GPE KIX EMAP HUB

KNOWLEDGE INNOVATION EXCHANGE

SECONDARY TEACHER WORKFORCE MANAGEMENT IN UKRAINE

Olga Dolinina
Andrii Lytvynchuk
Yuliia Naida
Vira Rogova
Nataliia Sofii
Maria Zasuha

GPE Transforming Education

IDRC · CRDI International Development Research Centre Centre de recherches pour le développement international

Canada

In partnership with

unesco International Institute for Educational Planning

Hosted by NORRAG

GENEVA GRADUATE INSTITUTE

NORRAG GLOBAL EDUCATION CENTRE

Network for international policies and cooperation in education and training

ABOUT NORRAG

NORRAG is the Global Education Centre of the Geneva Graduate Institute and a global network of more than 5,800 members for international policies and cooperation in education and training. NORRAG is an offshoot of the Research, Review, and Advisory Group (RRAG) established in 1977 and at the time funded by the International Development Research Centre (IDRC) and Swedish International Development Authority (Sida). It was charged with critically reviewing and disseminating education research related to the Global South. Since our move to Switzerland in 1992, NORRAG has been significantly supported by the Swiss Agency for Development and Cooperation (SDC), the Graduate Institute of International and Development Studies, Geneva, and, for a period, the Open Societies Foundation (OSF).

NORRAG's strength lies in addressing under-researched questions of quality and equity in key issues in education and development and in amplifying under-represented expertise, particularly from the South. NORRAG's core mandate is to co-produce, disseminate and broker critical knowledge and to strengthen capacity for and with the wide range of stakeholders who constitute our network. Our stakeholders from academia, governments, NGOs, international organisations, foundations and the private sector inform and shape education policies and practice at regional, national and international levels. Through our work, NORRAG contributes to creating the conditions for more participatory, evidence-informed decisions that improve equal access to and quality of education and training.

More information about NORRAG, including its scope of work and thematic priorities, is available at www.norrageducation.org.

Join the global NORRAG Network
www.norrageducation.org/norrag-network

Follow NORRAG on social media

ABOUT THE KIX EMAP HUB

The Global Partnership for Education Knowledge and Innovation Exchange (GPE KIX) is a joint endeavour with the International Development Research Centre (IDRC) to connect expertise, innovation, and knowledge to help GPE partner countries build stronger education systems and accelerate progress toward SDG 4. There are globally four KIX Hubs or Regional Learning Partners, overseen by IDRC. The Hub functions as a regional forum within KIX. NORRAG is the Regional Learning Partner for the KIX Europe, Middle East and North Africa, Asia and Pacific (EMAP) Hub (previously known as the KIX EAP Hub).

The KIX EMAP Hub facilitates cross-country knowledge and innovation exchange and mobilisation, learning, synthesis, and collaboration among national education stakeholders in 38 GPE partner countries in the EMAP region. The Hub also offers opportunities for peer learning and exchange by means of professional development and inter-country visits.

gpekix.org/regional-hub/kix-emap norrageducation.org/kix-emap

@KIXEMAP @KIXEMAP @KIXEMAP @KIXEMAP

ABOUT UNESCO INTERNATIONAL INSTITUTE FOR EDUCATIONAL PLANNING (IIEP)

Established in 1963 within UNESCO, the International Institute for Educational Planning (IIEP) develops and strengthens the capacities of educational planners and managers through professional development programmes, technical cooperation, policy research, and knowledge sharing. IIEP's vision is rooted in the understanding that education is a basic human right and thus, its mission consists of contributing to the expansion of quality education, to provide equitable and relevant learning opportunities to all.

iiep.unesco.org

ABOUT THE KIX EMAP LEARNING CYCLES

The KIX EMAP Learning Cycles are professional development courses offered to national education experts from 38 GPE partner countries in the Europe, Middle East and North Africa, Asia and Pacific (EMAP) region. Teams of national experts analyse, contextualise, and produce new knowledge on policy analysis and innovations. These professional development courses allow participants to share experiences, exchange knowledge, and contribute to the strengthening of their national education systems. The Learning Cycles are also an opportunity for national experts to publish their studies and findings internationally, and disseminate them on diverse online platforms, with support from the KIX EMAP Hub.

ABOUT THE LEARNING CYCLE ON SECONDARY TEACHER WORKFORCE MANAGEMENT

This case study is a result of the KIX EMAP Learning Cycle "Secondary Teacher Workforce Management". Facilitated by the UNESCO International Institute for Educational Planning (IIEP), this Learning Cycle ran from 24 September to 30 November 2024. Across 10 weeks, it equipped participants with the necessary theory and practical techniques to plan and analyse data on their secondary teacher workforce in relation to teacher requirements, deployment, and utilisation and to identify potential policy options. Thirteen national teams took part in this Learning Cycle, including Bhutan, Cambodia, Egypt, Lao PDR, Maldives, Moldova, Mongolia, Philippines, Sri Lanka, Sudan, Tajikistan, Tunisia and Ukraine.

KIX EMAP Learning Cycle Case Study, March 2026

The KIX EMAP Hub is supported by

Photo by
Nano Banana

KIX EMAP Hub / NORRAG
20, Rue Rothschild
P.O. Box 1672 1211 Geneva 1
Switzerland
norrag.kix@graduateinstitute.ch

This case study is a product of the KIX EMAP Learning Cycle: Secondary Teacher Workforce Management with external contributions. This work was supported by the Global Partnership for Education Knowledge and Innovation Exchange (GPE KIX), a joint endeavour with the International Development Research Centre (IDRC), Canada. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of the KIX EMAP Hub, NORRAG, GPE, IDRC, its Board of Governors, or the governments they represent. The KIX EMAP Hub / NORRAG does not guarantee the accuracy of the data included in this work.

BIOGRAPHICAL NOTES ON THE AUTHORS

Olga Dolinina, an education specialist and a project manager, has worked in international organisations and the United Nations for over 10 years, including the United Nations Children's Fund (UNICEF) Ukraine and the United Nations Educational, Scientific and Cultural Organization (UNESCO) France. She completed her master's degree in Psychology and Management at London Metropolitan University, United Kingdom. She is an expert in early learning, safe schools and continuous teacher development, among others. In her roles, she has implemented international projects and conducted advocacy activities with various governments and local/international partners.

Andrii Lytvynchuk, PhD, is the Director of the State Scientific Institution (SSI) Institute of Educational Analytics (Ukraine), focusing on Information and Communications Technology (ICT) in education, educational policies, and digital transformation. He provides operational analytical support for Ukraine's Ministry of Education and Science (MES), including modelling for funding distribution and policy decisions. With over 10 years of experience, he has worked with large datasets, surveys and financial/statistical analysis at the national and local levels, providing evidence-based recommendations to stakeholders, including governments and local/international partners.

Yuliia Naida, Director of the Ukrainian Step by Step Foundation (USSF), is a national member of the International Step by Step Association (ISSA). She is also a part-time lecturer at Borys Grinchenko Kyiv University and has over 20 years of experience in teachers' professional development, planning and delivering training for teachers, mentors and supervisors. She has participated in research projects on teachers' workforce in Early Childhood Development (ECD) and the quality of early childhood education in accordance with Early Childhood Environment Rating Scale (ECERS), among others. Her professional interests include early childhood education, professional development and inclusive education.

Vira Rogova, PhD, is the Rector of the Kyiv Regional In-Service Teacher Training Institute. She has coordinated key reforms, including the school meal reform, the development of inclusive education and the implementation of international projects. As a Rector, she actively implements innovative approaches to postgraduate teacher education in the Kyiv region; promotes the implementation of national reforms, such as the 'New Ukrainian School'; and supports teachers' professional development. Her professional interests include educational institution management, educational reforms, inclusive education, international educational partnerships and teachers' continuous development.

Nataliia Sofii, PhD, is a director of the Ukrainian Institute of Education Development (UIED). She is also a part-time lecturer at the Borys Grinchenko Kyiv University and co-founder of the Ukrainian Step by Step Foundation, and a national member of the ISSA. As the UIED's director, she oversees the general management of the institution established by the MES to support the main educational reform (the 'New Ukrainian School'). She has participated in the development of the main conceptual and legal documents. Her professional interests are inclusive education and professional development.

Maria Zasuha is the Head of the Press Centre of the Kyiv Regional In-Service Teacher Training Institute. She is involved in organising the institute's information and communication activities, creating multimedia content for social networks and highlighting educational events and initiatives. Her activities aim to increase public recognition of the institute, support the image of a modern institution of postgraduate teacher education and ensure effective communication with the teaching community of the Kyiv region. Her professional interests are educational media content, digital communications in education, and visualisation of educational data.

CONTENTS

LIST OF TABLES AND FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

APTR	Adjusted Pupil–Teacher Ratio
AY	Academic Year
CPD	Continuing Professional Development
EMAP	Europe, Middle East and North Africa, Asia and Pacific
GPE KIX	Global Partnership for Education Knowledge and Innovation Exchange
HR	Human Resources
HRMS	Human Resources Management Systems
IEA	Institute of Educational Analytics
IDSS	Institute of Demography and Social Studies
LCR	Learning Coverage Rate
MES	Ministry of Education and Science
NGO	Non-governmental Organisation
OECD	Organisation for Economic Co-operation and Development
PISA	Programme for International Student Assessment
SDG	Sustainable Development Goal
STEM	Science, Technology, Engineering, and Mathematics
TLT	Theoretical Learning Time
TTLT	Total Theoretical Learning Time
TTT	Theoretical Teaching Time
TTTT	Total Theoretical Teaching Time
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

ACKNOWLEDGEMENTS

The authors of this report extend their sincere gratitude to all the experts who contributed to its success, including the Ukrainian Institute of Quality Education and the State Scientific Institution Institute of Educational Analytics (SSI IEA). We also express our appreciation to the Global Partnership for Education Knowledge and Innovation Exchange (GPE KIX) Europe, Middle East and North Africa, Asia and the Pacific (EMAP) Hub, hosted by NORRAG, as well as to the International Institute for Education Planning UNESCO and the Global Partnership for Education (GPE), for organising this learning cycle and providing a platform for cross-country experience exchange.

EXECUTIVE SUMMARY

This knowledge report provides a comprehensive analysis of the current state and future challenges of secondary teaching workforce management in Ukraine, developed during the Global Partnership for Education Knowledge and Innovation Exchange Europe, Middle East and North Africa, Asia and Pacific (GPE KIX EMAP) learning cycle led by the International Institute for Educational Planning-United Nations Educational, Scientific and Cultural Organization (IIEP-UNESCO). Amidst the ongoing war and shifting demographic trends, the Ukrainian education system faces a major challenge of having an acute shortage of qualified teachers, particularly in rural and conflict-affected regions.

Key Challenges Identified

- A declining number of teachers, especially among those under age 30, with a 22% drop in two years.
- A sharp imbalance in subject specialisation, with major deficits in mathematics, natural sciences, and language and literature.
- Geographical disparities in which urban schools show teacher surpluses, whilst rural schools experience critical shortages.
- Overutilisation of current teachers, with a national teacher utilisation rate of 125%, which means that teachers are working on average 25% above standard loads.
- Structural inefficiencies exacerbated by displacement, damaged infrastructure, and uneven digital access due to the ongoing Ukrainian War.

This report predicts a continued decline in the teaching workforce under all demographic scenarios through 2028 and the subsequent failure to meet quality education standards, with an estimated shortage of over 50,000 teachers. At the same time, underutilisation in small rural schools and overload in urban hubs reveal an urgent need for equitable teacher distribution and improved workforce management.

The key findings of this report underscore the importance of inclusive education as a growing area, the impact of outdated Human Resources (HR) allocation systems and the limited effectiveness of multisubject teaching, especially without formal retraining.

Recommendations to the Ukraine's Ministry of Education and Science (MES) and Other Stakeholders

- Immediate provision of incentives for young teachers and Science, Technology, Engineering, and Mathematics (STEM) specialists, particularly in underserved regions.
- Integration of remote and hybrid learning solutions to support subject teaching across regions.
- Development of a national HR management systems to facilitate the real-time monitoring of teacher allocation and utilisation.
- Expansion of continuing professional development (CPD) programmes and peer mentoring, especially for new and/or multisubject teachers.
- Implementation of systemic policy and financial reforms to boost teacher motivation, reduce burnout and ensure fair workloads.

Notably, the findings and methodology presented in this report are part of specific training and are not intended to be used directly for policymaking without further validation. However, the approaches, tools and insights developed through this exercise can serve as a valuable foundation to help education analysts and practitioners inform future data-driven strategies and workforce planning efforts.

This report also presents a strategic roadmap for addressing short- and long-term challenges in teacher management. By implementing the reforms proposed above, Ukraine can strengthen its educational resilience, ensure equitable learning opportunities and align its teaching workforce with national development goals and international education standards.

INTRODUCTION: CHALLENGES IN SECONDARY TEACHER MANAGEMENT IN UKRAINE

Sociopolitical Context

The main trends, namely the shortage of teachers, low prestige of the teaching profession in the Ukrainian society, low salaries, 'ageing' of teachers, have all significantly intensified due to the full-scale invasion of Ukraine by the Russian Federation in February 2022. These trends are confirmed by research results, including those reported by the Programme for International Student Assessment (PISA) 2022 International Study on the Quality of Education (Bychko et al., 2023) and the study conducted by the non-governmental organisation (NGO) Osvitoria (2024).

Education Quality

The quality of education in Ukraine, as reflected in the recent PISA results, demonstrates major areas of concern. According to the PISA 2022 report (Bychko et al., 2023), Ukrainian students scored below the Organisation for Economic Co-operation and Development (OECD) average in key domains of mathematics, reading, and science. Prevailing challenges include disparities in rural and urban education quality, outdated teaching methodologies, and insufficient investments in STEM education. The ongoing war has also disrupted learning, further intensifying these gaps.

Overview of Ukraine's Education System

The Ministry of Education and Science (MES) oversees Ukraine's education system. In accordance with the 'New Ukrainian School' education reform, compulsory education must include Grades 1–11, funded entirely by the government, with a planned shift to a 12-year secondary education model by 2029. Public funding supports primary, secondary and higher education in the country. Additional funding is provided by the local budgets of the specific *hromadas* (communities or primary units of local self-government in Ukraine) and national subventions. Due to the war and the financial burdens it has created, numerous constraints limiting teacher salaries and infrastructure improvements have emerged. At the same time, the Ministry continues the implementation of the National Education Reform, including the 'New Ukrainian School' initiative, which aims to modernise curricula, integrate inclusive practices and align the country's educational system with European standards to improve learning outcomes.

Teacher Shortage

As of the 2023/2024 academic year (AY), 392.7 thousand teachers work in general secondary educational institutions throughout Ukraine, of whom 282.1 thousand are involved in direct teaching and 74.9 thousand teach in primary school. In the structure of subject teachers, a gap exists between technical and humanities subjects, in which the proportion of humanities teachers is 1.5 times higher than that of technical teachers. In terms of educational fields, the largest share is accounted for by language and literature (27% of the total number of teachers). Notably, significantly fewer teachers specialise in other fields. For example, the share of natural science teachers is half as many (13%), whilst mathematics teachers make up less than a third as many (8%). This gap between educational sectors has remained unchanged over the past five years.

The number of teachers continues to decline every year. In particular, the number of teachers in Ukraine decreased by approximately 16.42% between 2018 and 2024. Although there were 337.5 thousand teachers in 2018, the number decreased to 282.1 thousand by 2023 and to 282 thousand by 2024. The teaching staff suffered the most significant losses since the beginning of the full-scale invasion, decreasing by 12% (39.8 thousand teachers) over the past two years, with the Luhansk, Kherson, Donetsk and Zaporizhzhia regions collectively losing the largest share of teachers (Osvitoria, 2024). The information about the shortage of teachers in Ukraine was confirmed by the international PISA 2022 study (Bychko et al., 2023), the data from which revealed that the demand for teachers in Ukraine has increased in recent years. Compared to 2018, which was the last time PISA conducted a study, the shortage of teachers increased from 20% to 30%.

Another problem in the Ukrainian education system is a significant imbalance in the workload of teachers in schools in

different regions. This problem is especially acute due to the uneven distribution of students. For example, some schools have several thousand students, whilst others have only a few dozen. Other problems include the following:

- **Overload in large schools:** In urban and hub schools with 3,000–3,500 students, teachers are forced to work several shifts, teach more classes and perform additional administrative tasks. All of these have a negative impact on the quality of classroom preparation, increase stress levels and lead to professional burnout.
- **Unused potential in small schools:** In rural schools with 50–100 students, teachers are often underloaded, work part-time or have to teach several subjects at once. This approach reduces the level of specialisation and can affect the quality of teaching.

Age and Gender Considerations

Ukrainian schools are mostly staffed by women, comprising 86% (242,800) of the total. In addition, teachers are gradually becoming older, with fewer young teachers joining the workforce. In recent years, the share of teachers aged 55+ comprised 30% (68.9 thousand) of the total. By contrast, the number of young teachers (aged under 30) has experienced the most rapid decrease compared to other age groups. Over the past two years, the number of teachers in this age group has decreased by 22%, whilst the number of teachers aged 41–50 years has decreased by 15% (Osvitoria, 2024). As of AY 2023/2024, the share of teachers under 30 is 10% (24.0 thousand).

Prospects for the Number of Students

As the number of teachers in Ukraine is calculated based on the number of school-age children, according to the Institute for Demography and Social Studies, the population is expected to grow rapidly in 2026, with almost 500,000 students expected to enter first grade that year. The number of primary school students is projected to decrease after 2028 and may reach the levels recorded in 2024. In comparison, the number of students is projected to have a positive trend by 2030. In accordance with the 'Law on Education' in Ukraine, a 12-year education system is planned to be introduced in 2029, which could increase the number of students in specialised secondary education. Additionally, despite the massive emigration of Ukrainians abroad, many students continue to complete their education remotely. Therefore, the departure of Ukrainians does not reduce the workload of teachers who continue to teach remotely.

Forecasting Teacher Demand and Conducting Needs Assessment

Teachers play a pivotal role in shaping the quality and effectiveness of educational systems worldwide. As the backbone of secondary education, they play essential roles in fostering student learning, well-being, and inclusion. However, global education systems face significant challenges, including an increasing shortage of qualified teachers. The UNESCO report, *Global Report on Teachers: Addressing teacher shortages and transforming the profession* (UNESCO & International Task Force on Teachers for Education 2030, 2024), highlights the urgent need for 44 million new teachers by 2030 to achieve the Sustainable Development Goal (SDG) 4. The current shortage is driven by several factors, including declining interest in the profession, difficulties in recruitment, high attrition rates and low remuneration. Addressing these challenges requires comprehensive strategies to attract, support and retain highly qualified education professionals.

In response to this challenge, we have analysed available data on Ukraine's teacher workforce to forecast future demands and refine national and local strategies for overcoming existing gaps. Our analysis is based on data from key institutions, including the Institute of Educational Analytics (IEA) under the MES of Ukraine and the Institute of Demography and Social Studies (IDSS). The analysis was conducted within the framework of Ukraine's legislative and regulatory environment using the following data points:

- Number of teachers (Institute of Educational Analytics)
- Forecast of the number of school-age population (Institute for Demography and Social Studies)
- Normal class size (Law of Ukraine 'On Complete General Secondary Education')
- Norms of teachers' pedagogical workloads (Law of Ukraine 'On Complete General Secondary Education')
- Maximum permissible workload per pupil (Examples of typical educational programmes)

Objectives of Forecasting

Forecasting enables policymakers to achieve the following:

- **Model the demand for teachers** to cover all Ukrainian territories (within the 1991 borders).
- **Estimate educational needs** subject to the norms of teaching load per teacher.
- **Estimate educational losses** in the event of a full-scale invasion.

1. *Ministry of Education and Science of Ukraine (2022). Typical educational programme developed under the guidance of Savchenko O.Y. 1st-2nd grades; Ministry of Education and Science of Ukraine (2022). Typical educational programme developed under the guidance of Shyyan R.B. 3th-4th grades; Ministry of Education and Science of Ukraine (2022). Typical educational programme developed under the guidance of Savchenko O.Y. 3rd--4th grades; Ministry of Education and Science of Ukraine (2024). Typical educational programme for 5th-9th grades of the secondary schools (with changes); Ministry of Education and Science of Ukraine (2018). Typical educational programme for secondary schools of the III level.*

- **Compare the needs under actual classroom conditions** with those under legal requirements.

Needs Assessment Methodology

To estimate teachers' requirements, we analysed a typical curriculum for students in all 11 grades and calculated the average number of hours required to teach one class in each educational area per week. We based our calculations on the current administrative educational reports, detailing each indicator for every active general secondary education institution (almost 12,000) that provides educational services, has students and employs teachers. Institutions that were suspended, undergoing major repairs, in the process of reorganisation, destroyed, occupied or in similar situations were excluded from the study.

Next, we estimated the approximate number of classes in Ukraine in accordance with the legal norm and actual filling rates and then calculated how many hours teachers needed per week to teach classes. The resulting figure was divided by the teaching time per teacher to cover the hours of instruction recommended by the typical educational programme.

ESTABLISHING THE DEMAND FOR SECONDARY TEACHERS

To develop an accurate and practical projection of teachers' requirements in Ukraine's secondary education system, several constraints and contextual factors must be considered. Key challenges include the following:

1. **Significant Internal and External Displacement:** As of 1 November 2024, 2,833 teachers were inactive, and 5,446 teachers were outside the country, representing 1% and 2% of the workforce, respectively. Additionally, severe damage to educational infrastructure has been recorded, with 203 schools completely destroyed and 1,683 schools partially damaged (over 15% of the network). These disruptions have led to the widespread adoption of distance and hybrid learning, with 4,361 secondary schools (35.6% of the total network of 12,245) operating under such conditions due to the challenges posed by martial law and armed aggression.
2. **Low Enrolment in Rural Schools:** A considerable number of secondary schools, particularly in rural areas, are characterised by low enrolment numbers (1–100 students in 3,188 schools, accounting for 26% of all institutions). The transition to remote education has also led to a rise in demand for online schools, which are often overburdened with large pupil–teacher ratios (as high as 1:1,000) and limited teaching capacity.
3. **Lack of Updated Demographic Data:** Current demographic statistics on the population in terms of age and gender are unavailable due to the war, mass displacement and the fact that Ukraine's last national census occurred over 20 years ago.

The abovementioned constraints, if not accounted for, could introduce significant inaccuracies and hinder the practical application of any projections.

Global Context and Trends

International and domestic research findings highlight the notion that teachers are central to the transformation of educational processes. Secondary education reforms require highly qualified professionals, including subject-specific teachers, school psychologists, social workers and assistants in inclusive classrooms (Lytvynchuk et al., 2024). The UNESCO report, *Global Report on Teachers: Addressing teacher shortages and transforming the profession* (UNESCO & International Task Force on Teachers for Education 2030, 2024) emphasises the critical role of teachers in achieving equitable and inclusive education, as outlined in SDG 4. However, the report warns of a global teacher shortage, estimating a need for 44 million new teachers worldwide by 2030. The primary reason for the shortage is declining motivation for teaching careers, which, in turn, leads to challenges in recruitment and high attrition rates, especially within the first 3–5 years of employment. Therefore, with this context, this report serves as a global tool to mobilise efforts at the international and national levels to enhance recruitment, training and support for teachers.

Current Statistics

As of AY 2023/2024, Ukraine's secondary education network comprised 12,701 institutions (5,262 in urban areas and 7,439 in rural areas) serving 3,906,174 students (2,806,892 in urban areas and 1,099,282 in rural areas). This network employs a total of 392,704 teachers (233,910 in urban areas and 158,794 in rural areas).

The teaching staff positions include the following categories:

- Subject teachers
- School principals and deputy principals
- School psychologists
- Social workers
- Inclusive-classroom assistants
- Teacher-organisers
- Educators and specialists for students with special needs (Annex 1.A)

Dynamics of the Teaching Workforce

Over the past decade, the number of teachers in Ukraine's secondary education system has decreased by 11.67% from 444,601 in AY 2014/2015 to 392,704 in AY 2023/2024. The largest drop (9.56%) occurred in 2022–2023 due to the outflow of students and teachers caused by the full-scale invasion of Ukraine. Other notable data are as follows:

- In **urban areas,** teacher numbers decreased by 0.34%, from 234,709 teachers in AY 2014/2015 to 233,910 in AY 2023/2024.
- In **rural areas,** the reduction was much steeper at 24.34%, from 209,892 teachers in AY 2014/2015 to 158,794 in AY 2023/2024.

Notably, the overall decline in teacher numbers is predominantly due to reductions in rural areas. Compared to the pre-war period, AY 2023/2024 saw teacher numbers decline significantly as follows:

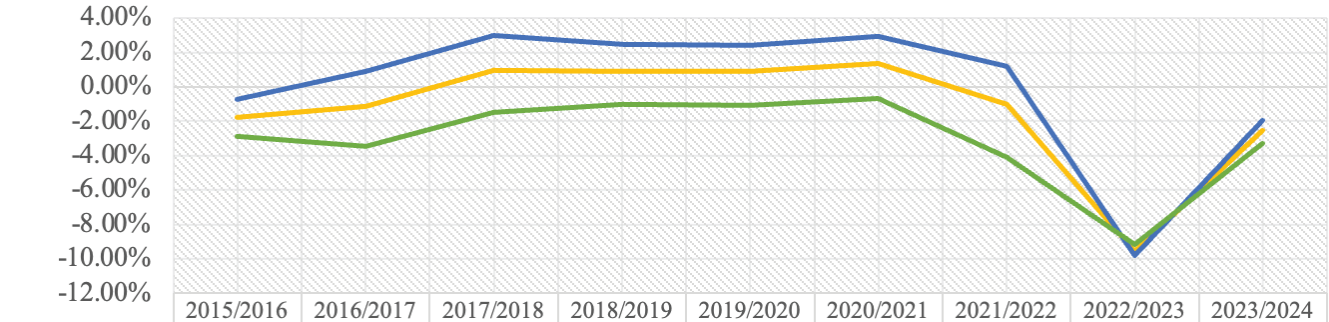
- Urban areas: -9.81%
- Rural areas: -9.19%
- Overall: -9.56%

Inclusive Education as a Growth Area

Whilst most categories of teachers experienced a decline, growth was recorded in those involved with inclusive education. The specific data are as follows:

- The number of inclusive classroom assistants has increased by 16,901 since their introduction into statistical reports in AY 2018/2019, with urban and rural schools accounting for 10,389 and 6,512 of this growth, respectively.
- The overall number of teachers, principals and other staff employed in inclusive classrooms also saw an increase of 9,000 (urban: +5,952; rural: +3,048).
- Starting in 2019, inclusive education is one of the components of the in-service teacher training (Cabinet of Ministers of Ukraine, 2019).
- In 2020, the network of the Centres of Professional Development was developed with the mission of providing professional support to all teachers on different issues, including inclusive education (Cabinet of Ministers of Ukraine, 2020).
- Starting in 2017, schools with inclusive classrooms have been receiving the state subvention (purposeful allocation from the state budget) on inclusive education, which allows for the provision of additional (special) services to children with special educational needs (Cabinet of Ministers of Ukraine, 2024).
- In 2023, the Ukrainian government approved the plan of action for 2023–2030 on the realisation of the National Strategy of the Barrier-Free Environment in Ukraine until 2030. One direction of this plan is the concept of a 'barrier-free educational environment' (Cabinet of Ministers of Ukraine, 2023).

Figure 1: Number of Teachers During AY 2014/2015–2023/2024 by Type of Area (%)



	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024
Together	-1.76%	-1.14%	0.96%	0.93%	0.87%	1.38%	-1.02%	-9.56%	-2.50%
City.	-0.74%	0.89%	3.01%	2.48%	2.39%	2.91%	1.21%	-9.81%	-1.97%
Village	-2.90%	-3.46%	-1.48%	-1.01%	-1.09%	-0.66%	-4.11%	-9.19%	-3.29%

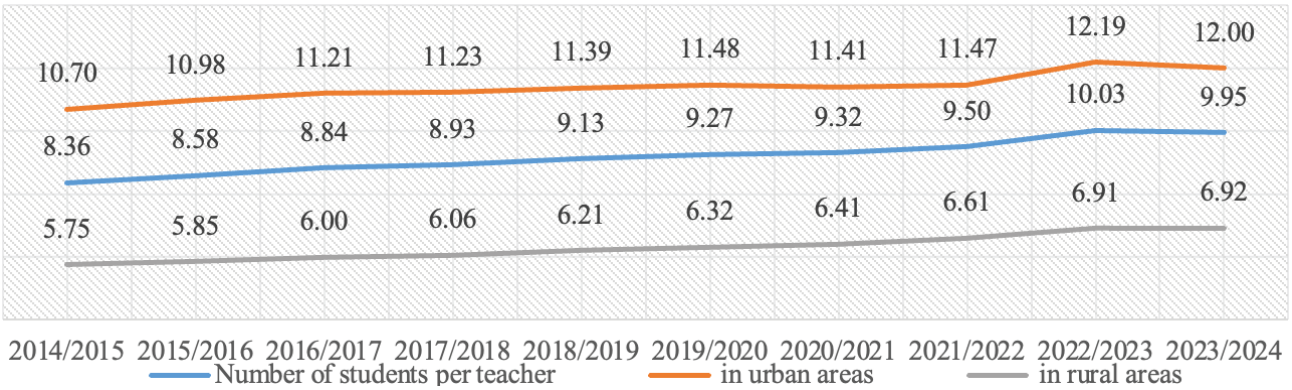
Linking Teacher Supply to Demographic Shifts and Workloads

The ongoing decline in teacher numbers also correlates with demographic trends, particularly the shrinking school-age population and the ongoing optimisation of the secondary school network. These factors directly impact teacher workforce management. To fully assess staffing adequacy, it is crucial to evaluate teachers' workloads, which we measured here in Figure 2 as the number of students per teacher.

Projecting Teacher Requirements

In this subsection, the research team aimed to evaluate Ukraine's school education system as a whole (including all teacher workforce, regardless of their cohorts or specific groups), encompassing the primary, basic and upper secondary education levels. This approach is more optimal for assessing overall trends, as almost all schools in Ukraine are combinations of various levels of education. For example, a gymnasium with a primary school operates as a single legal entity with shared student and teacher cohorts. Therefore, the approach to calculating the student–teacher ratio provides more accurate results.

Figure 2: Number of Students per Teacher in AY 2014/2015–2023/2024 by Type of Area (persons)



To estimate future teacher demand, several scenario-based projections have been developed based on the assumption that different proportions of children born in a given year will enter the first grade:

Scenario 1: 100% of children born in a given year will enrol in Grade 1

Scenario 2: 90% enrolment

Scenario 3: 85% enrolment (optimistic scenario)

Scenario 4: 80% enrolment (pessimistic scenario)

Using these scenarios, projections for future Grade 1 enrolments were calculated, with the results shown in Table 1.

Table 1: Calculated Projections for Future Grade 1 Enrolments (persons)

Academic year	Year of birth	Number of births (100%)	90% of newborns	85% of newborns	80% of newborns
2024–2025	2018	335,874	302,287	285,493	268,699
2025–2026	2019	308,800	277,920	262,480	247,040
2026–2027	2020	293,400	264,060	249,390	234,720
2027–2028	2021	272,000	244,800	231,200	217,600

Modelling Teacher–Student Ratios

Having relevant actual data on the contingent of general secondary education students, we forecasted the network for several years ahead (Annex 1.B). The penultimate stage of calculations is a trend model for forecasting the workload (i.e., the number of children per teacher). With a 10-year retrospective as the basis for the trend model, we made a forecast (Figure 3 and Table 2) for four periods, controlling for reliability with the coefficient of determination. The results showed that, as of AY 2023–2024, the average ratio was 10 students per teacher. Under the trend model, this figure is expected to increase steadily, thus requiring adjustments in workforce management.

Figure 3: Forecasted Number of Students per Teacher by Grade (persons)

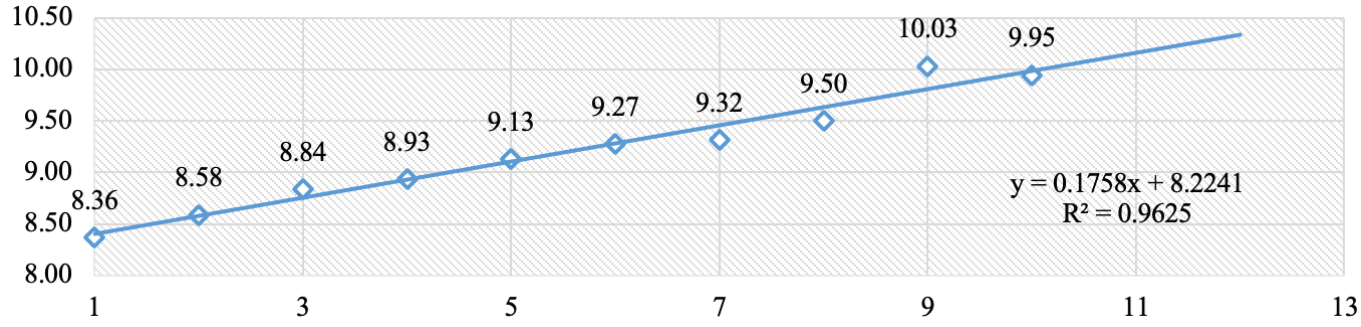


Table 2: Forecasted Number of Students per Teacher by AY (persons)

	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	2026/ 2027	2027/ 2028
Number of students per teacher *(persons)*	8.36	8.58	8.84	8.93	9.13	9.27	9.32	9.50	10.03	9.95	**10.16**	**10.33**	**10.51**	**10.69**

The available scenario forecasts for the network made it possible to calculate the projected number of teachers based on the workload trend (i.e. the number of children per teacher; Annex 1.C). Based on our expert opinion, two scenarios should be taken as a basis (optimistic and pessimistic, represented by Scenario 3 and Scenario 4, respectively). In accordance with the results of the scenario calculations and model forecasts, the expected numbers of pedagogical staff were identified.

Optimistic Scenario (Scenario 3): Assuming 85% enrolment

AY 2025/2026: 370,300 teachers

AY 2026/2027: 349,621 teachers

AY 2027/2028: 327,595 teachers

Pessimistic Scenario (Scenario 4): Assuming 80% enrolment

AY 2025/2026: 367,179 teachers

AY 2026/2027: 345,158 teachers

AY 2027/2028: 321,935 teachers

Unfortunately, all projections indicate a rapid decrease in teaching staff due to current constraints. These trends are based on statistical models and do not consider whether the number of teachers will be sufficient to meet students' qualitative needs. Further analysis addressing these aspects will be presented in subsequent sections.

DIAGNOSING SECONDARY TEACHER ALLOCATION

Effective teacher allocation is a critical factor in ensuring equitable access to quality education, particularly in times of crisis. This section examines disparities in secondary teacher distribution across Ukraine using official administrative data from AY 2024/2025. By analysing data from 11,357 active secondary schools, the research identifies key trends and inconsistencies in teacher allocation based on regional and urban–rural differences. The study also highlights the impact of external factors, such as war-related displacement and local economic conditions, which exacerbate existing disparities. Through a detailed breakdown of teacher–student ratios, class sizes and subject specialisation, this diagnostic provides valuable insights into the prevailing challenges and potential strategies for optimising teacher deployment.

To diagnose disparities in teacher allocation at the subnational level, the research team used official administrative data from general secondary education institutions in Ukraine for AY 2024/2025. In particular, data were sourced from 11,357 active institutions with enrolled students, excluding suspended schools or those undergoing major repairs. To ensure consistency in the analysis, institutions such as special distance schools and the International Ukrainian School were excluded due to atypical student–teacher ratios and occupancy patterns. The results of this allocation diagnostic are presented in Annex 2.A.

Teacher allocation was assessed by region and type of area (urban and rural) and then analysed using the following key indicators:

- Average number of classes per school: 15.83
- Average number of students per school: 318.62
- Average number of teachers per school: 32.12
- Average class size per school: 20.13
- Average student-to-teacher ratio: 9.92

Notably, each of the abovementioned indicators was obtained from a database disaggregated to the level of an individual educational institution. Thus, for example, the average number of classes per school is not the result of a macro-level calculation (i.e. the total number of classes divided by the number of educational institutions), but the result of averaging the indicator for each school, which is a more accurate and methodologically more advantageous approach.

For each indicator studied, significant disparities were identified in terms of regional distribution and type of area. Even without these calculations, it was obvious that in developed regions in urban areas, schools had many students, teachers, classes and, accordingly, large class sizes. In comparison, in rural depressed areas, schools with founders with a weak local budget have the opposite indicators.

It is also imperative to pay attention to the war factor given the forced migration from regions with high security risks, damage/destruction and so on. Specifically, Luhansk, Donetsk, Kherson, Zaporizhzhia, Chernihiv, Mykolaiv and even Dnipropetrovsk have objectively war-related reasons why their indicators contrast with the national average. At the same time, the indicators of the Ternopil region (where security risks are characterised as 'moderate') are also a vivid example of the critical state of Ukraine's educational network in rural areas, particularly the result of averaging the indicators of 383 schools in this region:

- Average number of classes per school: 9.23
- Average number of children per school: 106.39
- Average number of teachers per school: 19.81
- Average class size per school: 11.53
- Average student-to-teacher ratio: 5.37

The abovementioned figures contrast sharply with those of Kyiv, an industrialised region where allocation consistency and equity are higher:

- Average number of classes per school: 22.35
- Average number of students per school: 567.81
- Average number of teachers per school: 45.22
- Average class size per school: 25.41
- Average student–teacher ratio: 12.56

Pre-existing allocation disparities were also compounded by the war, thereby emphasising the need for optimisation

strategies. Thus far, efforts exerted by Ukraine's MES, such as network restructuring and resource reallocation, have aimed to enhance allocation effectiveness. Furthermore, initiatives such as the 'New Ukrainian School' reform and hub school networks aim to address underutilisation and inequities in teacher deployment.

Additionally, a subset of 3,188 institutions, each with fewer than 100 students, presents additional challenges:

- Average number of classes per school: 7.72
- Average number of students per school: 64.71
- Average number of teachers per school: 15.10
- Average class size per school: 8.38
- Average student–teacher ratio: 4.29

Such schools face potential closure due to declining enrolment rates despite the importance of equitable local access, as guaranteed under Ukraine's 'On Education' law. This law underscores the socioeconomic and psychological impacts of school closures on small communities.

Meanwhile, the proportion of subject-specialist teachers among the total pedagogical staff declined by 5.95%, as shown in Figure 4. Furthermore, differences between rural and urban areas narrowed, with the share of subject-specialist teachers becoming nearly consistent (from 1.3% to 0.13% disparity). This metric is crucial for diagnosing allocation equity and forecasting teachers' needs in the future.

The problem of teacher shortage is demonstrated by the high proportion of teachers who teach three or more subjects (Figure 5).

Figure 4: Share of Subject Teachers Among Pedagogical Staff During AYs 2014/2015–2023/2024 by Type of Area (%)

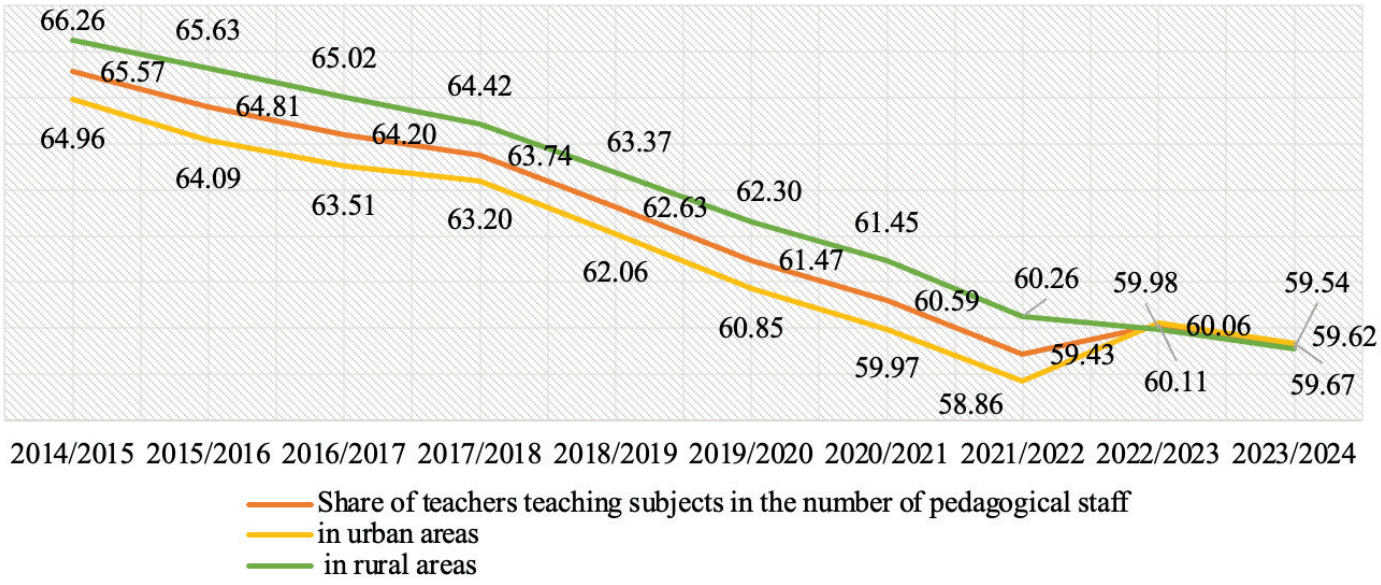
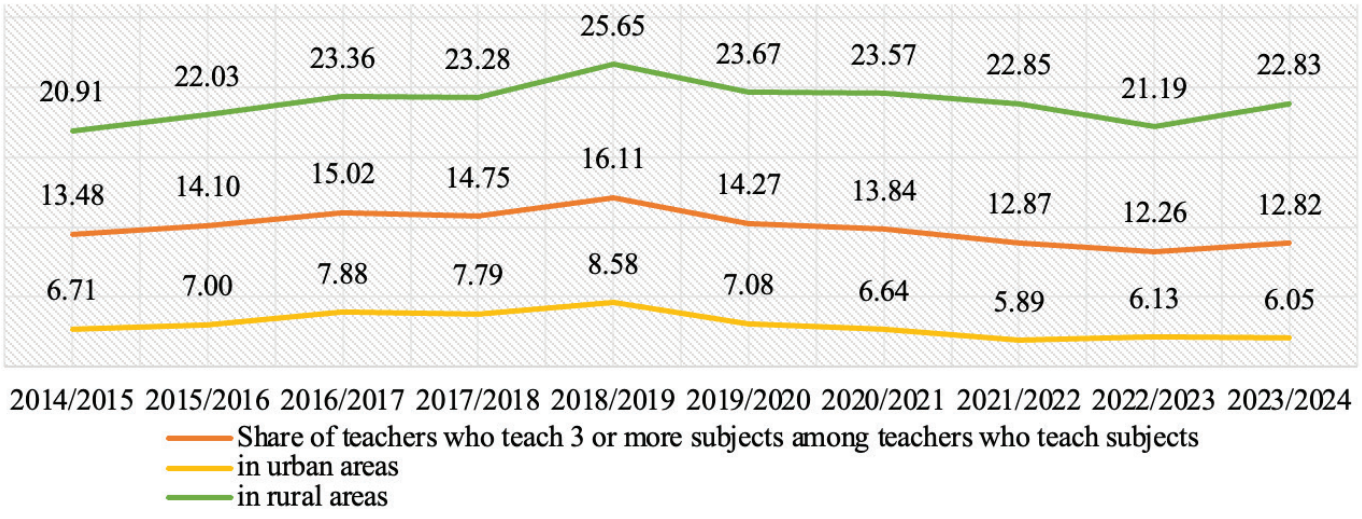


Figure 5: Out-of-Field Teaching: Share of Teachers Teaching Three or More Subjects During AYs 2014/2015–2023/2024 by Type of Area (%)

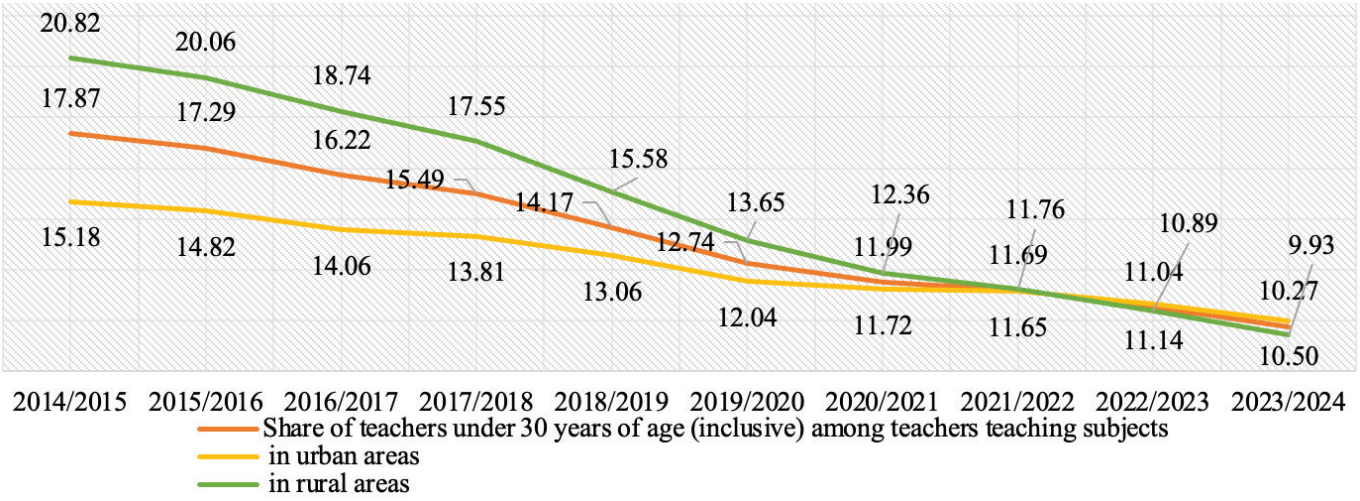


During AYs 2014/2015–2023/2024, the number of teachers teaching three or more subjects decreased by 9,289 (1,793 and 7,496 in urban and rural areas, respectively). This decline highlights disparities in teacher allocation effectiveness, particularly in rural schools. Furthermore, in AY 2018/2019, the peak in the number of multisubject teachers was observed in urban and rural areas. However, rural schools relied significantly more on teachers covering three or more subjects, with their numbers being nearly 2.5 times higher than those in urban areas. This disparity underscores an acute teacher shortage, along with the prevailing challenges in equitable teacher deployment to rural schools (Cabinet of Ministers of Ukraine, 2022).

In Ukraine, the practice of teaching multiple disciplines by a single teacher occurs often. Teachers are typically trained and certified to teach specific disciplines. The expectation under normal circumstances is that they specialise in and teach one subject or closely related subjects. However, in some cases, particularly in rural areas or under conditions of teacher shortages, teachers may be required to teach multiple disciplines. To teach multiple subjects, teachers are required to undergo mandatory certification (Cabinet of Ministers of Ukraine, 2022).

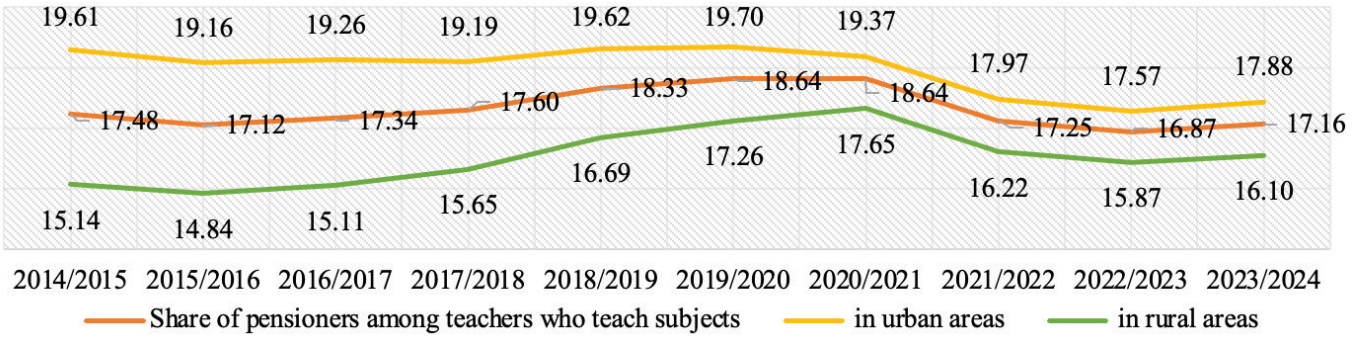
An analysis of the dynamics of teachers under 30 years old (inclusive) among subject-specialist teachers during AYs 2014/2015–2023/2024 (Figure 6) further illustrates allocation inconsistencies by type of area. The data reveal critical trends that inform future strategies for addressing allocation equity and improving the recruitment and retention of younger teachers in rural and underserved regions.

Figure 6: Share of Teachers Under 30 Years of Age (Inclusive) Among Subject Teachers During AY 2014/2015–2023/2024 by Type of Area (%)



The results revealed that the share of teachers under the age of 30 decreased by 7.6%, highlighting challenges in teacher recruitment and retention. In particular, the most significant decrease occurred in rural areas, where the share fell by 10.89% compared to a 4.68% decline in urban areas. Notably, since AY 2021/2022, the proportion of teachers under 30 years in urban and rural areas has converged towards the national average, reflecting some improvements in allocation equity—albeit within an overall declining trend. Figure 7 shows the dynamics of the share of pensioners among subject teachers.

Figure 7: Share of Pensioners Among Subject Teachers During AY 2014/2015–2023/2024 by Type of Area (%)



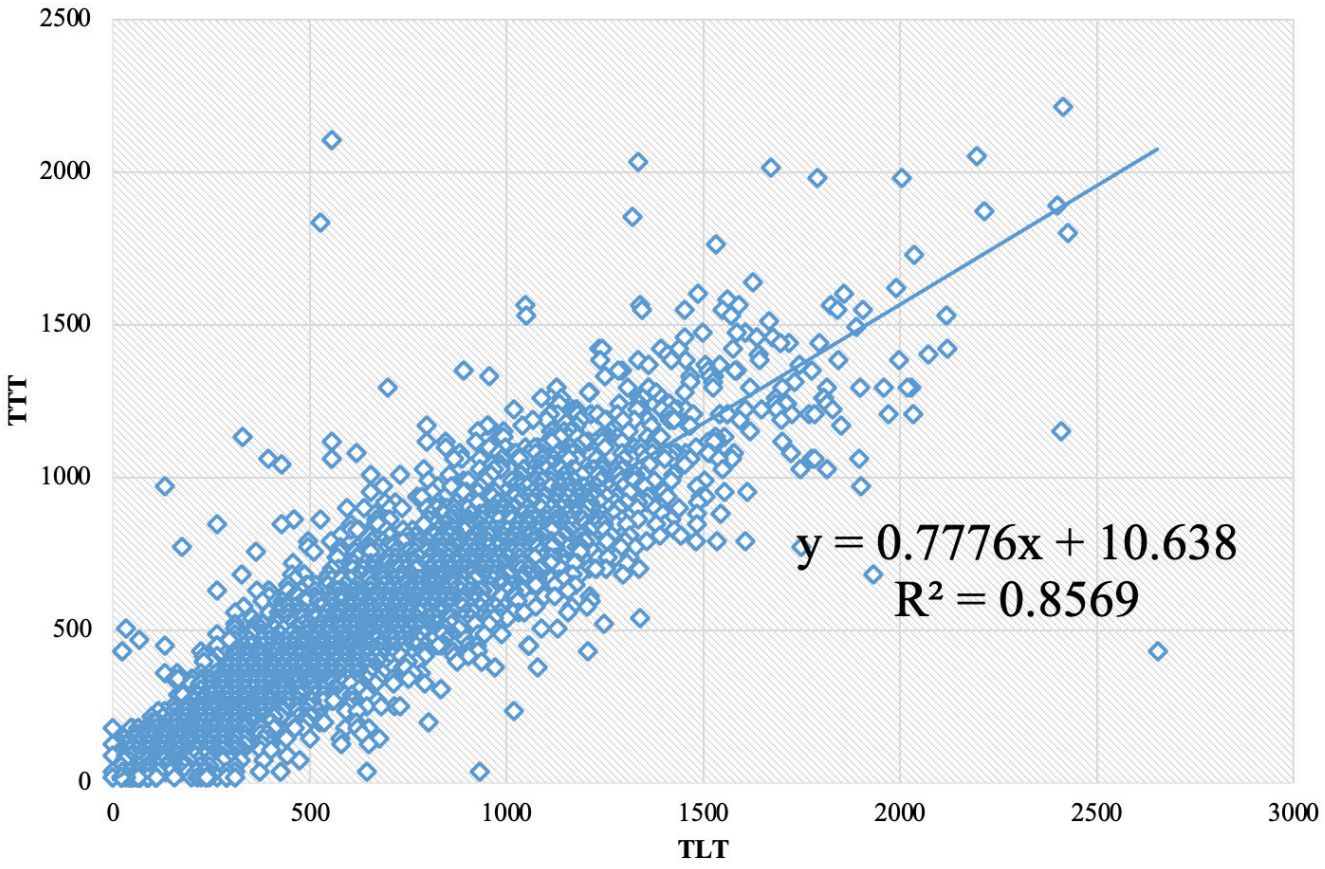
Simultaneously, the number of retired teachers among subject-specialist educators decreased by 0.32% (10,761 individuals). This reduction was distributed as follows: 4,930 fewer in urban areas and 5,831 fewer in rural areas. The highest proportion of retirees was observed between AYs 2018/2019 and 2020/2021, with the lowest share recorded in AY 2022/2023 (overall: 16.87%; urban: 17.57%, rural: 15.87%). For a decade, the numbers of retirees in urban areas consistently exceeded those in rural areas. However, since AY 2021/2022, this gap has narrowed to within 2%. The significant disparity in the share of retirees underscores ongoing challenges in teacher supply and succession planning.

Before diagnosing the sufficiency of subject teachers based on theoretically required teaching hours, the research team undertook a comprehensive mapping of curriculum hours by grade and subject. This process included normalising and grouping data to align with pedagogical staff accounting categories in Ukraine (Annex 2.B).

Subsequent calculations revealed a strong correlation among indicators, with a determination coefficient of 86%. This high correlation suggests that the distribution of teachers versus student numbers is largely effective, thereby reflecting allocation consistency. However, some outliers were either significantly above or below the regression line. For example, two schools had around 2,000 Theoretical Teaching Time (TTT) for about 500 Theoretical Learning Time (TLT). Another outlier was the school with over 2500 TLT and close to 500 TTT. Moving forward, outliers identified through this visual representation require further investigation to more accurately understand the situation in those schools.

Figure 8 highlights the strong correlation ($R^2 = 0.8569$) between TLT and TTT, suggesting an overall alignment between teaching time and expected student learning. The findings highlight the need for better data-driven strategies to optimise teacher allocation and improve student learning outcomes. The disparities by subject and area will be explored in the next section.

Figure 8: Correlation Between TLT and TTT for the Ukrainian School Network as of AY 2023/2024



An important limitation encountered in this study was the challenge of applying the theoretical hour calculation method to evaluate small institutions in which classes could not be formed due to subthreshold student numbers in parallel learning paths. Ideally, this approach should be adapted to account for the presence of students in such parallel learning paths. However, this study deemed the number of such cases statistically insignificant at the national level; therefore, it did not impact the methodology.

A comparison of the theoretical hours of teaching and learning was conducted to diagnose gaps in teacher allocation, thereby

revealing areas of over- or undersupply of teachers relative to student needs. These gaps provide critical insights into the sufficiency of teacher deployment required to ensure quality education. Using the framework methodology (Annex 2.C), key indicators were calculated, including total theoretical learning time (TTLT), total theoretical teaching time (TTTT), utilisation rate, learning coverage rate (LCR) and adjusted pupil–teacher ratio (APTR).

Based on the analysis results, this study estimated an average additional teacher requirement of 20% to meet quality learning standards across Ukraine. This need varies by region, ranging from 7% to 8% in the Ivano-Frankivsk and Lviv regions to 35% in the Luhansk region. At the same time, the overall utilisation rate of the teacher workforce is 125%, which means that teachers would need to do 25% overtime, or that 25% more teachers are needed (55% more in the Luhansk region, in particular). This is a major issue for the Kyiv region and the Luhansk, Odessa, and Dnipropetrovsk regions, with rates of 38%, 55%, 42% and 37%, respectively.

The analysis of teacher allocation in Ukraine reveals significant disparities influenced by geographic, economic and political conflict-related factors. Whilst urban schools generally maintain higher class sizes and teacher availability, rural institutions struggle with problems such as declining student populations, resource limitations and multisubject teaching requirements. The study also underscores the critical need for bespoke policy interventions, such as targeted recruitment and optimised teacher deployment, to ensure balanced educational opportunities nationwide. Addressing these allocation challenges is essential for sustaining educational equity and meeting quality standards, particularly in the face of ongoing sociopolitical disruptions. Further details on teacher requirements by subject will be addressed in the next section.

DIAGNOSING SECONDARY TEACHER UTILISATION

In this section, we further examined our estimates on teacher demand, shortages and surpluses across key disciplines, revealing a total shortage of approximately 52,000 teachers needed to fully meet educational standards. Whilst deficits are most pronounced in certain subjects, such as language and literature and mathematics, certain fields (e.g., foreign languages and computer science) show localised surpluses, particularly in urban areas. The study also highlights the widespread practice of multisubject teaching, which mitigates theoretical shortages but complicates accurate workforce assessment. By refining the analytical model to better capture these nuances, policymakers can develop more effective strategies for optimising teacher allocation and ensuring equitable access to quality education.

Conducting a subject-by-subject assessment of teacher requirements compared with the actual number of teachers in corresponding cohorts allowed us to estimate the need for additional teachers. The results are shown in Table 3.

Table 3: Estimated Additional Teacher Needs per Subject (persons)

	Urban	Rural	Overall
Language and Literature	18,971	13,169	32,141
Foreign Language	-6,001	1,754	-4,246
Mathematics	11,856	8,788	20,644
Natural Sciences	5,481	763	6,244
Technological	1,923	1,386	3,309
Social and Health-Preserving	-6,884	-3,863	-10,747
Informatics	-1,498	478	-1,020
Arts	3,869	2,614	6,483
Overall	**27,717**	**25,090**	**52,808**

The total cumulative estimated shortage is approximately 52,000 teachers, representing the 'utopian–idealistic' requirement to fully meet the needs of providing high-quality education across the existing network of general secondary education institutions throughout the country.

Interestingly, a surplus was identified in certain fields (e.g., social and health-preserving, informatics and foreign language). This surplus is more evident in urban areas, whilst rural areas experience only a minimal excess. Conversely, sharp deficits are observed in key subject areas, including language and literature, as well as mathematics, emphasising critical gaps in these high-demand fields.

Notably, 13% of subject teachers currently teach three or more subjects, excluding those teaching two subjects. However, administrative reporting primarily records teachers under their main specialisation, masking the extent of multisubject teaching. Furthermore, the apparent theoretical deficits are nearly entirely offset by multisubject teaching, part-time work and additional teaching loads.

At present, this study serves as a test of the methodological approach to diagnosing teacher utilisation within the Ukrainian education context. In future efforts, refining the assessment model to account for the abovementioned complexities and contextual nuances could significantly improve the accuracy and reliability of these findings, making them more actionable for educational managers.

POLICIES AND STRATEGIES FOR TEACHER MANAGEMENT AT THE SECONDARY LEVEL

In Ukraine, numerous policies and strategies of teacher management in secondary schools aim to solve key challenges in the educational process and improve the quality of teaching and learning. These strategies include professional development, organisation of inclusive education and facilitation of administrative processes. In particular, the 'New Ukrainian School' educational reform has provided access to rich professional development programmes, which are important in the context of digitising education and ensuring equal opportunities for teachers in urban and rural schools. At the same time, implementing decentralisation reforms encourages local-level decision-making on the issues faced by teachers.

Initiatives

One of the Ukrainian government's important programmes aiming to address the shortage of teachers is the formation of a personnel reserve to ensure that citizens' right to education is upheld, especially for those living in occupied territories. Such a reserve will allow educational institutions to be provided in a timely manner with managerial, administrative, pedagogical and scientific personnel, whose main task will be to restore the educational process in Ukraine's de-occupied territories as soon as possible.

However, whilst many teacher issues have been resolved, some remain unaddressed and require immediate attention. In light of recent challenges related to teacher shortages, regional disparities and the lingering effects of the Ukrainian War, the policy options and strategies presented in this section aim to address bottlenecks, promote equity and improve learning outcomes across the system. Based on the analysis of the teacher workforce situation in Ukraine, several recommendations are formulated.

This section presents recommendations for the MES, pre-service teacher training institutions, the institutions responsible for professional teacher development and local *hromadas*, considering the short- and long-term perspectives.

Recommendations to the MES of Ukraine (Short-Term Recommendations)

Strengthen Teacher Recruitment and Retention

Attract Young Professionals and Teachers in Rural Areas: During the past two years, the number of teachers under 30 years of age decreased by 22%. By reinforcing existing programmes, including the provision of incentives, subventions and bursaries, rural schools can attract pedagogical university students, as well as young professionals and experienced teachers, to address problems related to the shortage of teachers. Another strategy is to increase the prestige of the teaching profession.

Apart from financial incentives, it is also important to create attractive conditions for starting a career through the following:

- **Internships and practice:** Implement programmes that allow young teachers to gain practical experience under the supervision of expert mentors.
- **Targeted grants for students:** Provide scholarships to students at teacher training universities with the condition of subsequent employment in schools, especially in rural areas.
- **Career guidance:** Promote the teaching profession among young people through educational forums, open classes and educational programmes.

Stimulation of STEM Teachers: In light of the progressive shortage of STEM teachers, additional simulation measures are required to attract and retain teacher talents. This gap can be partially covered by teachers who moved across Ukraine. Because of the war, some teachers were forced to leave the temporarily occupied territories, along with those where educational institutions were destroyed, to reside in other regions of Ukraine. They need to be employed in educational institutions within the territory where they have received the status of internally displaced persons.

Expand Remote Learning Solutions: Given that the rate of out-of-field teaching is quite high (almost 23% and 6% in rural and

urban areas, respectively), expanding remote learning solutions could support the use of hybrid learning, where specialist teachers from urban centres or hub schools can teach subjects remotely whilst supported by in-class facilitators.

Encourage Flexible Teaching Roles: Flexible teaching roles involve teacher deployment that allows educators to work across multiple subjects, grade levels, or schools, rather than be confined to specific individual roles. This flexibility helps education systems maximise their existing workforce, particularly in situations where there are subject-specific teacher shortages, rural or isolated schools with limited staff or schools with fluctuating student populations. Hybrid teaching models can also be used to support rural schools where there is a shortage of specialised teachers. Regular evaluations of the prevalence and impact of out-of-field teaching are recommended so that subsequent findings can be used to refine policies.

Relocation of Staff: A flexible staffing policy should be introduced to encourage the temporary transfer of teachers from low-student load regions to high-student load schools. Furthermore, teachers should be incentivised to move to larger schools through additional bonuses or compensation.

Provide Psychosocial Support

Burnout and Stress: The problem of professional burnout among teachers is a pressing one. To address this, authorities must introduce stress management training and establish support groups through which teachers can discuss professional challenges. In addition, reducing workloads by optimising schedules, rotating tasks and allowing teachers to work based on individual schedules could help reduce the level of exhaustion.

Recommendations to the MES of Ukraine (Long-Term Recommendations)

Strengthen Teacher Recruitment and Retention

Provide Competitive Salaries: The latest survey on teacher management in Ukraine, conducted by Osvitoriya (2024), reported that 68% of teachers were not satisfied with their remuneration. Furthermore, 40% of Ukrainian teachers planned to leave the profession by 2030. The Ukrainian government has announced that teachers' salaries will increase after the end of the Ukrainian War. However, even before this target is achieved, there is already a need to provide competitive salaries as soon as possible, particularly for teachers in high-need areas and targeted subjects, which are essential to attracting and retaining talents in the teaching profession.

Equitable Allocation and Deployment of Teachers

Enhance Data-Driven Allocation: Authorities should consider the introduction of formal human resources management systems (HRMS), as well as diagnostic tools, to help analyse performance of human resource management, disparities and equity factors in the allocation of teacher professionals across Ukraine.

Teacher Utilisation

Surplus vs. Deficit of Teachers: The findings demonstrated a surplus of teachers in certain subjects, such as social and health-preserving, informatics and foreign languages. This surplus is more evident in urban areas, as rural areas experience only minimal excess. Conversely, sharp deficits were observed in key subject areas, including language and literature and mathematics, thus emphasising critical gaps in these high-demand fields. To address these imbalances, such as teacher shortages in rural areas, authorities are recommended to reconsider the utilisation of teachers and implement targeted teacher distribution strategies. This goal can be achieved through incentive programmes for rural placement, flexible teacher deployment policies (teacher retraining), hybrid and remote teaching models, alignment of preservice teacher education with labour market needs and community-based recruitment.

Teacher Utilisation Assessment: We recommend conducting regular teacher utilisation assessments, which are a comprehensive evaluation process that includes multiple data collection methods to evaluate how effectively teachers are allocated and utilised throughout the country.

Recommendations to Pre-Service Teacher Training Institutions

Adjustment of Pedagogical Standards with the 'New Ukrainian School' Concept

This recommendation entails the preparation of subject teachers to work in accordance with the educational spheres rather than separate subjects. The pedagogical practicum should also be extended to allow greater focus on the practical aspects and a better understanding of the peculiarities of the teaching profession. Furthermore, the involvement of student-teachers who have relevant competencies must be encouraged.

Recommendations to Institutions Responsible for Professional Teacher Development

Provide Career Development Opportunities

Flexible Teaching: In rural areas with smaller schools, teachers could be trained and encouraged to teach multiple subjects or grade levels. For this purpose, it is recommended that authorities develop and offer accessible and targeted professional development programmes for teachers who are required to teach multiple subjects. Doing so ensures that they acquire sufficient knowledge and pedagogical skills for those disciplines. Such flexibility could, among others, address staffing shortages and ensure more comprehensive subject coverage for students.

Provide Access to Continuing Professional Development Programmes: Providing clear career paths and professional development opportunities, such as access to CPD programmes, can increase teachers' job satisfaction and decrease turnover. Furthermore, providing support for teacher specialisation in subjects such as STEM can address current gaps in the shortage of qualified teachers for these areas.

Further training courses focused on digital skills, inclusion, and the latest teaching methods should also be provided at the regional level. Young professionals can be supported through mentoring and supervision programmes to help them adapt to their workplace more quickly and gain experience under the guidance of expert mentors and teachers. The regular exchange of experiences between teachers in schools should also be organised to reduce the need for external training.

Encourage Teachers' Community of Practice for Professional Development: Encouraging the creation of a teachers' community of practice offers significant benefits, especially in addressing challenges related to regional disparities, conflicts and evolving educational needs. This structured network enables educators to collaborate, exchange experiences and provide mutual professional support, thereby fostering continuous learning and improving teaching practices. All of these, in turn, contribute to improved teacher retention.

Recommendations to *Hromadas* and Local Communities (Short-Term Recommendations)

Teacher Allocation

Increase Recruitment of Young Teachers Without Experience: Recent graduates from pedagogical institutes struggle to find employment, as schools often hesitate to hire teachers without prior experience. Therefore, encouraging local schools to recruit young teachers can help bridge the gap in the teaching workforce whilst providing new educators with valuable hands-on experience.

Decentralised Teacher Allocation: Implementing a more decentralised model in which local educational authorities have a say in teacher allocation can help address region-specific needs. In Ukraine, regional or district-level decision-making ensures that teacher deployment is responsive to local demands, thus reducing imbalances between urban and rural areas.

Implementation of Digital Solutions: The use of distance learning in small schools will allow teachers at large schools to partially teach students from less populated regions. This strategy can also facilitate the creation of joint online platforms for schools with low student populations, combining the efforts of teachers to provide lessons in different subjects.

Teacher Utilisation

On-the-job training should be encouraged to provide teachers with ongoing, flexible and accessible training opportunities (e.g., online modules and workshops). These can help upskill educators who are teaching out-of-field disciplines and enable them to teach several subjects—especially key subject areas, including language and literature, as well as mathematics—in regions experiencing teacher shortages.

CONCLUSION AND RECOMMENDATIONS

This knowledge report provides a comprehensive analysis of the challenges and strategies in the field of secondary teacher management within the Ukrainian context. Drawing on the key findings from each section, several critical conclusions and policy recommendations have been proposed to address bottlenecks, foster equity and improve educational outcomes.

First, significant challenges in teacher motivation in Ukraine pose risks to the overall quality and sustainability of the country's education system. Low salaries, limited career growth opportunities and high administrative workloads all contribute to a lack of job satisfaction among educators. Based on recent surveys, a considerable percentage of teachers have expressed dissatisfaction with their remuneration, and many more are contemplating leaving the profession altogether. Second, the war has further exacerbated this issue, as increased workloads due to teacher shortages and the shift to hybrid or remote learning have heightened stress levels and professional burnout. Younger teachers, in particular, are leaving their profession at alarming rates, resulting in a 22% decline in educators under 30 over the past two years. This erosion of teacher motivation risks creating a vicious cycle: as teachers exit the profession, those who remain face even greater burdens, further reducing morale and effectiveness. Without urgent interventions to improve working conditions, provide competitive compensation and ensure better professional development opportunities, the Ukrainian education system risks losing its most valuable asset—its motivated and skilled educators.

Key Findings

1. Challenges in Teacher Allocation

The disparities in teacher allocation between urban and rural areas are among the most pressing issues in this field. Urban schools generally experience teacher surpluses in certain subjects, such as foreign languages and computer science, whilst rural schools face acute shortages, particularly in high-demand subjects, such as mathematics and language disciplines. This mismatch results in significant inequities in education quality and student outcomes across regions.

The war has exacerbated the abovementioned disparities by displacing teachers and students, damaging infrastructure and shifting population demographics. For example:

- Urban schools tend to attract surplus teachers but lack the capacity for STEM and specialised education due to systemic underinvestment.
- Rural schools depend heavily on multisubject teaching and part-time employment, compromising the quality of education and teachers' job satisfaction.

2. Teacher Recruitment and Retention

The declining number of teachers under 30 years of age, particularly in rural areas, poses long-term challenges for workforce sustainability. Over the past decade, the number of young teachers has decreased by 22%, reflecting an ongoing declining interest in the teaching profession due to low salaries, limited career growth opportunities and unfavourable working conditions.

Compounding this issue is the significant share of teachers nearing retirement age. Rural schools are particularly vulnerable to a loss of experienced educators—a situation that exacerbates existing challenges in recruiting and retaining qualified personnel.

3. Impact of Demographic Trends

Despite the massive population displacement brought about by the ongoing Ukrainian War, projections indicate a potential surge in school-age children by 2026. Such growth is driven by planned shifts in the education system, such as the introduction of a 12-year secondary education model. Without immediate action, the education system will struggle to meet future demands for educators.

4. Utilisation of Teachers

Teacher utilisation patterns highlight the following systemic inefficiencies:

- Teachers in urban schools often experience overloading due to high student numbers and administrative tasks, thus contributing to professional burnout.

- Rural schools face underutilisation, with teachers working part-time or teaching multiple grades and subjects, thereby reducing specialisation and overall teaching quality.
- The overall teacher utilisation rate is 125%. This means that teachers would need to work 25% of overtime or that 25% of additional teachers must be recruited to balance the utilisation rate. This is a major issue for the Kyiv region and the Luhansk, Odessa and Dnipropetrovsk regions, with utilisation rates of 38%, 55%, 42% and 37%, respectively.

The uneven workload distribution negatively impacts teacher retention and education quality, thus requiring immediate policy attention.

Policy Recommendations

To address the abovementioned issues, this knowledge report identifies several actionable strategies that we categorised into three: recruitment and retention, allocation and utilisation and professional development.

1. Strengthening Recruitment and Retention

- **Develop a post-conflict phased salary increase plan,** with priority given to teachers specialising in STEM and those employed in rural areas and conflict-affected regions.
- **Offer financial incentives** such as housing allowances, relocation bonuses and scholarships for teaching graduates who commit to working in rural areas.
- **Implement mentorship programmes** through which experienced teachers support young educators transitioning into establishing their careers in rural schools.
- **Maximise career guidance programmes,** educational forums and partnerships with universities to showcase the benefits of teaching.
- **Provide scholarships** for teacher training students tied to mandatory service in high-need regions.
- **Introduce stress management programmes,** reduce administrative workloads and allow flexible schedules to improve job satisfaction.
- **Develop career pathways** that reward teaching excellence through promotions, enhanced leadership roles and greater public recognition.

2. Improving Allocation and Utilisation

The allocation of teachers must be informed by robust data systems to ensure equity and efficiency. To achieve this, the following recommendations are presented:

- **Implement an HRMS** to track teacher deployment, identify disparities and optimise resource allocation. HRMS tools should also include indicators, such as workload distribution, teacher–student ratios and subject-specific deficits.
- **Train teachers** to handle multigrade and multisubject teaching, particularly in rural areas with smaller school populations. This approach should be complemented by tailored professional development and adequate compensation.
- **Introduce task-sharing initiatives,** reduce non-teaching duties and incentivise temporary transfers from underloaded rural schools to urban centres.

3. Enhancing Professional Development

- **Offer regional training programmes** focusing on digital skills, inclusion and modern teaching methods. Establish online platforms to deliver CPD courses to rural teachers.
- **Pair new teachers with experienced mentors** who can provide guidance, reduce attrition and build professional networks.
- **Establish structured networks** (community of practice) through which teachers can collaborate, share experiences and provide mutual support, particularly in conflict-affected regions.
- **Provide STEM training programmes** and incentives to attract teachers to specialise in these critical fields. Displaced teachers from conflict zones should also be encouraged to resettle in high-demand areas.

4. Adapting to Demographic and Systemic Changes

- **Use scenario-based forecasting methods** to align teacher recruitment and training with predicted enrolment trends.
- **Displaced teachers must be integrated into host communities** through targeted incentives, professional development and streamlined credential recognition.

Recommended Priority Actions

Given the presence of prevailing financial and operational constraints, the following priority actions should be considered by relevant decision-makers:

1. **Addressing Teacher Shortfall:** The surplus of teachers in urban areas and deficits in rural areas for the same subjects (e.g., foreign language and informatics) should be addressed by better prioritising areas for teacher allocation.
2. **Enhanced Recruitment Efforts:** Authorities should focus on attracting young professionals and addressing teacher shortages in rural areas through financial incentives and career promotions.
3. **Professional Development Investments:** CPD programmes and mentorship initiatives must be expanded to retain teachers and enhance overall teaching quality.
4. **Utilisation of teacher workforce:** Policies should be regulated, the process of obtaining certifications must be simplified and teachers should be encouraged to try multisubject teaching. Special focus should also be given to regions with high utilisation rates of teachers, namely the Kyiv region and the Luhansk, Odessa, and Dnipropetrovsk regions, with rates of 38%, 55%, 42% and 37%, respectively.

Ukraine's education system faces significant challenges in managing its secondary-level teaching workforce, which are compounded by the ongoing war and resulting demographic shifts. However, these challenges present opportunities for systemic reforms. By implementing data-driven policies, promoting equitable teacher allocation and investing in professional development, Ukraine can build a resilient education system that is capable of delivering high-quality learning outcomes for its students.

Overall, this knowledge report underscores the importance of a cohesive, collaborative approach involving national and local governments, educators and international partners. Prioritising the recommendations presented herein will ensure that Ukraine's educational system not only addresses current challenges but also builds a foundation for long-term success and equity.

REFERENCES

Bychko, H., Vakulenko, T., Lisova, T., et al. (2023). PISA 2022: National report of Ukraine (Full report). Ukrainian Center for Educational Quality Assessment. https://pisa.testportal.gov.ua/wp-content/uploads/2023/12/PISA-2022_Naczionalnyj-zvit_povnyj.pdf

Cabinet of Ministers of Ukraine (2019). *Resolution #800.* https://zakon.rada.gov.ua/laws/show/800-2019-п#Text

Cabinet of Ministers of Ukraine (2020). *Resolution #672.* https://zakon.rada.gov.ua/laws/show/672-2020-п#Text

Cabinet of Ministers of Ukraine (2022). *Resolution #805.* https://zakon.rada.gov.ua/laws/show/z1649-22#Text

Cabinet of Ministers of Ukraine (2023). *Resolution #372-p.* https://www.kmu.gov.ua/npas/pro-zatverdzhennia-planu-zakhodiv-na-20232024-roky-z-realizatsii-natsionalnoi-stratehii-iz-stvorennia-bezbariernoho-prostoru-v-ukraini-na-period-do-2030-roku-i250423-372

Cabinet of Ministers of Ukraine (2024). *Resolution #396.* https://zakon.rada.gov.ua/laws/show/396-2024-п#Text

Lytvynchuk, A., Gapon, V., Sharaievska, M., & Derepa, T. (2024). *Pedagogical staff coverage in general secondary education institutions,* 4(30). Institute of Educational Analytics. https://doi.org/10.32987/2617-8532-2024-4-5-20

Osvitoriya. (2024). *Ukrainian teachers. Teacher workforce potential.* https://nushub.org.ua/wp-content/uploads/2024/11/osvitoriya_zvit_web.pdf

United Nations Educational, Scientific and Cultural Organization (UNESCO) & International Task Force on Teachers for Education 2030. (2024). *Global Report on Teachers: Addressing teacher shortages and transforming the profession.* UNESCO. https://doi.org/10.18356/9789231006555

Annex 1.A: Number of Pedagogical Staff of Ukraine's General Secondary Education System at the Beginning of Academic Years (AYs) 2014/2015–2023/2024 (persons)

Academic year	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024
Total number of teaching staff										
Overall	444,601	436,780	431,801	435,964	440,006	443,838	449,965	445,367	402,793	392,704
Urban	234,709	232,966	235,037	242,107	248,107	254,026	261,411	264,,566	238,600	233,910
Rural	209,892	203,814	196,764	193,857	191,899	189,812	188,554	180,801	164,193	158,794
Among them:										
Teachers, principals and their deputies without part-time employees										
Overall	384,533	377,163	372 366	374,006	371,287	367,827	367,550	355,101	324,609	312,688
Urban	197,637	195,828	197 333	202,914	204,728	205,672	208,532	206,428	189,758	183,549
Rural	186,896	181,335	175 033	171,092	166,559	162,155	159,018	148,673	134,851	129,139
Practical psychologists										
Overall	9,377	9,069	9,002	9,149	8,094	8,039	8,096	8,062	7,298	7,111
Urban	4,730	4,583	4,743	4,792	4,541	4,481	4,556	4,571	4,108	4,007
Rural	4,647	4,486	4,259	4,357	3,553	3,558	3,540	3,491	3,190	3,104
Social educators										
Overall	4,718	4,341	4,355	4,745	4,403	4,391	4,481	4,596	4,161	4,146
Urban	2,523	2,511	2,620	2,791	2,683	2,665	2,719	2,773	2,513	2,473
Rural	2,195	1,830	1,735	1,954	1,720	1,726	1,762	1,823	1,648	1,673
Assistants in inclusive classrooms										
Overall	-	-	-	-	6,761	11,145	15,602	19,546	19,469	23,662
Urban	-	-	-	-	4,129	6,765	9,548	12,298	11,906	14,518
Rural	-	-	-	-	2,632	4,380	6,054	7,248	7,563	9,144
Educators who do not teach subjects in institutions										
Overall	17,161	16,483	16,575	17,369	16,538	16,278	15,861	15,293	9,657	9,223
Urban	11,798	11,082	11,183	11,772	11,264	11,175	11,036	10,865	6,383	6,212
Rural	5,363	5,401	5,392	5,597	5,274	5,103	4,825	4,428	3,274	3,011
Teacher-organisers										
Overall	11,417	11,198	10,856	11,053	11,704	11,373	11,243	10,968	9,824	9,705
Urban	4,698	4,622	4,532	4,659	4,909	4,773	4,813	4,769	4,220	4,162
Rural	6,719	6,576	6,324	6,394	6,795	6,600	6,430	6,199	5,604	5,543
Teachers, directors, deputy directors, educators and educators-organisers in institutions and classes for children with special educational needs										
Overall	16,177	17,203	17,296	18,184	20,375	23,940	26,280	30,750	26,761	25,177
Urban	12,330	13,283	13,564	14,048	15,189	17,856	19,567	22,120	18,993	18,282
Rural	3,847	3,920	3,732	4,136	5,186	6,084	6,713	8,630	7,768	6,895
***Including** special education teachers*										
Overall	4,486	5,053	5,169	5,472	4,938	5,307	5,357	4,679	4,260	4,257
Urban	3,659	4,113	4,268	4,480	4,033	4,373	4,480	3,821	3,468	3,493
Rural	827	940	901	992	905	934	877	858	792	764
Teachers in speech therapy centres										
Overall	1,218	1,323	1,351	1,458	844	845	852	1,051	1,014	992
Urban	993	1,057	1,062	1,131	664	639	640	742	719	707
Rural	225	266	289	327	180	206	212	309	295	285

Annex 1.B: Scenarios of the Number of Children Enrolled in General Secondary Education Institutions

	1st grade	2nd grade	3rd grade	4th grade	5th grade	6th grade	7th grade	8th grade	9th grade	10th grade	11th grade	12th grade	Total
A	1	4	5	6	8	9	10	11	12	14	15	16	18
General Secondary Education (ZZSO)	314,281	318,736	373,880	391,036	401,780	417,341	391,599	389,159	398,212	240,220	228,366	3,191	3,867,801
Special Professional Pre-Higher Education (PPE)	3,022	2,819	3,456	3,642	3,181	4,422	3,356	3,292	3,045	2,811	547	381	34,010
Special classes	492	464	638	667	359	394	436	431	348	71	20	22	4,363
Overall	**317,795**	**322,019**	**377,974**	**395,345**	**405,320**	**422,157**	**395,391**	**392,882**	**401,605**	**243,102**	**228,933**	**3,594**	**3,906,174**

Note. Actual data at the beginning of AY 2023/2024 based on statistical reporting forms No. 76-RVK, No. D-9

CALCULATIONS. Scenario 1. 100% of those born in a given year will go to the 1st grade

	1st grade	2nd grade	3rd grade	4th grade	5th grade	6th grade	7th grade	8th grade	9th grade	10th grade	11th grade	12th grade	Total
A	1	4	5	6	8	9	10	11	12	14	15	16	18
2024/2025	335,874	317,795	322,019	377,974	395,345	405,320	422,157	395,391	392,882	240,963	243,102	3,663	3,852,485
2025/2026	308,800	335,874	317,795	322,019	377,974	395,345	405,320	422,157	395,391	235,729	401,605	3,890	3,921,899
2026/2027	293,400	308,800	335,874	317,795	322,019	377,974	395,345	405,320	422,157	237,235	392,882	6,426	3,815,227
2027/2028	272,000	293,400	308,800	335,874	317,795	322,019	377,974	395,345	405,320	253,294	395,391	6,286	3,683,498

CALCULATIONS. Scenario 2. 90% of those born in a given year will go to the 1st grade

	1st grade	2nd grade	3rd grade	4th grade	5th grade	6th grade	7th grade	8th grade	9th grade	10th grade	11th grade	12th grade	Total
A	1	4	5	6	8	9	10	11	12	14	15	16	18
2024/2025	302,287	317,795	322,019	377,974	395,345	405,320	422,157	395,391	392,882	240,963	243,102	3,663	3,818,898
2025/2026	277,920	302,287	317,795	322,019	377,974	395,345	405,320	422,157	395,391	235,729	401,605	3,890	3,857,432
2026/2027	264,060	277,920	302,287	317,795	322,019	377,974	395,345	405,320	422,157	237,235	392,882	6,426	3,721,420
2027/2028	244,800	264,060	277,920	302,287	317,795	322,019	377,974	395,345	405,320	253,294	395,391	6,286	3,562,491

CALCULATIONS. Scenario 3. 85% of those born in a given year will go to the 1st grade

	1st grade	2nd grade	3rd grade	4th grade	5th grade	6th grade	7th grade	8th grade	9th grade	10th grade	11th grade	12th grade	Total
A	1	4	5	6	8	9	10	11	12	14	15	16	18
2024/2025	285,493	317,795	322,019	377,974	395,345	405,320	422,157	395,391	392,882	240,963	243,102	3,663	3,802,104
2025/2026	262,480	285,493	317,795	322,019	377,974	395,345	405,320	422,157	395,391	235,729	401,605	3,890	3,825,198
2026/2027	249,390	262,480	285,493	317,795	322,019	377,974	395,345	405,320	422,157	237,235	392,882	6,426	3,674,516
2027/2028	231,200	249,390	262,480	285,493	317,795	322,019	377,974	395,345	405,320	253,294	395,391	6,286	3,501,987

CALCULATIONS. Scenario 4. 80% of those born in a given year will go to the 1st grade

	1st grade	2nd grade	3rd grade	4th grade	5th grade	6th grade	7th grade	8th grade	9th grade	10th grade	11th grade	12th grade	Total
A	1	4	5	6	8	9	10	11	12	14	15	16	18
2024/2025	268,699	317,795	322,019	377,974	395,345	405,320	422,157	395,391	392,882	240,963	243,102	3,663	3,785,310
2025/2026	247,040	268,699	317,795	322,019	377,974	395,345	405,320	422,157	395,391	235,729	401,605	3,890	3,792,964
2026/2027	234,720	247,040	268,699	317,795	322,019	377,974	395,345	405,320	422,157	237,235	392,882	6,426	3,627,612
2027/2028	217,600	234,720	247,040	268,699	317,795	322,019	377,974	395,345	405,320	253,294	395,391	6,286	3,441,483

Annex 1.C: Results of Forecasting the Number of Teachers

Scenario 1 - 100%			
	Number of students	Number of students per teacher	Number of teaching staff
2024/2025	3,852,485	10.16	**379,182**
2025/2026	3,921,899	10.33	**379,661**
2026/2027	3,815,227	10.51	**363,009**
2027/2028	3,683,498	10.69	**344,574**
Scenario 2 - 90%			
	Number of students	Number of students per teacher	Number of teaching staff
2024/2025	3,818,898	10.16	**375,876**
2025/2026	3,857,432	10.33	**373,420**
2026/2027	3,721,420	10.51	**354,084**
2027/2028	3,562,491	10.69	**333,255**
Scenario 3 - 85%			
	Number of students	Number of students per teacher	Number of teaching staff
2024/2025	3,802,104	10.16	**374,223**
2025/2026	3,825,198	10.33	**370,300**
2026/2027	3,674,516	10.51	**349,621**
2027/2028	3,501,987	10.69	**327,595**
Scenario 4 - 80%			
	Number of students	Number of students per teacher	Number of teaching staff
2024/2025	3,785,310	10.16	**372,570**
2025/2026	3,792,964	10.33	**367,179**
2026/2027	3,627,612	10.51	**345,158**
2027/2028	3,441,483	10.69	**321,935**

Annex 2.A: Data on Student-Teacher Ratio and Class Size in AY 2024/2025

	URBAN						RURAL						TOTAL					
	Schools	Average number of classes per school	Average number of children per school	Average number of teachers per school	Average class size in 1 school	Average student-teacher ratio	Schools	Average number of classes per school	Average number of children per school	Average number of teachers per school	Average class size in 1 school	Average student-teacher ratio	Schools	Average number of classes per school	Average number of children per school	Average number of teachers per school	Average class size in 1 school	Average student-teacher ratio
Vinnytsia region	154	27.62	659.17	56.78	23.87	11.61	411	10.57	127.95	20.59	12.11	6.21	565	15.21	272.74	30.46	17.93	8.96
Volyn region	110	28.32	693.19	64.61	24.48	10.73	376	11.64	158.36	24.16	13.60	6.55	486	15.42	279.41	33.32	18.13	8.39
Dnipropetrovska region	505	19.98	514.33	37.94	25.74	13.56	250	11.93	158.11	20.65	13.25	7.66	755	17.32	396.38	32.22	22.89	12.30
Donetsk region	186	15.52	363.55	30.23	23.43	12.03	59	10.49	124.88	19.53	11.90	6.40	245	14.31	306.07	27.65	21.39	11.07
Zhytomyr region	157	23.97	562.42	49.60	23.46	11.34	329	10.17	121.22	20.04	11.92	6.05	486	14.63	263.75	29.59	18.03	8.91
Transcarpathian region	133	20.72	501.48	45.44	24.20	11.04	342	14.29	244.71	30.75	17.12	7.96	475	16.09	316.61	34.86	19.67	9.08
Zaporizhzhia region	215	18.04	457.75	35.19	25.37	13.01	85	10.44	150.99	20.73	14.47	7.28	300	15.89	370.83	31.09	23.34	11.93
Ivano-Frankivsk region	129	26.48	641.39	64.40	24.22	9.96	385	11.71	182.87	28.23	15.62	6.48	514	15.41	297.94	37.31	19.33	7.99
Kyiv region	237	25.82	647.10	49.09	25.06	13.18	364	12.72	211.62	24.27	16.63	8.72	601	17.89	383.35	34.06	21.43	11.26
Kirovograd region	111	26.44	591.32	52.19	22.36	11.33	155	13.26	151.88	23.38	11.46	6.50	266	18.76	335.26	35.40	17.87	9.47
Luhansk region	73	11.44	255.10	22.64	22.30	11.27	8	11.75	209.13	22.63	17.80	9.24	81	11.47	250.56	22.64	21.85	11.07
Lviv region	326	23.05	567.70	53.46	24.63	10.62	631	10.01	136.17	21.77	13.61	6.25	957	14.45	283.17	32.57	19.60	8.70
Kyiv	521	22.35	567.81	45.22	25.41	12.56							521	22.35	567.81	45.22	25.41	12.56
Mykolaiv region	140	19.72	507.66	37.04	25.74	13.70	252	9.56	112.41	16.45	11.76	6.83	392	13.19	253.57	23.81	19.23	10.65
Odesa region	278	26.31	617.74	46.02	23.48	13.42	368	13.21	207.59	23.86	15.71	8.70	646	18.85	384.09	33.40	20.38	11.50
Poltava region	168	22.64	551.15	46.10	24.34	11.96	305	10.01	121.41	19.59	12.13	6.20	473	14.49	274.05	29.01	18.91	9.45
Rivne region	117	26.24	658.71	55.94	25.10	11.78	374	13.57	220.05	28.43	16.21	7.74	491	16.59	324.57	34.99	19.56	9.28
Sumy region	139	21.37	496.00	41.47	23.21	11.96	166	9.02	98.29	19.00	10.90	5.17	305	14.65	279.54	29.24	19.09	9.56
Ternopil region	113	22.00	527.09	50.93	23.96	10.35	383	9.23	106.39	19.81	11.53	5.37	496	12.14	202.23	26.90	16.66	7.52
Kharkiv region	358	20.87	490.11	38.96	23.48	12.58	216	10.46	121.08	18.86	11.58	6.42	574	16.95	351.24	31.40	20.72	11.19
Kherson region	93	18.14	451.70	37.46	24.90	12.06	77	10.82	180.99	21.23	16.73	8.52	170	14.82	329.08	30.11	22.20	10.93
Khmelnytsky region	147	24.36	619.54	53.69	25.43	11.54	333	9.41	108.02	18.88	11.48	5.72	480	13.99	264.68	29.54	18.92	8.96
Cherkasy region	139	22.28	540.46	46.75	24.26	11.56	255	10.94	139.66	21.50	12.76	6.50	394	14.94	281.06	30.41	18.81	9.24
Chernivtsi region	94	20.66	511.32	44.95	24.75	11.38	229	14.34	238.90	30.61	16.65	7.81	323	16.18	318.18	34.78	19.66	9.15
Chernihiv region	134	20.31	484.86	43.87	23.88	11.05	227	8.25	86.44	17.04	10.48	5.07	361	12.73	234.33	27.00	18.41	8.68
Total	**4,777**	**22.21**	**543.74**	**45.24**	**24.48**	**12.02**	**6,580**	**11.19**	**155.19**	**22.59**	**13.86**	**6.87**	**11,357**	**15.83**	**318.62**	**32.12**	**20.13**	**9.92**

Annex 2.B: Number of Hours in the Curriculum by Subject

Subject	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grades 1-4	Grades 5-9	Grades 10-11
Maximum Allowable Load	**20**	**22**	**23**	**23**	**28**	**31**	**32**	**33**	**33**	**33**	**33**	**22.0**	**31.4**	**33.0**
Ukrainian Language	7	7	7	7	4	4	3	3	3	2	2	7.0	3.4	2.0
Ukrainian Literature					2	2	2	2	2	2	2	0.0	2.0	2.0
World Literature					1.5	1.5	1.5	1.5	1.5	1	1	0.0	1.5	1.0
Foreign Language	2	3	3	3	3.5	3.5	3.5	3.5	3.5	2	2	2.8	3.5	2.0
Mathematics	4	4	5	5	5	5				3	3	4.5	5.0	3.0
Algebra							3	3	3			0.0	3.0	0.0
Geometry							2	2	2			0.0	2.0	0.0
Exploring Nature/ Environment					2	2						0.0	2.0	0.0
Biology							2.5	2.5	2.5	2	2	0.0	2.5	2.0
Geography						2	2	2	1.5	1	1	0.0	1.9	1.0
Physics / Physics and Astronomy							2	2	3	3	4	0.0	2.3	3.5
Chemistry							1	2	2.5	1.5	2	0.0	1.8	1.8
Health, Safety, and Well-Being					1	1	1.5	1	0.5			0.0	1.0	0.0
Ethics, Morals					0.5	0.5						0.0	0.5	0.0
Entrepreneurship and Financial Literacy								0.5	1			0.0	0.8	0.0
Introduction to the History of Ukraine					1							0.0	1.0	0.0
History of Ukraine, World History						2						0.0	2.0	0.0
History of Ukraine							1	1.5	1.5	1.5	1.5	0.0	1.3	1.5
World History							1	1	1	1	1	0.0	1.0	1.0
Civic Education								0.5		2		0.0	0.5	2.0
I Explore the World	4	4	3	3								3.5	0.0	0.0
Informatics		1	1	1	1.5	1.5	2	2	1.5	1	1	1.0	1.7	1.0
Technology / Design and Technology			1	1	2	2	1	1	1	1	1	1.0	1.4	1.0
Art (Visual and Music)	2	2	2	2	2	2	2	1	1	1	1	2.0	1.6	1.0
Physical Education	3	3	3	3	3	3	3	3	3	3	3	3.0	3.0	3.0
Subject Groups														
Language and Literature	9	10	10	10	7.5	7.5	6.5	6.5	6.5	5	5	9.8	6.9	5.0
Foreign Language	2	3	3	3	3.5	3.5	3.5	3.5	3.5	2	2	2.8	3.5	2.0
Mathematics	4	4	5	5	5	5	5	5	5	3	3	4.6	5.0	3.0
Natural Sciences	1	1	1	1	2	4	7.5	8.5	9.5	8	9	1.2	6.3	8.5
Technological	1	1	1	1	2	2	1	1	1	1	1	1.2	1.4	1.0

Subject	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grades 1-4	Grades 5-9	Grades 10-11
Social and Health-Preserving	1	1	1	1	1.5	1.5	1.5	1.5	1.5	0	0	1.2	1.5	0.0
Civic and Historical	1	1	1	1	1	2	2	3	3	6	4	2.3	2.2	5.0
Informatics		1	1	1	1.5	1.5	2	2	1.5	1	1	1.4	1.7	1.0
Arts	2	2	2	2	2	2	2	1	1	1	1	1.6	1.6	1.0

Annex 2.C: Theoretically Required Hours of Teaching and Learning (TTLT and TTTT), Teacher Utilisation, Learning Coverage Rate (LCR), and the Adjusted Pupil–Teacher Ratio (APTR)

	Average TTLT	Average TTTT	Utilisation rate	LCR	APTR
Vinnytsia region	427.25	345.70	1.24	0.81	11.07
Volyn region	432.38	372.11	1.16	0.86	9.74
Dnipropetrovska region	487.78	355.02	1.37	0.73	16.91
Donetsk region	410.53	324.00	1.27	0.79	14.02
Zhytomyr region	410.78	317.59	1.29	0.77	11.53
Transcarpathian region	449.88	368.64	1.22	0.82	11.08
Zaporizhzhia region	454.71	343.02	1.33	0.75	15.81
Ivano-Frankivsk region	429.91	400.90	1.07	0.93	8.56
Kyiv region	497.09	359.04	1.38	0.72	15.58
Kirovograd region	526.59	388.15	1.36	0.74	12.85
Luhansk region	330.10	213.11	1.55	0.65	17.14
Lviv region	404.37	372.53	1.09	0.92	9.44
Kyiv	628.60	511.95	1.23	0.81	15.42
Mykolaiv region	370.39	276.43	1.34	0.75	14.27
Odesa region	530.63	374.96	1.42	0.71	16.28
Poltava region	407.64	319.85	1.27	0.78	12.04
Rivne region	466.50	378.73	1.23	0.81	11.43
Sumy region	413.81	344.42	1.20	0.83	11.49
Ternopil region	340.35	303.93	1.12	0.89	8.42
Kharkiv region	482.52	359.59	1.34	0.75	15.01
Kherson region	424.36	306.53	1.38	0.72	15.13
Khmelnytsky region	393.51	329.78	1.19	0.84	10.69
Cherkasy region	420.54	342.78	1.23	0.82	11.34
Chernivtsi region	453.36	379.28	1.20	0.84	10.94
Chernihiv region	360.87	312.98	1.15	0.87	10.01
Total	**445.22**	**356.83**	**1.25**	**0.80**	**12.38**

KIX EMAP Learning Cycle Case Study, March 2026

20, Rue Rothschild I P.O. Box 1672
1211 Geneva 1, Switzerland
+41 (0) 22 908 45 47
norrag.kix@graduateinstitute.ch

@KIXEMAP

@KIXEMAP

@KIXEMAP

@KIXEMAP

norrageducation.org/kix-emap

gpekix.org/regional-hub/kix-emap