutes) **per 1 million population**
- According to *Knoema*, the gross enrollment rate in post-secondary education in Ukraine is extremely high:
 - **82.3%** (in 2014), **13th place** out of 119 countries, compared to 65.5% in Germany, 64.4 % in France and 63.1 % in Italy
 - One of the main reason is a wrong incentive: the number of students is still the main factor determining the amount of funding for HEIs
- Notwithstanding the war in the East (since 2014), the number of foreign students reached **76,500** in 2020, an increase of **43%** since 2011
- The annual salary of professors in Ukraine was **5,700 USD** & teachers (lecturers) in Ukraine – **4,700 USD** (2017/18 academic year)

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Problems that hinder the internationalization of HE in Ukraine:

- insufficient level of foreign language proficiency
- low quality of educational programs
- limited possibility to invite foreign lecturers
- outdated infrastructure

Some of the objectives to be reached by 2032:

- **500** of new and re-equipped research & training laboratories
- **120,000** of foreigners and stateless persons among HE students in Ukraine

Ministry of Education & Science of Ukraine:

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Information & analytical
digest/ Освіта України в
умовах воєнного стану.
Інформаційно-
аналітичний збірник,
August 2022, p. 162

Main challenges of the HE & research system in Ukraine after 24 February 2022:

- Restoration & development of the **infrastructure** that were destroyed & damaged as a result of the armed aggression of the rf
- Restoration of the HR potential of HE/ research institutions due to a **significant outflow of competitive teaching/ research staff** abroad or to other regions of the country, loss of contact with their institutions;
 - Expected **reduction of the applicant'/ student base for the government funding ("state order")** in the coming years (due to them remaining abroad)
- Functioning of the HE & science system in conditions of **limited funding**
- The **need for reorientation in personnel training due to fundamental changes in the staffing needs of the national economy and social life**, which dynamically emerged in wartime and will arise in the post-war period

The biggest challenge in the new school year for the education system is to **create safe conditions** for all participants of the educational process

Some relevant facts

- **15%** of the country's research infrastructure has already been damaged, [according to Oleksii Shkuratov](#), deputy minister for European integration at the MES of Ukraine
 - [A dedicated web-page](#), as of 1.08.2022: **2200** education institutions have suffered bombing and shelling, including **225 (7 HEIs)** that have been destroyed completely
 - Over **70** research institutions [have also been](#) damaged/ **2** destroyed/ **9** – state unknown (occupied territory)
- Numerous facts of research & laboratory equipment from Ukrainian universities & research institutions to be **stolen** and taken to the rf (**Olga Polotska, NRFU**)
- Displaced HEIs/ units:
 - As of 1.08.2022: **11,7%** (**29 HEIs & 64 units**), including **18 HEIs** that relocated from Luhansk and Donetsk in 2014, some of them had to now to relocate for the 2nd time
- **The World Bank [estimates](#) that over the next 36 months, €105 billion** is needed to address urgent needs such as restoring **education & health systems & infrastructure**. The recovery of HE alone would cost **€9.5 billion over the next 10 years, to rebuild damaged and destroyed HEIs**, and to ensure teachers & professors continue to be paid and do not move to other sectors

The UAScience.reload survey “Ukrainian Researchers in Times of War”

2173 scientists

1 April - 2 May 2022

The follow-up survey is ongoing

- **38%** have been forced to relocate internally since the beginning of the war
- **15%** have fled abroad, incl. **27%** to Germany and **25%** to Poland
- half the scientists are currently living in places where they experience no hostilities due to the war and only **7%** are in areas of active combat
- **81%** of scientists are continuing to receive a salary from the institution they work at

Prof. Ganna Tolstanova (Shevchenko University),
October 2022:

- ca **15 %** PhD students (of over 1000) had to flee, mainly females, only **10%** of them found a place for academic mobility
- **3 times more** PhD students took an ‘academic break’ compared to same time last year

Prof. Fedir Danevich
delivers lectures to his students at
Uzhhorod National University



Oleksii Shkuratov,
deputy minister for
European integration
at the MES of Ukraine

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Based on the information provided by the NASU and MESU:

- **4,805** researchers left Ukraine, **4,092 (85,2%)** continue working

Based on the information provided by **97 HEIs**:

- From their **6,665** researcher staff:
 - ✓ **53,7%** did not move, **53,4%** continue working
 - ✓ **7,26%** internally displaced, **7,23%** continue working
 - ✓ **4,89%** moved abroad, **4,44%** continue working
 - ✓ **0,49 %** remained on the temporary occupied territories, **0,39%** continue working
- From **43,474** scientific-teaching staff
 - ✓ **76,18%** did not move, **74,55%** continue working
 - ✓ **10,5 %** internally displaced, **10,35%** continue working
 - ✓ **8,08%** moved abroad, **7,37%** continue working
 - ✓ **1,47 %** remained on the temporary occupied territories, **1,07%** continue working

Dr Olga Polotska

NRFU

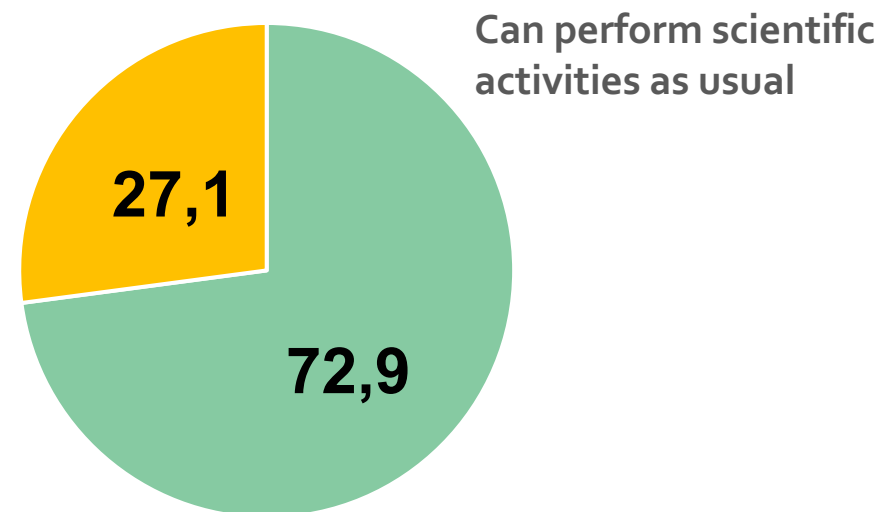
NRFU asked their grantees if they have enough resources to proceed with implementation of their projects in 2022 in case financing is resumed?

The **negative** answer came from ca **22%** of NRFU grantees:

- The main obstacle was deemed the relocation of project team members

Reasons:

- **46,6%**: I do not feel safe and this prevents me from working
- **31,7%**: The specifics of my work involves being present on-site, and I do not have such an opportunity
- **30%**: Technical reasons, incl. constant interruptions of the Internet and communication, turning off the electricity, etc.
- **28,8%**: Lack of interest, apathy



Immediate needs

Target-groups:

- Students & researchers, who have flown abroad
- **The largest group: remaining in Ukraine, especially internally displaced**
- **Ukrainian hosts supporting internally displaced students & researchers**
- **Research managers & administrators**
- **Institutions (MESU, NRFU, NAHEQA, NASU, universities & research institutes)**

What is needed:

- Laptops/ stable internet
- Establishing/ fostering professional connections:
 - Joint conferences
 - Invited talks
 - Joint summer schools/ training courses
- Online partnerships (teaching & research)
- Digital access to libraries/ data-sets/ courses and other resources
- Remote access to research infrastructure
- Further education opportunities (academic English, management skills, grant application, publishing, etc.)/ Internships (Hospitationen)

Level of action/ Target group(s)

Systems-level:

- MESU
- NRFU
- NAHEQA
- **Regional authorities**

Research-performing organisations:

- research groups
- departments
- HEIs/ research institutes

Individuals:

- researchers
- **science managers/ administrators**

- ✓ "Structural" support to ensure functioning of the institutions
- ✓ Consultations/ Advisory support
- ✓ Funds for the NRFU-selected projects

- ✓ Alignment of national 'high tech'/ green deal/ "skills for future" strategies -> ensuring a 'science & Innovation' chapter in any 'Marshall Plan'
- ✓ Smart specialization of Ukraine
- ✓ Joint/ Collaborative funding calls
- ✓ Capacity building eg through 'Hospitationen'

- ✓ Webinars/ Conferences/ Summer schools (honorarium)
- ✓ Joint teaching: **certificates**, PhD students mobility
- ✓ **Hop-on schemes** to join existing projects/ teams
- ✓ Equipment: for digital work/ used lab. equipment
- ✓ Digitalisation of archives/ data rescue/ saving cultural treasures

- ✓ Collaborative research projects
- ✓ **Joint MSc/ PhD programmes**
- ✓ Joint Research Groups
- ✓ **A few top-level research centres** as points of future recovery (eg the BMBF-funded Cores of Excellence/ National Labs)
- ✓ Joint Research Facilities/ Membership (of)

Return/ "Brain Circulation" Stipends/ Awards, with a start-up grant

Stipends/ Internship placements/ academic mobility places for PhD students, incl. non-residential

Time-scale

Short-term
Now

Mid-term
Next few years

Long-term
After the war

EU

The European Commission wants any long-term recovery plan to be underpinned by investments in science and technology that are aligned with EU's broader geopolitical strategy to become independent from Russian energy and move to greener sources.

"I would like to underline that research and innovation should be the driving force behind green energy, clean transport, smart cities [in Ukraine]," **Gabriel** said.

Oleksiy Kolezhuk &
Olga Polotska
Viewpoint: Ukraine
needs 'Marshall Plan'
for research and
innovation

Science | Business, 14 June 2022

“Emergency” support:

- “...should not be limited to programmes for ‘researchers at risk’ aimed at refugee researchers. **The main support should be focused on researchers who stay in Ukraine, by giving them research stipends, allowing them to work remotely on existing and upcoming projects, and providing access to high-performance computers and scientific databases.**”

Strategic:

- “First and foremost, we consider it **vital that any equivalent of the ‘Marshall Plan’ for Ukraine includes a chapter on the recovery and modernisation of the research and innovation system, with earmarked funds if possible**”.
- “... **a consistent plan of systemic mid-term reforms in science governance and funding instruments** ... will have to be worked out by international donors in collaboration with the Ukrainian side. ...it should include not only modernising the research infrastructure, but also changing the way science is governed, funded, and evaluated.”
- “To jumpstart the interaction between science and industry, it is crucially important **to coordinate the roadmap of scientific transformation with the economic drivers such as investments into high-tech development.**”

Call for targeted
financial relief for
Ukrainian research

Science | Business, 5.10.2022

MIT: Michael Leskiw,
associate director of
strategic alliances &
technology transfer
and alliance manager
Julie Kukharenko

Systemic approach recommended:

- **4** institutions that could benefit from immediate international financial aid of ca **€10 million pa**:
- **Ukraine's National Research Foundation (NRFU)** to cover its grant money moved to the defence budget (est. at €5 million pa)
- **Scholar Support Office** to do more mentoring and pay its staff
- Quality assurance agency to do more outreach, and establish relationships with European and US institutions to help with accreditation and standardization
- An online physics school

Useful initiatives/ contacts in Ukraine

- [Bank details](#) of the **Ministry of Education & Science of Ukraine** for reconstruction & restoration
- The [Ukrainian Global University \(UGU\)](#), a network of educational institutions, aimed at joining efforts to rebuild Ukraine by supporting Ukrainian high school and university students, scholars and tutors
- [Professional Network of Education and Science Managers of Ukraine](#), an NGO aimed at bringing together professional managers of education and science of Ukraine, training professional managers and teams for transformation and integration into European and global research areas, as well as forming a new mobile elite as a foundation for rebuilding Ukraine in the postwar period.
- [National Council for the Recovery of Ukraine from the War](#)

Some relevant publications from Ukraine/ Ukrainian researchers

- On approval of the Strategy for the Development of HE in Ukraine for 2022-2032: Order of the Cabinet of Ministers of Ukraine dated 23.02.2022/ [Про схвалення Стратегії розвитку вищої освіти в Україні на 2022–2032 роки: розпорядження Кабінету Міністрів України від 23.02.2022 №286-р.](#)
 - [Strategy & SWAT-analysis of the HE system of Ukraine](#)
- [Appeal “Open remote positions for Ukrainian refugee scholars”](#), signed by over 4500 scholars
- The UAScience.reload survey [“Ukrainian Researchers in Times of War”](#) (over 2000 scientists replied), the follow-up survey is currently being carried out
- [Освіта України в умовах воєнного стану. Інформаційно-аналітичний збірник](#), MES of Ukraine, August 2022
- [Ukrainian researchers want to shift the focus of international support from crisis response mode to rebuilding the science ecosystem](#). Science I Business, 21 June 2022
- Reports on the current situation in the Ukrainian IT sector:
 - [Relocation. The new IT landscape of Ukraine](#)
 - [IT Research Resilience](#)

Some other relevant initiatives/ publications

Strategic documents

- [10-point Action Plan “Action Steps for Rebuilding Ukraine’s Science, Research and Innovation”](#) adopted at the Meeting of the Academies of Sciences of Poland, Ukraine, USA, Germany (Leopoldina), Denmark, the Royal Society (UK) and the ALLEA (Warsaw, June 2022)
- [Report](#) from the **Conference on the Ukraine Crisis: Responses From The European Higher Education And Research Sectors** (15 June 2022), organized by The International Science Council
- European University Association (EUA): [Survey of National Rectors' Conferences](#) on support to Ukrainian higher education
- A Science|Business discussion paper “[The conduct of science in times of war](#)” (7 September 2022)

Some other relevant initiatives

Till the end of 2022:

- **Clarivate**, after considering the appeal of the MES of Ukraine, decided to ensure access to the Web of Science database for Ukrainian institutions until the end of 2022
- **Elsevier** has ensured access to the Scopus database and to the full-text resources of the ScienceDirect database, as well as a number of medical resources such as ClinicalKey, Complete Anatomy, Embase, Osmosis

Till the end of 2024:

- **Research4Life portal**: Ukrainian scientists and educators received free and convenient access to more than 115,000 books, about 40,000 journals, dozens of databases, including full-text resources of such leading publishers of scientific literature as Elsevier, Springer Nature, Wiley, Taylor & Francis, Oxford University Press, Emerald etc.

Some other relevant initiatives/ publications

Some (strategic) support initiatives

- **#ScienceForUkraine** has been evaluating the needs of Ukrainian academic institutions and has just started to publish their specific requests
- **ALLEA and the Breakthrough Prize Foundation:** \$ 1,5 million European Fund for Displaced Scientists, esp. **Funding Line 2:** funds to affected Ukrainian universities, academies, & research institutes to help them maintain and/or reinstate their scientific operations & research collaborations/ to support the reintegration process of researchers upon their return to Ukraine
- **European Training Foundation (ETF)** launched UA Re-Emerge(ncy): e-learning and skills development to rebuild Ukraine programme
- ERA4Ukraine, MSCA4Ukraine, Opportunities in Horizon-funded research & innovation projects
- DAAD Ukraine digital, DFG Special programme for Ukraine & UK Twinning partnerships
- **EUA** has set a new task force to support the reconstruction of the Ukrainian higher education system
- **The European Association for International Education (EAIE)** collects helpful materials on how to support Ukrainian institutions, & affected students & academics