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2022-2030 Unified National Strategy of Education and Science of Georgia

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1 ABBREVIATIONS

MoES	M**inistry of Education and Science**
MoESD	Ministry of Economy and Sustainable Development
UN	United Nationa Organization
UNDP	United Nations Development Programme
PAR	Public Administration Reform
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
OECD	Organization for Economic Cooperation and Development
ETF	European Training Foundation
CBHE	Coordinating Council of Higher Education
ESCO	European Framework of Skills, Competences, Qualifications, and Occupations
SDGs	Sustainable Development Goals
ISCED	International Standard Classification of Education
ABET	American Engineering and Technology Accreditation Council
PIRLS	Progress in International Reading Literacy Study
ESG	Standards and Guidelines for Quality Assurance in the European Higher Education. Area
TIMSS	Trends in International Mathematics and Science Study
PISA	Program for International Student Assessment
PIAAC	Program for the International Assessment of Adult Competencies
EEA	European Education Area

2 INTRODUCTION/BRIEF OVERVIEW

Access to quality education is one of the fundamental rights of every person. It is a prerequisite for personal and professional growth, social well-being, and sustainable development of the state. Ensuring quality and affordable education through the education and science system is one of the main priorities of the Georgian Government, which is proved by the comprehensive reforms implemented in recent years as well as the government's commitment to continue support for education, science, research, technology, and innovation system reforms and increase state funding for education to 6% of gross domestic product (GDP).

The reforms carried out during the implementation of the 2017-2021 Education and Science Strategy were aimed at increasing the availability of early and preschool education, raising the quality of general education, and improving the availability and quality of vocational education. Necessary steps have been taken to increase the teaching profession's attractiveness and strengthen the quality of higher education, research, technology, innovation, and internationalization.

The mid-term and final evaluation of the 2017-2021 strategy conducted by the Ministry of Education and Science (hereinafter - the Ministry) in 2019 and early 2022 revealed that the strategic goals and objectives were not clearly formulated and supported by relevant indicators. Inaccurate or non-measurable indicators did not allow for the evaluation of the implemented activities related to the goals to determine the exact success ratio, which would determine the degree of the impact.

In addition, as a result of the Covid-19 pandemic, the education and science sector of Georgia faced significant challenges, such as the transition to distance and hybrid learning processes, the creation of equal opportunities for involvement in the learning process, and achievement of learning goals, provision of digital learning resources for teachers and students.

Under the leadership of the Ministry of Education and Science, the Government of Georgia took responsibility for working out a long-term strategic plan for developing the education and science system. Follow on the resolution N304 of the Government of Georgia of June 28, 2021, the Interagency Council for the Development of the 2022-2030 Education and Science Strategy and Action Plan of Georgia was established. This strategy will reinforce the results achieved within the framework of the implemented reforms. It also aims to support the holistic and sustainable development of the system, providing universal and lifelong learning opportunities. In addition, aiming at the development and institutional strengthening of the education and science system, institutional development policy documents will be prepared based on relevant research and analysis. A gender audit (PGA) will be conducted to identify issues for improvement and assess progress in several directions of gender equality in the education and science system.

The public consultations of the draft strategy and sectoral action plan lasted from December 7, 2021, to January 21, 2022. Before the start of public consultations, the Ministry of Education and Science ensured active communication with the member state agencies and other stakeholders of the inter-agency council,

developing the strategy and action plan and integrating their opinions into relevant policy documents. Local and international organizations and state agencies had the opportunity to submit proposals and/or request additional clarifications regarding various components of the strategy. All interested persons and organizations could participate in the meetings and express their opinion, and they had the opportunity, if desired, to additionally present suggestions and/or comments regarding the discussed projects.

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Long-term, close and active cooperation of target ministries, parliament, municipalities, and key stakeholders, including academic and civil societies, the private sector, international donors, independent experts, and the general public, is essential to achieve the set goals. The strategy considers the recommendations developed by the European Union, the World Bank, the Organization for Economic Cooperation and Development, UN agencies, and other authoritative international organizations to solve the challenges identified in the education and science sectors in the following main directions: improvement of the monitoring and evaluation in the education system; provision of high-quality teaching and learning; improvement of the financing system of higher education; renewal of science, technology and innovation system and development of research and innovation activities of Georgia.

During the development and subsequent implementation of the 2022-2030 education and science strategy, significant attention will be paid to improving the quality and availability of data related to the education and science system. The strategy will promote the implementation of an evidence-based approach and the compatibility of data analysis with the standards established by the UNESCO Institute for Statistics.

The new national strategy of education and science for 2022-2030 was developed with a systematic approach and is in full compliance with national legislation. Given the current public administration reform, the strategy development methodology is based on the "Policy Planning, Monitoring and Evaluation Guide" and its annexes approved by the Resolution N629 of the Government of Georgia of December 20, 2019, "On Approval of Policy Development, Monitoring and Evaluation Rules." This methodology emphasizes the importance of evidence-based policymaking and continuous and multi-faceted collaboration with stakeholders to ensure priority setting, alignment of strategic objectives, feasibility, and financial sustainability.

The presented strategic document aims to promote inter-agency cooperation and also to synchronize education and science policies with relevant national policy documents that focus on the improvement of human rights, infrastructure development, migration, environment protection, rural development, civic integration, and the development of the country's economic, social and cultural environment.

In the unified national strategy of education and science, the political vision of Georgia's future is declared based on the desire to build a European state. Accordingly, the strategy is closely related and consistent with

the 2021-2024 government program for "European State Building" and all policy documents developed in the format of inter-agency councils and commissions.

This document presents the government's vision for developing the education and science system, the priority directions, and the plan for implementing the goals and objectives to solve the identified problems. The document also defines the indicators of the implemented strategy for monitoring and evaluating the progress.

The Unified National Strategy Document for Education and Science includes the following main parts:

Situation analysis: describes the current status of the education and science system, reviews current programs and projects in the country, data and challenges, and their relationship with global and European regional trends.

Logical framework: defines the main strategic directions according to the problems and challenges identified based on the situation analysis. The unified national strategy includes three sectoral prioritized directions: quality, equity/inclusion, and governance. Based on the sectoral priorities, **15 strategic goals and 28 objectives have been defined.**

The action plan: includes specific, relevant, reform-oriented, innovative, and evidence-based activities necessary for the implementation of the strategy, prioritized directions, listing responsible parties, and time-bound relevant results indicators. The action plan is structured on a quarterly basis and includes a three-year implementation period based on the corresponding budget.

In the process of the education and science strategy development, the Ministry received technical support from European Union-funded projects Public Governance Reform (PAR) and Skills4Jobs, as well as the Innovation, Inclusion and Quality project funded by the World Bank, the United Nations Development Programme and other international and local organizations.

2.1 CONFORMITY WITH NATIONAL AND INSTITUTIONAL POLICY DOCUMENTS

As mentioned above, the goal of the unified national strategy is strengthening the cooperation between agencies and the conformity of the education and science policy with the relevant documents of the national policy. The unified national strategy of education and science conforms with the political vision of the future of Georgia, which is based on the desire to build a European state. Therefore, the strategy is closely related to and corresponds to the 2021-2024 government program for "building a European state", the national development strategy 2030 and the corresponding action plan, as well as all policy documents developed in the format of interagency councils and commissions, such as:

- Governmental Decree N356 on the "State Strategy for Civil Equality and Integration 2021-2030 and the Action Plan 2021-2022 of the State Strategy for Civil Equality and Integration 2021-2030 " of July 13, 2021;
- Governmental Decree N629 on the "2021-2030 United State Language Program (Strategy) and the Action Plan 2021-2022 " of December 30, 2021;
- Governmental Decree N230 on the “National HealthcareStrategy” of May 2, 2022;
- Governmental Decree N461 on the "2021-2024 National Strategy and 2021-2022 Action Plan to Fight Against Organized Crime" of September 14, 2021;
- Governmental Decree N482 on the "2021-2024 National Strategy of Cyber Security and its Action Plan" of September 30, 2021.

The legislative framework of the strategy includes the following:

- Constitution of Georgia;
- Law of Georgia on Early and Preschool Education;
- Law of Georgia on General Education;
- Law of Georgia on Vocational Education
- Law of Georgia on Higher Education;
- Law of Georgia on Science, Technology and their Development;
- Other legal acts related to the field.

Basic norms are regulated by Article 27 of the Constitution of Georgia, according to which „Everyone has the right to receive education and the right to choose the form of education they receive. Pre-school education shall be guaranteed in accordance with the procedures established by law. Elementary and basic education shall be compulsory. General education shall be fully funded by the State, in accordance with the procedures established by law. Citizens shall have the right to state-funded vocational and higher education, in accordance with the procedures established by law. Academic freedom and the autonomy of higher educational institutions shall be guaranteed“.

2.2 CONGRUENCE WITH INTERNATIONAL DOCUMENTS

2.2.1 Association with framework documents of international development

The conceptual framework of Georgia's current education, training, science, technology, and innovation strategy is in line with the European policy framework documents, which include the principles of sustainable and future-oriented education system formation, research and innovation (R&I) system development, and efficiency growth.

Georgia adheres to the Council of the European Union resolution on: " a strategic framework of European cooperation in education and training in the European educational space and beyond 2021-2030". Georgia was actively involved in developing recommendations on the framework of the European Council's democratic cultural competencies, international responsibility for the implementation of which was confirmed by the 2016 Brussels Declaration of Council of Europe member states. Due to the active cooperation with the European Council, Georgia was the first country to implement the framework in educational practice at various levels of the education system and share the experiences with other countries. Also, the priority directions of the European Education Area (EEA) higher education and professional education policy are fully shared, such as support for pedagogical training, continuous professional development of professors working in the field of higher education, and recognition of innovative teaching for career advancement, as well as strengthening social direction and teaching in higher education and ensuring the quality of education. Following the resolution of the updated European Adult Education Agenda, Georgia is also responsible for a significant increase in the participation of adults in formal and informal educational processes and for achieving a minimum level of literacy, quantitative literacy, and digital skills among adults. A tool compatible with the European Framework of Skills, Competencies, Qualifications, and Professions (ESCO) should be created to develop vocational education.

According to the new agenda of European research and innovation, Georgia supports the establishment of the European management paradigm, strengthening the scientific, technological and innovative base, the importance of research and innovation to society, and the growth of investments in this direction. To ensure compliance with the common European education and research areas within the framework of the reform and to consider the public and economic challenges of the state, preference will be given to determining funding priorities, implementing a transparent monitoring and evaluation system, and supporting digital and green transformation.

The strategy is in line with the main conventions and acts of international law related to the right to education, such as the 1989 UN Convention on the Rights of the Child; UNESCO's 1960 Convention against Discrimination in Education; the United Nations' 1966 International Covenant on Economic, Social and Cultural Rights; the 1979 UN Convention on the Elimination of All Forms of Discrimination against Women; 2011 Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence; 2006 UN Convention on the Rights of Persons with Disabilities; UNESCO's Salamanca Declaration of 1994 on "Inclusive Education," and the European Convention for the Protection of Human Rights and Fundamental Freedoms of 1950. Georgia's educational system, theoretically and practically, considers the principles of the 2010 Council of Europe Charter on Education for Democratic Citizenship and Human Rights Education. International and local projects support the implementation of the Charter. In addition, the country actively participates in the evaluation of the Charter implementation.

The united national strategy for education and science aims to ensure equal access to inclusive and quality education, as well as to improve lifelong learning opportunities, which is closely related to the principles of

the United Nations Economic Commission for Europe (UNECE) strategy "Education for Sustainable Development," the UN General Assembly resolutions A/RES/70/1 of September 25, 2015, and A/RES/71/313 of July 6, 2017, and the following Goals of Sustainable Development (SDGs): Goal 4 - Quality Education; Goal 8 - Decent Work and Economic Growth; Goal 9 - Industry, Innovation, and Infrastructure; Goal 16 - Peace, Justice, and Strong Institutions.

2.2.2 Compliance with the Association Agenda and the Association Agreement

Georgia's European aspiration and choice to build a democratic, stable, and economically strong country are part of the overall goal of political association and economic integration with the European Union. In this view, strengthening bilateral and multilateral cooperation in the main directions, the international and European policy will become an effective tool for the further development and implementation of strategy in the education, science, technology, research, and innovation systems. The institutional, legal, financial, and programmatic preparation of the education and science sector will contribute significantly to the joint efforts of the Georgian government and the successful completion of the measures necessary for full membership in the European Union.

On the one hand, the European Union and the European Atomic Energy Community and its member states, and on the other hand, Georgia is committed to its education and science-related tasks in the frames of the association agreement obligation (articles 342 and 343 of Chapter 12 - Cooperation in the field of research, technological development and demonstration and the articles 358 and 359 of Chapter 16 - Education, training, and youth).

3 SITUATION ANALYSIS

3.1 METHODOLOGY FOR DEVELOPMENT OF SITUATION ANALYSIS

The strategy of education and science, as already mentioned, was developed according to the N629 decree of the Georgian government. The preparatory work began in August 2020 with a seminar conducted by the Ministry of Education and Science, which discussed the main requirements for strategy development, including the principles of situation analysis.

The Ministry of Education and Science held seminars in February and May of 2021 on developing a holistic strategy and conducted training on the problem tree methodology. Experts, external actors, and stakeholders across the Ministry's departments were involved in the specially created sub-sector group. At the initial stage, in each sub-sectoral group, baseline studies were conducted to review policy issues and guide discussions between the Ministry and stakeholders. Temporarily created groups conducted focus-group interactive meetings to discuss the causes of existing challenges and share the expected results in each sub-sector.

Various stakeholders, including civil society representatives, academic circles, and the public-private sector, were involved to ensure the strategy was based on a shared vision. Twenty-five focus groups, including the

12 focus groups working on inclusion issues, were held. Two hundred persons participated in the group discussions.

The problem tree analysis method described the main challenges in education, research, technology, and innovation. The focus group meetings contributed significantly to identifying the problems and their causes and coordinating the positions with the main stakeholders. The received information was reflected in the situation analysis, which was gradually refined in the strategy creation process. The needs identified as a result of the analysis are based on the education and science strategy sectoral priorities, the primary goals, and the objectives presented in the logical framework and strategy narrative. In addition to sub-sector focus group meetings and written communication, feedback and comments were solicited from donor organizations. To ensure the accuracy/reliability of the facts, the meetings were held with the Ministry-subordinate Legal Entities of Public Law (LEPL).

After the development of the draft strategy document, logical framework, and action plans, following the "rules for the development, monitoring and evaluation of policy documents" approved by the Georgian government's decree N629 of December 20, 2019, per the 2022-2030 national education and science strategy and 2022-2024 sectoral action plan the public consultation process of the project plan started on December 7, 2021, and lasted until January 21, 2022.

The public application of the initiation and end, progress, and communication format referring to the contact information of the department responsible for receiving feedback was published on the Ministry of Education and Science website along with the reviewed projects. The Ministry and its subordinate organization, together with the Democratic Engagement Centers, fostered public consultations in online-format meetings with the active participation of stakeholders. All interested persons and organizations had the opportunity to express their opinion. Besides, they had the chance to provide additional suggestions or comments regarding the discussed projects, if desired. There were eight online meetings in total, with 202 participants from different regions of Georgia.

During public consultations, the Ministry of Education and Science received various recommendations, suggestions, and proposals from organizations and individuals. The feedback, consideration, and decisions were communicated to the individuals and organizations involved in the consultation. Detailed information on the results of public consultation, including the recommendations/proposals/comments and feedback, is presented in Appendix N3. The most active participants in the process were non-governmental organizations active not only in the capital city but also representatives of regional initiative groups and public organizations, students, and social movement activists.

In addition to the above, on December 30, 2021, the Ministry organized an online consultation meeting. On January 21, 2022, the Ministry, following the feedback received, provided a public review of the inclusiveness component of the national strategy and the action plans for education and science.

Before the start of public consultations, the Ministry of Education and Science ensured active communication with respective state agencies and other interested parties and the integration of comments received from them in relevant policy documents of the Interagency Council for the Development of the 2022-2030 Georgian Education and Science Strategy and Action Plan following the Georgian Government's Resolution N304 of June 28, 2021.

Therefore, local and international organizations, and state agencies, had the opportunity to present their proposals, recommendations, and comments entirely and/or require additional clarifications of the strategic components.

3.2 Population and Economy

Along with sustainable economic growth, Georgia is characterized by a population aging trend, which significantly impacts various sectors and areas, family productivity and economic growth, health and social protection, education, and employment. According to the 2014 population census, the population of Georgia is 3.728 million (51.8% women and 48.02% men), and 32% of the population lives in the capital city. Although the average age of the population is 39.9 years for women and 35 for men, it is expected that the population share over 65 years of age will increase from 15.3% to 18.9% by 2030. (Bruni, Çithanava, 2017).

Last two decades, **life expectancy** has been steadily increasing; in 2019, it was 69.8 years for men and 78.4 years for women. The overall **birth rate** decreased from 2.3 to 2.0 between 2014 and 2019; the **mortality rate** varied from 13.6 to 12.5 per 1000 people (Bruni, Çithanava, 2017).

According to the World Bank 2019 data, Georgia belongs to a group of countries with high average incomes, with a gross domestic product per capita of 4,274.6 US dollars. The population below the absolute limit decreased by 17.8 percentage points from 2010 to 2019 and reached 19.5%; in 2020 it was recorded at 21.3%. In addition, in the background of economic growth, the social inequality index (Gini ratio) in Georgia is characterized by a tendency to decrease, and according to the data of the National Statistics Service 2020, it was 0.37% of the total income, while the unemployment rate reached 18.5% (Geostat, 2022).

Demographic and economic changes affect the education sector. Despite the economic growth trend, it is essential to introduce the lifelong learning paradigm in the education sector. Considering the dependency ratio of the elderly, it is vital that the educational system creates continuous opportunities for learning and developing competencies for all age groups. It is necessary to ensure access to quality early and preschool education to create the necessary competencies and opportunities for young people and adults to acquire new skills.

3.3 ACHIEVEMENTS IN EDUCATION AND SCIENCE, RESEARCH, TECHNOLOGY, AND INNOVATION SECTORS

Georgia has achieved high indicators in general and high education. The general educational attainment rate at primary and secondary levels is almost compulsory. In Georgia, the percentage of children of the appropriate age to enter the primary school level who enter the first grade (net enrollment rate) is the following: boys - 92.3%; girls - 91.6% (**Indicative Multi-Cluster Study, 2018**).

The participation of 5-6-year-old children is exceptionally high in the preschool education stage. According to the **multi-indicator cluster** study of 2018, the percentage of first-grade children who attended kindergarten one year earlier was 87.3%. Despite the positive dynamics, the rate of secondary education is relatively low - 66% (UNICEF, 2020). The most significant difference between the educational attainment indicators is observed in the socio-economic status and ethnicity. The general education completion rate among children with high socio-economic status is twice the rate of the poorest children. The completion rate among ethnic minority groups is meager, particularly in the Azerbaijani population of Georgia - 33% percent (UNICEF, 2020).

The number of applicants for vocational education has significantly increased. The number of applicants for the 2021 admission has reached almost 19,000. Despite efforts made, majority of vocational education students are 15-24-year-old youth. Their percentage exceeds 60% yearly (Ministry of Education and Science data). The enrollment rate in

educational institutions increased significantly and reached 63.4% in 2021 (Geostat, 2021). **Significant steps have been taken to develop an inclusive education system.** The Ministry of Education and Science of Georgia is proactively committed to creating an inclusive and accessible educational system for everyone, where anyone involved in the educational process will be able to receive quality education and actively participate in the educational process.

From 2012 through 2021, the number of students with special educational needs at all general education levels increased from 500 to 11,281. Students with special educational needs are enrolled in 1453 schools; more than 2000 specialists provide these students with targeted assistance (special teachers, psychologists, occupational therapists, mobility and orientation specialists, speech therapists, individual assistants for students with special educational needs, sign language interpreters, etc.) (EMIS, 2021). The targeted funding of schools increased in support of inclusive education. Various educational and methodological resources have been created to support special educational needs students' learning and studying processes. Special teachers became part of the teacher's professional development and career advancement scheme. In 2021, to confirm the qualification of special teachers, the special teacher exam was held for the first time, as a result of which 1,010 special teachers obtained the status of senior special teachers. The introduction of inclusive vocational education at the vocational education level began in 2013. Up to now, more than 1,000 people with special educational needs and disabilities have been included in the system.

As part of the education system reform, significant changes were introduced to increase the accessibility of education and improve the quality, inclusiveness, and development of the labor market-oriented system.

As part of the education system reform, significant changes were introduced to increase the accessibility of education and improve the quality, inclusiveness, and development of the labor market-oriented system. In the reform framework, the government started implementing the third-generation national curriculum, which was developed together with Estonian experts, with the support of the Estonian government and UNICEF. New, improved, and modern learning resources are created. The program "New School Model" (Ministry of Education and Science, 2021) was launched to improve education quality, train educational leaders, and promote school-based professional development and cooperation between teachers. In addition, the teachers' professional development scheme created better opportunities for entry into the profession and career promotion.

In 2020-2021, in the context of the restrictions caused by the COVID-19 pandemic, the "Teleschool" project was of particular importance to ensure access to public education in the distance learning mode that enabled the countrywide coverage with engaging lessons for students, including grades I-XII. Microsoft Office 365 TEAMS created virtual classrooms for all school classes and subjects and Microsoft Office 365 user profiles (528,327 students and 52,124 teachers).

Within the memorandum of cooperation established between the Ministry and mobile operators operating in Georgia, students and teachers of public and private schools enjoyed discounted mobile internet packages. **Within the vocational education reform framework,** the national qualification framework similar to the European one was approved in the educational spheres. Adopting the new law on "Vocational education" made it possible to develop the system that brings it closer to the European educational space. Structural and substantive links between vocational education and other levels of education were established. The so-called ”educational deadlock” was eliminated. The general education components were integrated into vocational education programs.

It is essential that, according to the new law, the adult education system was also established, within the framework of which the formalization of short-term vocational training/vocational re-training programs was carried out.

A mechanism for the recognition of learning outcomes achieved within the framework of non-formal education was established, the purpose of which was to confirm the learning outcomes achieved beyond the formal education for the interested person, to promote lifelong learning, personal development, continuous education, qualification and/or employment/career growth/self-employment. The funding of vocational education has increased and the rule of funding vocational education have been changed with 100% state funding. The state funding system involved private VET providers as well. In 2021, the unified rule of enrollment in educational institutions came into force, according to which it became possible for VET

students to get enrolled not only in public but also in all private vocational education institutions within the framework of unified admission.

In February 2020, new standards for vocational educational institutions were approved, and significant changes to the regulations of educational institutions' authorization standards came into force.

Since 2019, all programs in the system have been implemented with a modular approach characterized by compliance with the requirements of the labor market, orientation to learning outcomes, strengthening of the practical component, and modern teaching and evaluation methods. The entrepreneurship module was prepared as a mandatory component in the program at the vocational education level aiming at developing entrepreneurial mindsets. Forty-five dual educational programs were introduced, the implementation of which involved more than 50 private companies. Dual program implementation is jointly provided by educational institutions and partner companies (employers), and 50% or more learning outcomes are achieved in a real working environment.

A new vocational education management model was developed, based on which, in 2021, the Georgian Chamber of Commerce and Industry and the Ministry of Education and Science of Georgia jointly established the non-governmental, non-commercial legal entity Skills Agency.. The main principle guiding vocaitonal education management and development process is co-participation, acceleration of the country's human capital development through joint efforts, and sharing responsibilities between the public and private sectors.

It is worth noting that the implemented reform positively impacts on the VET graduates employment and self-employment rate. According to the research conducted in 2019, the employment rate of graduates of vocational education programs has increased by 20% compared to the same rate in 2014 (2014 – 42%; 2019 – 62%).

To promote the results and development-oriented assessment of higher education institutions, the government initiated the reform of the quality assurance system by updating the quality assurance standards and procedures according to the standards and guidelines of the European Union. (ESG, 2015).

It is worth noting the progress made in the internationalization of higher education. Georgia is among the most successful countries receiving international short-term mobility scholarships within the "Erasmus +" program and ranks 6-th in 141 countries (National Office of Erazmus+; www.eurostudent.eu). A total of 10,400 scholarships have been awarded to students and academic staff, 37 Georgian higher education institutions cooperate with European partner universities in 33 European countries, and more than 30 institutions are involved in higher education capacity development projects. Considering these achievements, Georgia has officially applied for the "Erazmus+" program country status.

Since 2015, San Diego State University's higher education program in Georgia has enabled leading science, technology, engineering, and mathematics (STEM) programs to acquire accreditation, train students in STEM fields, and upgrade infrastructure. Accordingly, the Accreditation Board for Engineering and Technology (ABET)-accredited undergraduate programs have begun and already have five cohorts of successful

graduates, 1/3 out of which are women. In addition, in Ivane Javakhishvili Tbilisi State University, Technical University of Georgia, and Ilia State University, chemical, electrical engineering, and construction laboratories and practical work spaces were equipped as a result of rehabilitation (a total of 8,900 sq.m of educational space).

One of the important achievements in the process of internationalization of higher education and science is the establishment of the International University of Kutaisi in cooperation with the Technical University of Munich, which is a world-class university outside the capital city and aims to become a center of learning, research, and technology in the region. The hadronic therapy center will soon be opened, where two cyclotrons will function. One will be used for treating tumors with ultra-modern methods, and the second cyclotron will be entirely intended for scientific research in medical and nuclear physics and oncology.

At the same time, the trend of increasing the number of international students in the higher educational institutions of Georgia was highlighted. The share of international students in Georgia is 8.7% of the total enrollments, which exceeds the indicators of many countries of the region and Europe (Bochorishvili and Feranidze, 2021).

Significant steps have been undertaken to strengthen the research, innovation, and technology system. Since 2016, Georgia has become an associate member of Horizon 2020, which has created new opportunities for cooperation and financing for developing a modern research and innovation system. On December 7, 2021, an international agreement was signed regarding Georgia's participation in the European Union's framework program "Horizon Europe", as a result of which Georgia is an associated country with the European Union's research and innovation framework program, which made it more accessible for Georgian representatives to participate in the program's competitions and other activities. When participating in competitions, Georgian scientists have the same rights as representatives of EU member states. Georgian scientists can participate in competitions announced within the research and innovation program with a € 95.5 billion budget. Based on the agreement, Georgian universities and scientific-research institutes will be able to lead large international scientific consortia and develop and implement international doctoral programs in cooperation with European colleagues. Georgia's Association Agreement with the "Horizon Europe" program has been ratified by the Parliament of Georgia. The 2021 membership fee for Georgia's participation in the program is €1,759,677.23.

In the "Horizon Europe" program, to promote the higher educational and scientific-research institutions of Georgia and coordinate relevant activities, "Horizon Europe" grant offices were opened in ten higher educational institutions, whose function will be not only to disseminate information about EU competitions but also to assist Georgian research groups with competitive project applications, preparation, and management.

The innovation and startup ecosystem has been strengthened by promoting new innovative startups, improving entrepreneurship skills, and access to technological infrastructure across the country, and developing innovation-oriented and startup-friendly policies.

At the same time, the first steps were undertaken to strengthen the connection between research and business. LEPL Shota Rustaveli National Science Foundation of Georgia updated the research funding scheme. In 2019, within the framework of the EU-funded innovative institutional capacity-building project, the Georgian Innovation and Technology Agency started implementing a technology transfer pilot program to support the commercialization of scientific projects focused on market needs.

The government's science-based policy response to Covid-19, designed with the help of the country's leading scientists, has demonstrated the value of science to society. The above will significantly contribute to raising the interest of young people in the STEM direction and their involvement in research and technology.

3.4 CHALLENGES IN THE QUALITY AND RELEVANCE OF EDUCATION, SCIENCE, RESEARCH, TECHNOLOGY, AND INNOVATION

Significant steps have been taken to transform the education and science system and improve the quality of teaching and learning, and research. However, current challenges hinder improving the academic achievement of pupils and students, strengthening the connection between the education, research, and employment sectors, increasing the competitiveness of each individual, and preparing for societal changes.

A significant part of students in Georgia completes the level of general education with minimal basic competencies, which prevents them from preparing for 21st-century professions and the local or global labor market. International comparative studies: the International Study of Learning and Teaching in Mathematics and Science (TIMSS), the International Literacy Survey (PIRLS), and the Program for International Student Assessment (PISA), as well as national assessments in mathematics (2016; 2018) and science (2018), show that compared to their peers in other post-socialist countries, school students in Georgia receive lower grades and have lower achievement rates in all three areas (National Center for Assessment and Examinations, 2020). According to the Program for International Student Assessment (PISA) 2018, among 78 participating countries, 15-year-olds in Georgia ranked 67th in mathematics, 71st in reading, and 74th in natural sciences.

The secondary level of general education completion by students with high socio-economic status is high - 88%, while only 43% of the poorest students complete the secondary level (Ministry of Education and Science, 2021).

Despite the relatively high level of formal education, skills mismatch and graduates' transition into the labor market are significant challenges. Among young people aged 15 to 24, one in four is not in education, employment, or training. Graduates of both general, vocational, and higher education face difficulties in

transitioning to the labor market. Among graduates, both unemployment (5%) and underemployment (25%) are high (European Foundation for Education, 2019).

The small size of the vocational education sector and the low participation rate remain challenging. Support measures for transitioning from education to work are limited, including career counseling. Children and young people are insufficiently informed about the labor market demands. A study by the Youth Agency in 2020 revealed the following trends: half of the surveyed 18-25-year-olds - 50%, and 31% of 26-29-year-olds are unemployed and seeking employment. According to vocational students, the most important reasons are lack of skills (26%) and lack of employment services (25%). Some graduates think that the reason for their unemployment is the lack of employment services (37%) and lack of acquaintances/relatives (23%), while about 1/3 do not want to be employed (32%) or have no specific reason (21%) (Youth Needs Survey at the local level, Youth Agency, 2020).

Vocational and higher education programs cannot fully consider the demand increase for various occupations in the labor market, especially in the direction of modern occupations. The teaching of basic competencies is partially integrated into the existing vocational education programs. However, problem-solving, creativity and critical thinking skills are not fully reflected in the vocaitonal education program and course learning outcomes (Andghuladze, 2020.)

The practical component of the academic programs of higher educational institutions (hereinafter - HEI) is weak, which leaves students without the opportunity to connect practical experience with academic knowledge and interests (Eurostudent VII, 2020).

The pandemic caused by Covid-19 has accelerated the pace of digital transformation, which will have a significant impact on the development of the economy and society. Digital technologies and the rapid development of artificial intelligence, along with the automation of processes, are expected to increase the demand for technological, social, emotional, and higher cognitive skills, while the demand for physical and basic cognitive skills will decrease. In this sense, in the wake of digital transformation, the challenge is not only to develop skills and competencies but also to directly strengthen digital education and science ecosystems.

One of the main challenges related to the quality and relevance of education at all levels is the lack of competent human resources and their availability.

Early childhood education and teaching is an unattractive career choice, with a high proportion of students with low academic achievement who also had low results on the Unified National Exam Test. Employment as an educator-pedagogue, teacher, and other academic or administrative position is less attractive due to low pay. The salary of employees in the education sector is one of the lowest since the 90s. According to the 2021 data, the average monthly nominal salary was 1357.4 GEL; in 2020, the average monthly nominal salary of employees in Georgia was 1191 GEL, while the average monthly nominal salary of employees in the education sector was 709 GEL in the public sector, and 921.3 GEL in the private sector. The basic nominal

salary of educators-pedagogues of public preschool institutions and teachers in general education is 2-3 times lower.

Most of the staff of preschool institutions do not have appropriate qualifications. Most employees received their education during the Soviet Union period; since then, they have lacked professional training opportunities (UNICEF, 2018). Most teachers in the general education system do not possess the appropriate competencies related to student-centered teaching and assessment methods. Despite the steps taken in the direction of teachers' professional development and career advancement, in 2017-2019, on average, 25% of teachers showed minimal results in the subject and 27% in the professional skills exams. Only 1.5% of teachers achieved the maximum result of 60% and higher, both in subject and professional skills tests, as determined by the scheme (State Audit Service, 2021). Due to the pandemic, the professional competence test for teachers was not conducted in 2020. In 2021, on average, 20% of teachers showed the minimum result in the subject area and 25% in the area of professional skills. According to the scheme (60% and higher), only 6.7% of teachers achieved the maximum result in both subject and professional skills tests.

The participation rate of teachers in professional development activities is low. Only 37% of teachers surveyed in the PISA frame reported participation in professional development activities, which is lower than the OECD average of 53% (UNICEF, 2021).

The current scheme of teacher professional development and career advancement is more focused on the teacher's performance of formal procedures than on the demonstration of effective teaching. Teachers' professional organizations are insufficiently involved in the centrally managed teacher training and retraining system. Competence and resources for school management, professional development planning, needs assessment, and intervention planning is limited. However, teachers still do not fully share the value and goals of the current reforms, namely, student-centered teaching-learning approaches, the importance of formative assessment, and the educational value of formative classroom assessments and tests (Li, et al., 2019).

Lack of pedagogical skills is one of the critical challenges in adult education as well. Most of the teachers in the existing vocational training and retraining institutions are field specialists, but they do not have the opportunity to undergo appropriate pedagogical training to teach adults. In companies where students are trained in dual programs, the low pedagogical competence of instructors affects the quality of the programs, especially in those institutions where performance-based evaluation methods for teachers are less developed. In the vocational education system, there is less opportunity for continuous professional and/or career development of vocational education teachers, and part-time work is quite common. About 80% of vocational teachers consider it necessary to develop subject competencies, and more than 50% need continuous professional development.

Ensuring the quality of education in higher education is directly related to the competence of higher educational institutions' academic and scientific staff. Accordingly, the challenge is the existing career development system of personnel, doctoral education schemes, academic leave, maternity leave,

remuneration, and pension policy, which is not focused on the maintenance and development of highly qualified and efficient academic and scientific personnel.

Early career researchers have limited opportunities for career development. Although since 2015, according to the Law of Georgia "On Higher Education", higher education institutions must have mechanisms for evaluating scientific and research activities. A performance-based incentive system should be improved to encourage academic and research staff in all higher education institutions to reach their full potential throughout their careers. Also, there are no policies or incentive mechanisms to support the rotation of academic and research staff and to attract new staff.

Only 12.9% of Georgian universities' academic and scientific staff are 25-34 years old and are at the initial stage of their career (Ministry of Education and Science, 2020 data).

Structured doctoral programs are insufficiently represented in the country. The forms of doctoral students' guidance and training need to be improved. As of 2020, 32 universities offered doctoral programs. The number of doctoral students received in the mentioned universities was 1,050. The total number of doctoral students increased slightly (mainly at the expense of restored suspended statuses) and reached 4,010 (Geostat, 2021).
Also, there is a lack of sustainable research projects which would help attract doctoral candidates. Only a few effective Ph.D. programs operate that collaborate with businesses and industries. 59% of the total number of doctoral students have their status suspended. Their training periods are long, and the completion rate is low, at only 35%. Only a third of Ph.D. students enrolled in 2010 had completed their studies by 2017, reasoning a need for improvement in the sector.

Creating a safe learning environment focused on the holistic development of the learner is an essential challenge at all levels of education. In some cases, early childhood and/or preschool education facilities do not meet state standards for early childhood and preschool education, and there are several challenges related to infrastructure and physical environment.

Despite the differences between municipalities, a significant part of the institutions do not have a safe, comfortable environment for children and staff. According to the Public Defender's (2020) monitoring report, in the case of 53.8% of the inspected kindergartens, the kindergarten's physicalenvironment requires infrastructure work. 67% are not fully adapted to raising and teaching children with special needs (Civitas Georgica, 2020). Part of preschool and education institutions, especially in urban areas, are located in non-standard buildings or share yard space with other institutions. Many of preschools experience a lack of furniture: tables, chairs, beds, wardrobes, and toys. 62.5% of municipalities spend less than 10 GEL annually on educational resources for each child (some of them spend only 0.73 and 1.11 GEL) (UNICEF, 2018).

The maintenance of more than 2,000 general education institutions on an area of five million square meters requires a significant share of the state budget and is still not enough for a complete renovation and building equipping. The practice of cooperation with the local community and municipalities based on the delegation mechanism in the part of small rehabilitation works of schools is not adequately developed yet. Access to

infrastructure and quality learning resources is deficient in rural schools and for children from families with low socio-economic opportunities (OECD, 2019). In 2019, only one-third (34%) of schools were partially adapted for students with disabilities (Public Defender's Office, 2019).

In the field of research, technology, and innovation, the outdated and fragmented infrastructure, as well as the lack of expensive and modern equipment and research facilities by relevant institutions, lead to inadequate research quality and low productivity.

The involvement of parents in the process of upbringing and learning of children is one of the important determinants of the academic and social success of children and adolescents. **Nevertheless, systematic and consistent mechanisms of parental involvement have not been developed at the level of early and general education; the activities carried out to raise parents' awareness and pedagogy is fragmented.**

Early child development is influenced by parenting practices. Cognitive development practices in families in Georgia are not as common as social and emotional development practices (playing, going outside and singing) (Andghuladze, Gagoshidze and Kutateladze, 2020). Considering the existing practice of parents' cooperation with preschool institutions, it is assumed that the practice of cooperation and participation in the educational process of institutions differs depending on the status of the kindergarten (private/public), as well as the socio-economic status of the parents and the kindergarten's location (city/rural).

The practice of parents' participation in the teaching-learning process and school self-governance is fragmented and inconsistent; in some cases, parents do not have information about the forms of relations with schools and their rights, as well as about the planning of the teaching-learning process, leading trends and important decisions (Parents for Education 2019; Georgian Institute of Debate and Education, 2017). The need to strengthen communication and cooperation between parents and educational institutions was even more highlighted in the process of distance learning caused by the pandemic, when, on the one hand, the quality of informing parents and, on the other hand, methodological recommendations and resources for home education were low.

In the context of higher education and research internationalization, one of the critical challenges is international and domestic mobility, as well as unequal access to virtual and remote internationalization.

Despite the increase in numbers, participation in international exchange programs is not available to all groups (Davies, 2019; Darchia, 2020). The legal framework is still not fully adapted to developing virtual and remote internationalization opportunities. In addition, the experience of distance learning during the pandemic has made it clear that remote participation in the virtual international space is less favorable for disadvantaged groups due to the lack of access to information, language barriers, digital resources, and competencies (Davies 2019; Darchia, 2020).

In-country internationalization projects are often only available to a limited number of students. Also, the diversity of the programs is limited and allows only the passive participation of the students. The openness of the multicultural academic space and the proper sharing of experiences for the participation of

international students in the Georgian academic space is still not adequately understood. Some students who come to Georgia find it difficult to socialize with Georgian students (Davies, 2019; Darchia, 2020).

Academic misconduct threatens the quality of research and education and risks the academic community in general. Academic misconduct leads to mistrust in the quality of education and educational institutions, as well as in the qualifications of staff and research results. Academic miscinduct puts students' academic and professional careers at risk as students graduate with inadequate qualifications and skills. Although anti-plagiarism as one of the components was integrated into the authorization standard and students, professors, and administration staff were trained within the Erasmus+ project "Integrity", there is no comprehensive and continuous approach.

3.5 CHALLENGES OF EQUALITY, INCLUSION, AND DIVERSITY IN THE EDUCATION, SCIENCE, RESEARCH, TECHNOLOGY, AND INNOVATION SECTORS

Disadvantaged groups in Georgia: socially vulnerable, living in rural areas, ethnic minority groups, internally displaced persons, migrants, women, and persons with special educational needs and disabilities, face the problem of access to quality education and training services and lifelong learning and development opportunities.

Children living in rural settlements and mountainous regions, especially children with special educational needs and socially vulnerable families, have less access to early and preschool education services (UNICEF, 2018).

Secondary education enrollment and completion rates vary by school location, language of instruction, and socioeconomic status. High socioeconomic status students have a high secondary level completion rate of 88%, while only 43% of the poorest students manage to complete the secondary level (Ministry of Education and Science, 2021; Mizunoya and Mishra, 2020).

Among other factors influencing participation in vocational education are the geographic reach of the vocational education network and its capacity at the regional or national level. Since 2016, vocational education has become more accessible and inclusive for persons with disabilities and persons with special educational needs; however, the number of beneficiaries is still low.

The results of international and national assessments indicate disparities in student achievement by socioeconomic status, location (rural vs. urban), school type (public vs. private), and language of instruction (PISA 2018, PIRLS 2019, NAEC 2018, OECD, 2021). It is important to note that the school's location may significantly impact student outcomes more than the student's place of residence (Djakeli, 2019). In this sense, there are differences between different urban areas of the capital (Djakeli, 2019).

Students from high socio-economic status families and urban settlements benefit more from the current system of exams and vouchers. They attend better schools and prepare for exams with private tutors outside of school (World Bank, 2018; Djakeli, 2019).

Students from vulnerable groups, in some cases, cannot continue their education at the higher education level, mainly because of the household's high financial burden and the lack of limited social grants or other support services offered by the state and the HEIs themselves. Only 2% of enrolled students receive need-based grants. Students who belong to one of the 13 social categories may apply for such grants within the framework of the social program. For example, social categories include students from language-minority schools, schools in remote areas, students from conflict zones, large families and orphans, and students in need of social assistance. Students who receive merit-based partial grants may also receive need-based grants. For example, if a student receives a 70% merit-based grant and applies for a need-based grant, they may receive 30% need-based funding. It should be noted here that the amount is given based on the scores obtained on the unified national exams. Pupils representing the categories mentioned above cannot get high scores in exams due to insufficient preparation caused by their families' low social status; therefore, the number of grants for them is limited. In addition, more than a quarter of students (26%) work full-time during their studies. Almost half of them (48%) need to work to cover their daily expenses (Eurostudent, 2019). All this puts students with low socio-economic opportunities in unequal conditions, increasing dropout rates. More than 11,000 students suspended or dropped out of their studies at the higher education level (Tabatadze, 2020). The issue of fully mastering the state language remains a significant challenge. The share of people who cannot speak the state language is 44% among ethnic Armenian citizens and 74% among ethnic Azerbaijanis (Geostat, 2014). The fact creates a problem not only of daily communication but also of receiving information on current processes in the country, employment, education, and full use of services, significantly hindering their involvement at any level of education and integration into society (Geostat, 2014).

While the education and science sector responded immediately to the difficulties caused by the pandemic, the pandemic deepened digital inequality. The mentioned problem particularly acutely affected schools far from cities and persons with low socio-economic opportunities, persons with disabilities and special educational needs, large families, asylum seekers, refugees, and persons without citizenship status.

In March 2020, 10% of students did not have Internet access and a suitable home device. Among them, to a large extent, students living in rural areas did not have appropriate devices and did not have access to the Internet. On average, the Internet access rate varies from 40% to 70%, although in some cases, this level is 15%, mostly in highland and rural settlements. According to data, before the pandemic, 82% of students in urban schools had access to the Internet and also owned computers, and for students living in the region and rural areas, this figure was 70% (Ministry of Education and Science, 2020). According to a January 2022 report by Human Rights Watch, many students faced delays in distance learning, especially in mountainous

regions, due to poor internet connectivity, lack of appropriate electronic devices in poor households, and teachers' inexperience in online teaching.

The research conducted by the National Assessment and Examinations Center showed significant differences in the use of digital resources in the educational process and the possession of digital competencies by teachers. In particular, teachers of private, Tbilisi, and Georgian-language schools use the information and digital technologies much more actively in the educational process and demonstrate better-developed digital competencies than their colleagues in public, regional, or non-Georgian-language schools (National Assessment and Examinations Center, 2020).

Non-Georgian language schools have additional problems, namely: limited opportunities for professional development in the information-technological direction; Insufficient resources in native languages (Armenian and Azerbaijani) in the direction of using the Teams platform; and, in general, the lack of electronic resources in these languages (Tabatadze and Chachkhiani, 2021).

As for strengthening the quality of inclusive education at all levels of education, the challenge is the qualification and availability of inclusive education specialists. General university and training programs cannot provide a special teacher's specialization in teaching students with visual, hearing, behavioral, and severe and profound intellectual disabilities. No universities offer certified programs to compensate for this need or ensure special educators deepen their knowledge.

In addition, issues of inclusive education are not adequately integrated into the university and retraining programs of teacher training. As a result, although the system unambiguously recognizes the crucial role of special teachers and other specialists (mobility and orientation specialist, occupational therapist, language and speech specialist, psychologist, sign language interpreter, sign language specialist, assistant of a person with special educational needs) in the process of inclusive education, the mentioned positions are often occupied by persons who do not have a proper education in the mentioned field and/or have minimal experience. The mentioned problem is exacerbated by the outflow of specialists, primarily due to remuneration. In this regard, the level of early and preschool education is fundamental since it is at this stage, it is crucial to support all children, including those with special needs and disabilities, to increase school readiness.

Despite the complex and systematic measures implemented in recent years to improve the knowledge of the state language in regions densely populated by ethnic minorities, **the knowledge of the state language remains a significant challenge**. It significantly hinders their involvement at any level of education, as well as receiving information on current processes in the country, employment, and the use of other services (Ministry of Education and Science, 2021).

In order to increase access to vocational education and promote the teaching of the Georgian language for non-Georgian speaking beneficiaries, from 2016, within the framework of admission to vocational educational programs, representatives of ethnic minorities have the opportunity to go through the selection

procedure in Armenian, Russian and Azerbaijani languages. After passing the selection stage, they are offered a Georgian language learning module, and upon successful completion, they are permitted to continue their studies at the desired vocational educational program. At the vocational education level, it is essential to develop a state language teaching program by vocational educational institutions and approaches to its implementation. The quota system developed for students representing ethnic minorities is based on a mandatory general skills test and a one-year mandatory preparatory program in the Georgian language (60 credits); after successfully passing, students can choose any program to continue their studies at the bachelor's level.

Despite policies aimed at transforming school culture, creating an inclusive, safe and positive learning environment for every child and youth is still a challenge. It should be noted that there are no data reflecting the current situation in this direction at all levels of the education system, although the available studies point to challenges in the direction of physical and emotional safety. The results of monitoring of early and preschool education by the Public Defender (2020) show that kindergartens are not fully adapted to the needs of children with disabilities and cannot ensure their full involvement in the upbringing and educational processes. In addition, most of the educators in the studied institutions have not received training on the issues of violence against children, which prevents the detection of violence cases and timely response to them. The same trends are observed in general educational institutions. The competencies of the school staff are low regarding the mechanism of response to any violence against children, as well as the principles of equality (Public Defender 2017, Chanturia, 2018). Notably, a quarter of students in schools were victims of bullying, while only half of the students (56%) felt integrated with the school environment (OECD, 2019). The emotional state of students and the feeling of safety and stability became a significant challenge in the conditions caused by the pandemic, which was reflected in behavioral disorders and in the reduction of students' motivation to learn (Education Coalition, 2021, Parliament of Georgia 2022).

Including persons with disabilities and persons with special educational needs in the educational process and ensuring the principle of reasonable inclusion significantly depends on a supportive and accessible learning environment, which is provided with the necessary educational resources and supportive technical means.

The knowledge and competencies of children, youth, educators, and teachers in gender and gender equality are low (Equality Movement, 2020). The stigma that divides professions along gender lines is still strong. Certain professions are considered more suitable for women than men and vice versa, especially technical subjects and professions. The statement is proved by the fact that despite girls consistently showing better results in mathematics and natural sciences according to international assessments (PISA, 2009; 2015; 2018), the advantage no longer determines the choice of the field of study by girls, which should be related more to gender stereotypes rather than personal aspiration (Eurostudent VII, 2021).

Women are relatively underrepresented among science, technology, engineering, and mathematics (STEM) graduates and researchers. Academic degrees earned by women are dominated by low-income fields in the humanities, education, and health (World Bank 2021), which hinders the full development of

their potential and skills. Despite the equal gender distribution among researchers (52.4% women), the percentage of women in engineering and technology is relatively low (Geostat, 2020). Processing and analyzing data from the perspective of gender mainstreaming and gender equality are not routinely conducted on vocational and higher education students, staff (or teachers), and researchers of higher education institutions. Women are underrepresented in high-ranking positions, which is due, on the one hand, to the absence of a national policy that would work comprehensively to eliminate gender inequality in the academic field, and on the other hand, to stereotypes related to the gender role of women, which affect both the choice of profession and the career growth of women.

The education and vocational training system has not yet developed a unified approach to lifelong learning, which would connect the education and vocational training/re-training system to the development of employment and entrepreneurship and social and regional policy. The links between different levels of education are still weak, and the skills mismatch leads to the demand for more convenient, transparent educational services and mechanisms, flexible systems of transition between education levels, and effective schemes of retraining or upskilling. The recognition of primary education only applies to the vocational education sector and not to the growing number of young learners who prefer to acquire skills outside the formal education system.

3.6 CHALLENGES IN GOVERNANCE, ACCOUNTABILITY, AND FUNDING IN THE EDUCATION, SCIENCE, RESEARCH, TECHNOLOGY, AND INNOVATION SECTORS

One of the important challenges of the education, science, research, technology, and innovation sectors is the lack of coordination mechanisms at both intersectoral and institutional levels. The Ministry and all respective agencies or stakeholders involved in the sector's development share joint responsibility for the further development of the education and science field, although the responsibility for policy planning and implementation is not always clearly assigned. There is also no systematic approach to coordination and operational planning. Accountability and quality management mechanisms are inadequately developed. Municipalities are responsible for creating early and preschool care and education institutions under the municipality's management and ensuring their functioning. **There are differences in the delivery of the mentioned public services that depend on the limits of poor municipal budgets.** All this significantly affects the quality of preschool education and hinders its improvement (Ministry of Education and Science, 2021). There are no mechanisms for implementing mandatory national standards in the early and preschool education system, which puts the possibility of implementing the standard at risk. Besides the above, the central government does not offer municipalities comprehensive and consistent support (technical, human, financial) to implement the national standard.

Effective mechanisms of accountability and supervision of general education institutions have not been developed. The school accreditation process, the start of which has been delayed several times for public

schools, can be used as a tool for school development, but in its current form, accreditation is focused on determining compliance with core standards rather than evaluating teaching and learning quality and students outcomes (Li, et al. 2019). Also, general education institutions are not involved in the authorization process. Low student-teacher ratios, a large number of small schools, and the fact that only half of the teachers work full-time indicate on an inefficient use of limited resources in the general education system (NAEC, 2020).

The size of the vocational education sector is small, and participation is low; hence its impact of vocational education on the socioeconomic development of Georgia is limited. Quality assurance mechanisms of vocational education have been revised; however, internal quality assurance mechanisms and external monitoring and evaluation need to be strengthened. Expanding the scope of vocational education and successfully implementing the policy requires mobilizing financial and human resources, more effective disposal of existing resources, and improving capabilities and operational procedures.

Public-private partnerships in the vocational education sector are still fragmented. The Law On Vocational Education envisages increasing the involvement of the private sector and municipalities, consulting with private sector stakeholders in defining or implementing policies. There are fewer traditions of cooperation or trust on the part of social partners. In response to the mentioned challenge, a new model of vocational education management was formed, based on which the Georgian Chamber of Commerce and Industry and the Ministry of Education and Science of Georgia jointly established the Skills Agency. In this direction, it is vital to carry out further activities of the agency.

The practice of external evaluation of the quality of the higher education system is developing, which ensures the creation of a quality culture in HEIs, although several challenges remain in this direction. HEIs are primarily focused on ensuring compliance with external assessment standards, which in some cases does not imply the implementation of institutional quality management practices and using broad and participatory approaches. In addition, internal and external actors are less involved in the management of the HEIs, which reduces the degree of impartiality and creates institutions focused only on internal issues. Although the law "On Higher Education" grants institutions broad autonomy, in practice, it limits them in such possibilities as determining tuition fees, selecting students at the undergraduate level, and organizing the educational process. In addition, taking into account the international practice of higher education system management, the higher education system in Georgia needs optimization and rationalization in terms of the number of institutions and geographical distribution. According to the data of 2022, 62 HEIs operate in Georgia, including 19 state and 43 private ones (NCEQE, 2022). 60.9% of higher educational institutions are located in Tbilisi (Geostat, 2021).

Georgia's education, training, research, technology, and innovation system does not have a clear vision for strengthening innovation-supporting ecosystems. The research and innovation system is fragmented, partly due to less involvement of central and local governments and the absence of a prioritization system. A new challenge for the higher education system, research, and innovation is to understand and implement the

concept of the "third mission" in the management culture of the educational institution. There is limited cooperation with parents, the labor market, industry, civil society, and other stakeholders, which would encourage the creation of research and innovation clusters, the development of university-industry cooperation, and the implementation of the "third mission" of universities. The current funding model pays little attention to research quality and productivity. The problems in the field of research and innovation are compounded by less involvement of the state in the planning of this sector, and the absence of a clearly defined direction, which is manifested by the existence of more than 80 priority scientific areas.

Despite the increase in funding, Georgia's state investments in education and science, research, technology, and innovation are low compared to international standards. Investment in education increased from 2.4% to 3.0% of GDP in 2010-2019, which is below the EU average (4.6% in 2019). The highest share of the education budget is allocated for general education, 72% of which is to be spent on teachers' salaries in 2022. Nevertheless, among the PISA participating countries and economies, the teachers' salaries in Georgia are categorized as low. State expenses in vocational education constituted 5% of the total state expenses of education in 2021. Public investment in higher education has doubled between 2013 and 2017, but Georgia spends only 0.3% of its GDP on higher education, and about 75% of resources are collected from tuition fees paid by households. Investment in research and development is meager, namely 0.11% of GDP [1].

Practices for administration, analysis, and use of data for monitoring progress and institutional improvement of education, training, research, and innovation systems are inadequately developed. Essential data for the education and science system are collected by responsible legal entities of public law (LEPLs), but there is no data synchronization and analysis mechanism.

There is also a lack of national surveys of students and graduates in education, research, and innovation. In addition, there is no open, user-friendly data analysis mechanism to help students make choices about a study and career orientation. Information such as income received by national educational institutions from external sources (contracts with the business sector, philanthropy, services, and international public funding sources) is also less available.

[1] *Note:* The percentage reflects only the amount the Ministry of Education and Science spent and does not include the costs of other ministries with research units and capacities. For example, ministries of economy and sustainable development, defense, environmental protection, and agriculture, health).

4 VISION, MISSION, GOALS, AND OBJECTIVES

4.1 VISION

In 2030, Georgia's high-quality education and science system will enable individuals to make the best choices for developing their competencies and capabilities, which, in turn, will contribute to forming a sustainable, knowledge-based, and strong civil society.

4.2 MISSION

Education and training, research, and innovation systems allow individuals to fully reveal their potential, contribute to Georgia's social, economic, and cultural development, and contribute to the country's sustainable development.

4.3 GUIDING PRINCIPLES AND VALUES OF THE 2022-2030 STRATEGY

The government has established the following basic principles and values for the development of education and science, research, technology, and innovation systems:

- Education and training, research, and innovation are essential for an inclusive society and sustainable and green economy development.
- Systems of education and training, technology, research, and innovation are focused on the individual.
- The principles of open communication, transparency, cooperation, and partnership are encouraged in education and training, as well as research and innovation systems; these principles are used in cooperation with stakeholders and, in general, for the further development of society and the economy.
- Principles of integrity and continuous development, as well as appropriate reporting, monitoring, and evaluation systems drive the development/implementation of evidence-based policies and programs, while these principles are the basis for the development of individuals and institutions.
- Development of human capital is focused on the educators, pupils, and students, as well as on teachers, researchers, and individuals, employed in education and training, research, and innovation systems in general.
- Open learning environments and research and innovation ecosystems allow individuals to learn, teach, train, develop and thereby contribute to achieving common goals.
- The principles of democratic education are guaranteed in any educational environment. Within the framework of equal opportunities, each pupil and student has the right to be involved in the management of educational institutions and the decision-making related to the administration of the teaching-learning process in order to protect and fully exercise their rights and freedoms.

4.4 SECTORAL PRIORITIES

Based on the situational analysis of the achievements and challenges of education and science, research, technology, and innovation systems, the government has defined priorities aimed at improving the quality and relevance of education, equity, inclusion, and diversity, as well as governance, financing, and accountability systems. The reforms and initiatives to be implemented in the system in 2022-2030 are based on these priorities. Priorities were initiated across the departments of the Ministry within the framework of specially created sub-sector groups with the involvement of experts, external actors, and interested parties. They were agreed upon with the members of the inter-agency Council for the Development of the 2022-2030 Georgian Education and Science Strategy and Action Plan created by the Resolution N304 of June 28, 2021.

4.4.1 Sectoral priority I. Quality and relevance

The development of a quality and sustainable education and science system focused on the needs of the students, society, and the state is the first sectoral priority of the education and science system. This priority implies that teaching and learning are guided by student-centered approaches and help students develop lifelong competencies that address local and global challenges. Flexible, individualized learning models, including approaches appropriate to the needs of SEN and PWD, provide opportunities for lifelong learning and the acquisition of competencies that permeate various situations. Digital infrastructure, innovative teaching-learning, and research methodology enable the quick introduction of new approaches and improvement of teaching-learning quality, research, and innovation. A safe, positive, quality, and open learning environment is provided. The educational community and research and innovation ecosystems connect educational and research institutions, the labor market, the business sector, and the wider society.

In order to improve the quality of teaching, mechanisms will be created at all levels of the educational system to attract successful teachers, trainers, and education specialists to the profession and for their continuous professional development and career growth. Significant reforms to the quality of teaching will be implemented in educators', teachers', and education specialists' training, entry into the profession, and continuous professional development. It includes the development of performance evaluation, career development planning, and incentive systems. A continuous professional development system for teachers will be established at the school base, where teachers will be involved in continuous needs-based professional development. They will receive intensive, constructive feedback and share responsibility for learning outcomes with other school community members. In order to improve, mechanisms will be created at all levels of the educational system to attract successful teachers, trainers, and education specialists to the profession and for their continuous professional development and career growth. At the same time, the capabilities of school principals in the direction of educational leadership, school management, and quality development will be strengthened. The Ministry of Education and Science will support the active participation of professional associations and organizations and academic and civil society in school principals' and teachers' professional development and training programs, including coaching and

monitoring programs. Within the framework of the "Better Education for a Better Future"[2] project, the preparation of professional resources based on modern teaching methodology, support of professional development and teacher training programs of higher educational institutions, professional development of school principals and teachers, and sharing of international experience will continue.

Following the strategy of English language teaching in general education, the competencies[3] of English language teachers will be improved. Teachers in regions far from the city, densely populated by non-dominant ethnic groups, will receive additional support within the framework of the new school model and the continuing professional development program for English language teachers. Targeted programs will also include other schools with problems learning/teaching English and, accordingly, lower achievement compared to national averages (British Council, 2021).

Vocational education teacher has the most important role in raising the quality of vocational education. The teacher base of the vocational educational institution includes vocational education teachers, company instructors, and invited teachers. The priority is forming a "flexible system of vocational education teacher commencement,, professional development and career advancement", which will be based on the relevant model developed in cooperation with the World Bank project “Strengthening Teacher Quality in Vocational Education and Training” (2021). In order to strengthen the role of human resources in vocational educational institutions, train new staff, and develop the quality of teachers, one of the priorities in the strategy implementation process is the development of the teacher training system. For this purpose, the strategy envisages the promotion of continuous career development and evaluation system of vocational education teachers. Accordingly, a regulatory framework for the continuous professional development of teachers and a guide will be developed. The plan is to pilot an internal system of vocational education teachers continuous professional development and evaluation s in selected educational institutions.

VET teacher training and continuous professional development programs will be implemented in collaboration with various providers. In addition, continuous professional development and career advancement will be a school-based approach, which means assigning an important role in the planning and implementation process to the vocational education teacher and the educational institution itself.

Doctoral programs will be closer to international standards and reflect the socio-economic needs and opportunities of the state. In order to develop research and innovation systems and overcome the challenges of researchers at the national and institutional level, high-quality structured doctoral programs/schools will be launched to attract talented young people from both Georgia and foreign countries. Along with the attraction of doctoral candidates in the selected fields, the amount of financing for the scientific and research field will also increase, which is a prerequisite for the growth of innovation and research potential.

[2] The project "Better Education for a Better Future" is a 4-year ongoing international project aimed at increasing the quality of education in Georgia, Moldova, and Armenia. The project is initiated and supported by the Swiss government.
[3] The English Language Teaching Strategy has been developed with the support of the British Council.

The second important step of the government's new approach will be creating a tenure-track career system to ensure the stability of the activities of professors and researchers of higher educational institutions[4]. Following the best international experience, the recruitement, appraising and rewarding of professors and researchers of higher education institutions will be based on the assessment of their achievements, taking into account transparent and quality-oriented criteria[5]. Innovative approaches to learning/teaching and research and innovation will be encouraged, and academic and research staff will have the opportunity to develop pedagogical and research skills throughout their careers.

Legal and funding mechanisms will be reviewed and updated to provide new academic staff with opportunities for professional development through methodological and various training sessions. Merit-based systems will be encouraged, and academic staff will be freed up for scientific activities. Furthermore, to create post-doctoral and scientific-research positions, the system of emeritus professors will be introduced, which will be strengthened by the relevant pension schemes.

High-quality, modern, and diverse learning/teaching resources, including textbooks, supplementary materials, and digital resources, will be available to teachers at different levels of education. Taking into account the negative impact of the pandemic caused by COVID-19 on all levels of education, it is necessary to take urgent steps in this direction. To solve these problems, general education will focus on developing high-quality digital resources and platforms tailored to students' interests and abilities.

Educational and scientific infrastructure will be improved. Despite recent large-scale construction and rehabilitation, challenges remain concerning infrastructure and the physical environment at all levels of education and research, and innovation. Many children in preschool education are deprived of the appropriate physical environment necessary for development. In the case of general education institutions, schools that particularly need to solve problems related to the physical environment and infrastructure will be selected at the initial stage. Through cooperation with municipalities, civil society and communities will find effective ways to improve the quality of education delivery. Considering the current needs, one of the ways to solve the issues can be merging educational institutions of different levels in one space.

The Eastern Partnership School of the European Union will be established, the functioning of which is reflected in the "20 main goals for 2020" document developed by the European Union. The Eastern Partnership School will have no analogs in the region and is the first precedent outside the EU. The school will offer students from six partner countries (Azerbaijan, Belarus, Moldova, Georgia, Armenia, and Ukraine) a European, high-quality education based on a multicultural environment and fundamental values.

[4]The tenure system provides an initial position for budding professionals to access a scientific and academic career - in a research/educational institution, as well as consistent career progression schemes and quality assurance mechanisms.
[5]Per the position, the evaluation criteria should reflect the achievements in the direction of teaching, research, and innovation, the implementation of the "third mission" of the university in practice, and successes in management and administration.

In the first stage, upon the agreed selection of the European Commission and the Ministry of Education and Science of Georgia, the Eastern Partnership School of the European Union will work housed by a private school - "New School". The Eastern Partnership School will start functioning in full in September 2023.

In the field of higher education and research, by 2030, the annual financing of scientific-research infrastructure will also increase, which will help to solve such problems as outdated and unadapted physical infrastructure, lack of expensive equipment, and fragmentation of scientific-research resources and their unequal distribution.

At the vocational education level, work will continue to improve access to vocational education. In order to promote regional development, the presence of providers and the availability of diverse programs in large municipalities with high population and employment potential are significant. Considering the mentioned criteria, infrastructural projects will continue in new locations, complete or partial rehabilitation of existing buildings and construction of new workshops will continue as well. Centers of Excellence (CoE) and regional hubs will be established to serve as innovative ecosystems, connecting learning, training, and research activities. Such centers ensure the development of high-quality skills and competencies, the preparation and distribution of resources necessary for digital and innovative vocational education, to train the personnel to meet the needs of the regional/sectoral labor market, and the needs of an inclusive and sustainable economy.

Cooperation between educational institutions and key stakeholders, including parents, employers, and civil society representatives, will be strengthened. [6] In preschool and general education, strengthening parental involvement will be encouraged to ensure the versatile development of children and students and make them active members of society. The participation of the private sector in vocational education will increase by introducing diverse approaches to work-based learning and dual education. The government will take appropriate measures to support the structured implementation of the "third mission" in educational and scientific-research institutions, which means increasing the role of higher educational institutions, especially regional universities, in the social and economic development of society, meeting the needs of different regions and realizing opportunities.

One of the priority areas will be the promotion of lifelong competencies such as literacy, multilingualism, quantitative literacy, financial literacy, scientific and engineering skills, digital and technology-based competencies, interpersonal skills and active citizenship, entrepreneurship, intercultural sensitivity, and expression (European Commission, 2018). Promotion of development at each level of education.

The Ministry of Education will encourage innovation in educational programs through empirical and work-based learning. Moreover, through inter-sectoral cooperation and the development of student, graduate, and

[6] In the direction of the internationalization of higher education, in response to the needs of the labor market, the project of the new Georgian-French university provides education in the field of tourism, agriculture, informatics, and applied mathematics.

academic staff mobility schemes, innovative approaches to learning/teaching will be developed regardless of the form of teaching (face-to-face, digital format, or hybrid mode), using technologies and digital resources. Within the framework of the mentioned initiative, it will be possible to launch such portals, making high-quality learning resources, assessment tools, and other necessary materials available to all students and teachers.

In response to the demands of the modern labor market, the strategy envisages introducing and strengthening services related to key competencies at the vocational education level. A policy of comprehensive teaching of key competencies will be developed; digital competencies will be strengthened; Foreign language teaching will be strengthened, and the development of the ecosystem of green competencies in educational institutions will be promoted.

Following the emergence of new economic sectors, entrepreneurship education and promotion among young people will be strengthened. In Georgia, children and young people are interested in entrepreneurship, but there is a need to promote entrepreneurship education and methodical support in educational institutions (Meskhi and Abkhazava, 2021). In cooperation with donors and stakeholders, the government will promote the development of creative and entrepreneurial skills of educators, pupils, and students, from pre-school to tertiary level. This component will also be strengthened in adult education programs. Business linkages of academic and scientific staff will be supported, and intellectual property rights will be protected. The government of Georgia has defined as a strategic direction the promotion of the increase in the number of highly qualified and globally competitive specialists in the field of information technologies.

At the vocational education level, special attention will be paid to developing entrepreneurial skills. A new module focused on development of entrepreneurial skills will be introduced within the framework of all VET programs, and mechanisms for encouraging entrepreneurial ideas of students/graduates will be developed.

The government will promote the internationalization of all levels of education, as well as scientific research and innovation. While the implementation of the "Erasmus+" program has achieved positive results in higher education, during the period of the new strategy implementation, special attention will be paid to the use of "Erasmus+" opportunities for vocational education and strengthening the teaching of foreign languages at the vocational education, level capacity development of institutions to support the development of learning centers to encourage student's and teacher's exchange programs.

The government will encourage cooperation between Georgian and international higher education institutions to implement joint and dual/double-degree qualification programs, which in turn will eliminate barriers to the physical movement of students and staff. For all students and staff of the higher education institution to benefit from internationalization and ensure the inclusion of foreign students and researchers in the academic community, the "internationalization at home" approach will be introduced in the higher

education and scientific research system[7]. The mentioned approach implies the inclusion and employment of local and foreign personnel with an international perspective in the system; to establish contacts between local and international students and staff, to create and share common learning and research opportunities and resources; the use of international digital learning materials; development of language skills for students and staff[8]. The government will help the universities, especially the newly established Kutaisi International University, to cooperate with leading international universities and scientific research organizations.

In order to promote the internationalization of the vocaitonal education system, emphasis will be placed on the implementation of exchange and joint programs with foreign educational institutions, as well as the opportunities of the Erasmus+ program will be used for the vocational education level, as well as the implementation of various mechanisms of international mobility will be promoted.

The promotion of academic and scientific integrity will be a priority for both scientific research institutions and the Ministry of Education and Science, as academic ethics, transparency, and integrity are necessary conditions for maintaining high quality in education and research. Academic and scientific integrity will become an integral part of the learning/teaching process at all education levels and in the scientific-research field. Regarding the various risks of plagiarism and breaches of academic integrity, appropriate awareness-raising measures will be implemented for both the educational community and interested parties. In cooperation with the educational and scientific community, the government will develop a policy of academic integrity, the consistent implementation of which will start from the earliest level of education and continue at all subsequent levels of education, taking into account the specific needs of each level. Cooperation with schools, parents, employers, professional organizations, scientific research, and the general public will be encouraged in developing and implementing the said policy. This approach ensures academic integrity to fight corruption through shared responsibility of higher educational and scientific-research institutions and the general public.

The National Center for the Education Quality Enhancement (NCEQE) will pay even more attention to academic integrity policy issues, including helping to prevent the risks of possible violations (such as the risk of digital fraud), as well as the detection of academic fraud and the planning and implementation of institutional policies on academic integrity. The government will support the implementation of all necessary measures in data collection, analysis, and monitoring of academic and scientific honesty.

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[7] Since international mobility is only available to a small number of students, EU countries are developing an "internationalization at home" approach, which ensures that all students and staff of higher education institutions benefit from internationalization.

[8] National policies for the improvement of international and/or intercultural competencies in EU countries include the following: quality assurance systems that provide quality marks for international and intercultural competencies; national schemes that promote language learning prior to university enrollment; Institutional tools to assess competencies before and after mobility; providing opportunities for student organizations to play an active role; Ensuring a more diverse group of local and international students both inside and outside the auditorium: mobilizing rectors' conferences to introduce the "internationalization at home" approach to their educational institutions; Courses for staff of higher education institutions to ensure they are open to enrolled students.

Based on cooperation with stakeholders and consultations with donors regarding quality and relevance, the government has developed specific strategic goals that cover all levels of education, science, research, technology, and innovation systems. The logical framework presents a complete list of strategic goals and specific tasks concerning quality and conformance (Annex 1).

The following goals and objectives are envisaged under the first sectoral priority:

Goal 1.1: Ensuring high-quality, supportive, and development-oriented care and the educational process by all early childhood and preschool care and education institutions

Objective 1.1.1:Raising the qualifications of educators and ensuring continuous professional development in each early and preschool institutions

Objective 1.1.2:Improving the learning environment and quality of teaching in early and preschool educational institutions

Objective 1.1.3:Promoting the involvement of the child's parents/legal representatives and the community in the activities of early and preschool educational institutions

Goal 1.2: Providing an accessible learning process for each student in general educational institutions, focused on high attainable results and students' holistic development.

Objective 1.2.1: Raising the qualifications of teachers and principals and providing needs-based continuous professional development

Objective 1.2.2: Creating a favorable environment for learning and teaching in general educational institutions and providing them with diverse modern resources

Objective 1.2.3: The increasing involvement of parents/legal representatives in school life and the teaching-learning process

Goal 1.3: Development of an innovative and flexible vocational education system focused on the needs of society and economy

Objective 1.3.1: Equipping vocational education students/trainees with the necessary skills and competencies for continuous employment in the local and international labor market

Objective 1.3.2: Promotion of vocational education teachers continuous professional development

Goal 1.4: Personal development and preparation for the labor market of each student by the higher educational institution (HEI)

Objective 1.4.1: Provision of labor market-oriented programs by the higher educational institutions

Objective 1.4.2: Promotion of international learning and internationalization for students

Objective 1.4.3: Promotion of development of structured doctoral programs corresponding to international standards

Goal 1.5: Development of a knowledge-based society and an economy-oriented science, research, technology, and innovation system

Objective 1.5.1:Support of researchers in the implementation of research and innovative activities corresponding to international standards

Objective 1.5.2:Ensuring academic and research integrity in teaching and research

4.4.2 Sectoral priority II. Equality, inclusion, and diversity

Development of an equal, inclusive, and diverse education and science system: Regardless of their socio-economic status, place of residence, ethnicity/language, special educational needs, and disabilities, every person has access to high-quality educational services throughout the country. The development of a single and comprehensive policy on equality and inclusion will make consistent approaches to these issues at all levels of education, including lifelong learning programs. In collaboration with relevant stakeholders, evidence-based policy implementation focused on relevant target groups will be supported. Educational institutions will be able to compensate for the inequality caused by educational and socio-economic status.

Ensuring inclusion will become a responsibility of all educational institutions and scientific-research organizations. Promoting gender equality will become part of educational and scientific policy at the national and international levels. In order to increase access to vocational education, additional services will be offered to specific groups. In particular: under the new rule, mechanisms will be developed to promote the participation of persons with disabilities and persons with special educational needs in vocational education; services promoting the integration of ethnic minorities in vocational education will be developed, including a new model of teaching the state language; services to promote participation in vocational education of persons not in education/training and employment (NEET) will be developed; In order to promote gender equality, the issues of gender equality in the field of vocational education will be further studied and appropriate steps will be implemented.

Part of the long-term vision of the strategy is the holistic development of children and youth, improving their social and emotional competencies. Considering the negative impact of the COOVID-19 pandemic, essential steps are being undertaken to improve the school climate and safe environment. Safe and inclusive physical and digital learning environments will be ensured, and medical, psycho-social, and emotional support services will be made more accessible to children, including children with behavioral and emotional problems and their families and teachers. A school mediation program will be introduced in public schools. Schools will receive additional support in conflict prevention and management. The subject teachers will be trained in developing the necessary competencies to effectively work with students with special educational needs and disabilities, identifying the needs of students, and using response mechanisms. Existing

mechanisms for referring and rehabilitating students with behavioral and emotional problems, victims of violence, or alleged victims of violence will be improved.

Targeted support for different vulnerable groups will be strengthened at different levels of education, as a lack of targeted support obstructs the provision of equal opportunities. Special attention will be paid to young people living in the occupied territories of Georgia - Abkhazia and the Tskhinvali regions and to increasing access to quality education for them at all levels of education so that the students living on the so-called bordering line and in the occupied territories receive funding. The government will ensure consistent policy development and support to secondary and higher education institutions to provide differentiated teaching approaches for persons with special educational needs.

The government ensures that public policies provide adequate support for vulnerable children in the preschool education sector. According to the legislation of Georgia, it implies the obligation of municipalities to provide access to appropriate services for children with special educational needs. At the same time, a targeted policy will be implemented in mountainous regions densely populated with ethnic minorities.

Implementing bilingual education in general education schools will make effective programs supporting language learning available to students for whom Georgian is not their native language. The system will also launch a second education opportunity program for students who have dropped out of an educational institution or are at high risk of dropping out. In the school curricula, more attention will be paid to developing training programs/curricula taking into account the interests and abilities of specific students, including individual training programs supporting students with special needs and disabilities.

The government will also ensure that more schools offer after-school learning/programs to students who need them, as only 35% of students currently attend schools that provide such services (OECD, 2020). In addition, work will continue to introduce school food culture.

The government is ready to reduce all the personal, institutional, and program-related obstacles encountered by students in the field of vocational education upon entering the mentioned system, during their studies, or transitioning from studies to work. In order to ensure equal access, special attention will be paid to the inclusion of representatives of vulnerable groups, individuals with disabilities, and young people living in the region. Particular attention will be paid to diversifying vocational education and expanding the scope of the existing educational programs. In addition, the focus will be on using flexible, diverse, and inclusive methods in the learning/teaching process, making vocational education even more attractive.

At the higher education level, the government will encourage and monitor activities to increase the number of students admitted within the framework of various quotas. For students representing ethnic minorities, after the completion of the 1+4 preparatory program and to use the opportunities more effectively, it is essential to update the admission procedures and increase the number and availability of admission places determined by the quota. In addition, higher education institutions will be obliged to improve the program's quality further since only one-third of graduates currently complete the program.

As part of higher education funding reform, the government will also work to increase access to higher education by increasing the proportion of need-based targeted financial support. It is important, considering that about 20% of the total funding allocated for students is used for students of vulnerable groups.

To promote equality and inclusion in the education system, the government will invest in developing special teachers' competencies and other educational institutions' personnel. First, early and preschool education institutions will be provided with a sufficient number of educators-pedagogues and special teachers/psychologists/inclusive education specialists who can work individually with children with special educational needs and representatives of linguistic minorities.

Efforts will be directed to the training of special teachers and other specialists involved in inclusive education through the development of university training programs and training courses for practitioners based on relevant professional standards and sectoral characteristics, which will contribute to increasing the number of qualified human resources, as their number cannot meet the needs of the system. In addition, emphasis will be placed on supporting teachers to develop competencies that will help them implement differentiated, student-centered approaches to teaching and learning. The government also encourages vocational and higher education institutions to support creating an inclusive and diverse environment for teaching and research.

One of the main priorities for the government will be to increase access to the state language for non-dominant ethnic groups and ensure their full civic integration. Special attention will be paid to implementing the 2021-2030 State Language Strategy (unified program) to ensure the protection and strengthening of the Georgian language throughout the country, together with the Abkhazian language in Abkhazia, to support the native Georgian language and Georgian-language education. This program also includes the protection and development of the languages of the non-dominant ethnic groups of Georgia and the creation of supportive conditions for the full integration of ethnic minority groups into the state.

The government will invest in infrastructure, learning environments, and learning materials to support and meet the needs of all students, including those from vulnerable groups. To create a school environment focused on cooperation, care, and support, high-quality, stereotype-free, and accessible learning resources will be developed for all levels of education and non-formal education opportunities. The infrastructure and technical-material base of preschool education institutions will be improved; mobilization is necessary for purchasing and developing appropriate learning materials for children with limited opportunities and special educational needs, as well as representatives of non-dominant ethnic groups. In addition, in municipalities densely populated by representatives of non-dominant ethnic groups, bilingual teaching opportunities, and updated resources will eliminate the problem of limited methodological resources in ethnic minority languages.

The government will eliminate infrastructural and resource-related problems within the general education framework since resources are unevenly distributed in schools.

Works will continue in the construction and rehabilitation of vocational educational institutions. Even though state vocational educational institutions function in all regions of the country, this strategy envisages the establishment/development of vocational educational institutions in all municipalities.

In higher education, more efforts are being made to ensure access to inclusive and fully adapted learning environments and resources for persons with special educational needs and to create individualized curricula and differentiated learning opportunities.

The government is trying to eliminate gender biases in education, training, scientific research, and innovation, which contribute to deepening gender inequality in professional and higher education. In line with the commitments of the Action Coalition for Generational Equality, the government promotes inclusive science education to reduce gender, socio-economic, regional, and other inequalities. Part of the effort will be directed at pedagogies and programs that promote the integration of scientific thinking and research approaches in the arts, humanities, and other fields to increase interest in STEM-related professional opportunities and startups, especially among girls and women whose potential is still untapped in this direction.

Mechanisms for ensuring gender equality will be developed in order to strengthen the potential of the workforce in scientific research, innovation, and other sectors, to reflect gender issues in existing and new policies, and to improve gender statistics, analysis, and monitoring in the field of education, scientific research and innovation. Promoting the monitoring and analysis of human resources policy in the scientific-academic field regarding gender is vital. The next step forward would be to include a gender perspective in existing policies and programs that support gender balance among academic (including senior) staff, address gender gaps in various disciplines, take active measures at the institutional level to fully realize the potential of women in STEM and other fields and to optimize utilization and increasing employment opportunities for women in leading positions in the field of scientific research.

In order to promote gender equality, the related issues will be studied in the field of vocational education, and appropriate policies will be developed and implemented.

In addition, a gender mainstreaming platform will be created to strengthen gender mainstreaming in the education system, eliminate gender stereotypes, and raise the sensitivity of teachers and schoolchildren to issues of gender equality.

The government will also strengthen the links between science and the general public and make scientific research activities and careers more attractive, reducing the risk of a shortage of qualified scientists and increasing public trust in science. Cooperation between the university and the school will be strengthened from an early stage of education to increase interest in STEM and other fields and to ensure that the quality of STEM education is improved. In this direction, special attention will be paid to vulnerable groups, which usually have access to lower-quality education. In addition, the government will balance the idea of innovation as a technology-based and technology-driven enterprise with the promotion of a broader

concept that also includes social innovation and entrepreneurship. It will also promote participatory approaches to research and innovation to engage citizens from an early age and throughout life. Training courses for ICT specialists in the most demanded skills on the market will continue, including programs in the STEM direction. The percentage of beneficiary women will be at least 30%.

The government will promote the introduction and development of innovative models of distance and hybrid learning to ensure access to quality education in geographically isolated areas, families that do not have access to the Internet or digital technologies, and persons with special educational needs. Digital, hybrid and other flexible models of teaching and learning will be developed, and at the same time, individual teaching and targeted support for vulnerable, disabled, and disabled students will be strengthened. The government will also contribute to removing all possible barriers (including legislative ones) that limit the flexibility of education and hinder higher education for people living in regions, with special educational needs or for students who have to combine work and study. In general education institutions, particular emphasis will be placed on distance learning, allowing schools to offer students at the secondary level various courses focused on their interests and abilities.

A whole-of-government approach to ensuring equality, inclusion, and diversity will be developed through synergy and coordination between key policy and strategic areas, such as education and training, health and social welfare, families, and gender mainstreaming, regional and urban development, migration, employment, and others**.** Evidence-based policy development and implementation will support the development of a learner-centered education and training system that is responsive to the economic need so that each person can reach their full potential and receive high-quality education across the country regardless of sex, gender identity, socioeconomic status, place of residence, ethnicity or disability.

The government also ensures that policies are developed and implemented with the participation of vulnerable groups and their representatives and through multi-stakeholder dialogue between the government, educational institutions, key stakeholders, and donors. These measures will ensure evidence-based and vulnerable group-oriented policy development in collaboration with target groups, and respect for inclusion and diversity will be established as a shared responsibility and obligation of all educational institutions and scientific-research organizations.

The following goals and objectives are considered under the second sectoral priority:

Goal 2.1: Promoting the participation of disadvantaged children in early education and school readiness programs

Objective 2.1.1:Ensuring an inclusive, safe, and holistic development-oriented learning process in early childhood and preschool education institutions

Objective 2.1.2:Development of targeted early and preschool education support services for disadvantaged children and children with special educational needs

Goal 2.2: Creating equal opportunities for learning and development for every student at all levels of general education

Objective 2.2.1:Raising the qualifications of special teachers and support staff and developing inclusive teaching competencies

Objective 2.2.2:Creation of a learning environment appropriate to special educational needs students in general educational institutions and ensure access to quality learning resources for each student

Goal 2.3: Providing access to diverse, inclusive, and individual needs-oriented vocational education

Objective 2.3.1:Enhancing lifelong learning opportunities through a flexible network of innovative, diverse, and inclusive vocational education institutions

Goal 2.4: Ensuring equal access and success opportunity in quality and inclusive higher education

Objective 2.4.1:Development of targeted support services for disadvantaged students in higher education institutions

Objective 2.4.2: Creating a favorable learning environment for each student in higher educational institutions

Goal 2.5: Supporting public engagement in the creation of inclusive and diverse science, research, technology, and innovation

Objective 2.5.1:Enhancing interest in research, technology, science, and innovation from an early stage of education

Objective 2.5.2:Supporting women's involvement in science, research, technology, and innovation

4.4.3 Sectoral priority III. Governance, financing, and accountability

The third main sectoral priority of the education and science system is its management and accountability system development. It includes mobilization of state financial resources, effective and optimal use of limited resources, support for decentralization, and autonomy of management of educational or scientific research institutions with effective mechanisms of balanced accountability and control.

Autonomous, solid, and accountable educational institutions and scientific research organizations will become critical actors in collaborative learning communities and research and innovation ecosystems. The government will use all available governance, regulatory, and funding resources to help them meet the challenges themselves. Optimization and consolidation of educational and scientific-research institutions, with the help of development-oriented internal and external quality management tools, will contribute to

the institutional development of organizations and create better opportunities to meet the needs of individuals, the economy, and society.

The creation of effective management, financing, and accountability mechanisms is the primary goal of developing scientific research and innovation systems at all levels of the education system. In the preschool education system, this means creating a sustainable and effective preschool education system that ensures access to early childhood and preschool education services for all children, regardless of ability.

By 2030, the government will ensure the modernization and accessibility of preschool education facilities throughout the country, as well as support the empowerment of municipalities to develop preschool education services within their jurisdiction. A significant step towards quality improvement will be the initiation of the authorization process by the National Center for Education Quality Enhancement during the transition period. Implementation of regular data collection, monitoring and self-assessment system and assistance to institutions to successfully implement self-assessment in management practice will also be implemented. The government will also ensure that qualified teaching staff is equally represented throughout the system, and it will also ensure that the stated goals of financial decentralization are achieved so that municipalities can increase their revenues. As a result, it will be possible for municipalities to consider funding for teacher training and a gradual increase in their remuneration.

The establishment and development of joint scientific projects and cooperative structures will be encouraged. New organizational priorities will be promoted: cluster networks, collaborative, international research centers, or other structures.

Monitoring and evaluation practices will be developed at all levels of education. The government encourages educational institutions to establish a shared culture of quality management that will encourage the educational community to play an active role in improving students' physical and mental health. In order to support the holistic (physical, cognitive, and psycho-social) development of students and improve the learning process in general education, a centralized assessment system will be implemented. After completing the primary (grades I-VI) and basic level (VII-IX) of general education, at the national level, annual diagnostic assessments of students' academic achievements will be carried out, and school culture research practices will be introduced in schools. These evaluation mechanisms will help schools develop a needs-based vision for action. At the systemic level, it will be possible to assess students' progress toward key lifelong learning competencies and plan targeted interventions and preventive measures.

A graduate survey will be introduced at the state level to monitor their experience and well-being. With this, a national system of recording the employment of graduates will be created and introduced in the fields of higher education, which will contribute to the collection of complex and accurate data and improve the transparency of the vocational/higher education system and the quality of teaching and learning. This way, the relationship between educational, social security, and tax databases will also be established. The implementation of the mentioned initiative is urgent since there is no relevant data to measure the employment of graduates and the possession of skills and competencies acquired by them; therefore, students make uninformed choices regarding fields of study and careers.

Also, the research tools of vocational education graduates will be reviewed, and the capacities of vocational educational institutions will be strengthened in conducting graduate research.

In general education, the priority is to strengthen the system of effective use of resources, self-government, and accountability. In 2022-2030, a step forward in the field of general education will be the restructuring and optimization of the school system for more effective use of financial and human resources. With the support of educational resource centers, school governments will be encouraged to increase their autonomy and strengthen the capabilities of principals, teachers, and the board of trustees. A new concept will be formed to focus on developing the competencies of the school principal as a system leader.

Implementing full and proper monitoring and accountability system that provides developmental feedback to schools is essential. By the academic year 2026-2027, the authorization process of public schools will be completed, which, per the new standard, focuses on evaluating the quality of teaching and learning and students' academic achievements.

To promote student health, personal growth, and well-being, a holistic approach to school management will be introduced whereby all aspects of school culture can positively impact student outcomes, health, safety, and well-being. A school self-evaluation system will be developed, becoming a fundamental force for school development and improvement. Initiatives will be implemented that will not only encourage the use of the new methodology by teachers but also raise the level of awareness of teachers, students, and parents about the importance of implementing the changes.

In the context of the democratic management of the school and strengthening of the school community, special attention will be paid to the reinforcement of the principles of democratic education, which means that every student in any educational institution has the right to make independent decisions regarding learning and all other areas of daily life; in addition, to engage without limitation in the process of decision-making and implementation, in the management of schools, in the imposition of internal regulations, disciplinary or other restrictions (if any) for the full realization of their rights and interests (Resolution of the 13th International Democratic Education Conference (IDEC), Berlin, Germany, 2005)

Vocational education aims to develop an effective vocational education system through public-private partnerships, strengthening accountability, and mobilizing resources. To strengthen public-private partnerships and cooperation, work will continue through the Skills Agency, which brings together the public sector, employers' organizations, and more than forty industry organizations. Vocational education funding will be based on a diversified funding model, as the increase in the scale of vocational education requires more financial and human resources and more effective budget management. Since autonomy significantly is related to financial autonomy, the new law "On Vocational Education" envisages the inclusion of vocational educational institutions in economic activity. The budget will increase through active private sector involvement, performance-based financing mechanisms, social vouchers, and other instruments. Vocational educational institutions founded by the state or with its participation will also be able to develop

economic activities through the provision of products and services and use these revenues to develop the institution for educational purposes.

Accountability mechanisms, including quality assurance systems, will be strengthened. As a result, after six years, all vocational education institutions will function in full compliance with the new standard, which corresponds to the European Quality Assurance in Vocational Education and Training (EQAVET).

In order to ensure participatory management mechanisms in the vocational education policy process, the Skills Agency created by the cooperation of private and public sectors will contribute to the development of a flexible skills ecosystem, where the leading role in the creation of sectoral policies will be assigned to the private sector. The Agency will perform its functions through Sectoral Skills Organizations. To implement an innovative management model, the Agency will stimulate professional associations from various sectors to unite for better cooperation to achieve a common goal.

To improve the efficiency and effectiveness of the vocational education system, international partnerships, and cooperation with donor organizations, including coordination of their activities, will be strengthened. In addition, in order to enhance the quality of vocational education and sectoral skills, the strategy aims to promote the introduction of the best international practices in vocational education institutions, as a result of which public and private actors of the vocational education system will join and actively cooperate with leading international organizations in the given field.

An increase in vocational education programs (including integrated programs) and training-retraining programs will be ensured at the vocational education level. In order to ensure sectoral inclusiveness, cooperation with businesses will continue to increase the number of suppliers and actively involve private companies in the vocaitonal training/retraining system, along with vocational education institutions. In addition, non-formal education recognition service providers will continue to be supported to improve access.

Higher education reforms will focus on more effective use of resources and the development of balanced and effective accountability mechanisms. One of the main tools for implementing the reform is the change of the higher education financing model with a performance-based financing component, which will contribute to improving institutional and individual performance. By 2030, the higher education system will be restructured and optimized through improved quality assurance mechanisms and a balanced accountability system.

Some of these mechanisms may include stimulating the deepening of institutional cooperation (including digital cooperation), institutional specialization, restructuring of the higher education system, sector consolidation, and mergers in cooperation with stakeholders and for the further development of society and the economy in general.

As part of the comprehensive reform of higher education, the government will support voluntary mergers of institutions. In order to diversify higher education institutions and expand their activity profile, career-

oriented programs in the higher professional education sector (university of applied sciences) will be developed, aligning with the labor market's needs and innovative approaches to teaching and learning. This direction will become one of the main targets of the funding program and will receive a significant number (at least 20%) of those seeking higher education in the coming years.

At the end of the first stage of funding, in order to receive additional multi-year funding, internationally competitive universities that engage in intensive scientific and research activities and have great potential for high-quality research will be selected as part of an international expert evaluation.

In addition, HEIs will be encouraged to involve stakeholders in their governing bodies, which will help them better understand the rapidly changing needs of the labor market and society.

Convergence of higher education quality assurance standards to European standards will continue, as well as support to state universities to reorganize internal quality assurance systems and strengthen the capacity to optimize systems.

Considering the challenges and costs associated with the accreditation of educational programs, quality assurance systems based on the risk analysis method will be developed. European approaches to quality assurance of joint programs will also be introduced. With the implementation of cluster accreditation, higher education institutions, based on the national qualifications framework and classifier, will be able to jointly submit accreditation applications for several educational programs to the center, thus saving human and financial resources.

The government will also contribute to strengthening the autonomy and capacity of the higher education system by reforming the legislation governing the higher education system and eliminating possible barriers. It also includes reforming the enrollment system in higher education institutions, enabling HEIs to play a more active role in students' selection process. Strengthening management and leadership at the institutional level ensures overcoming organizational challenges arising from various reforms.

Finally, open data systems and data collection, sharing, and digitization development will support system-level governance and institutional management, also by updating the mechanisms that ensure the synchronization of information, strengthening the capabilities of data analysis and the use of evidence in the decision-making process.

In order to improve the governance of the scientific research and innovation system, the plan for developing scientific research and innovation systems at the national and regional levels envisages the development of a research funding model that will stimulate both institutions and their employees. Basic and competition-based funding will increase. Development, implementation, and implementation of long-term and results-oriented research programs will be encouraged and facilitated.

Mechanisms for the cooperation of academia with industry and the public sector will be created. A national sectoral mobility program for students and academic staff will also be developed to promote innovation in the business and industry sectors.

At the national, regional, and institutional levels, flexible and effective management mechanisms will be implemented to strengthen scientific research, innovation, and entrepreneurship. In addition, university research and knowledge (innovation) transfer offices staffed with qualified personnel and innovation ecosystem hubs operating at national or regional levels will facilitate structured support of scientific research, commercialization, and sharing of innovation.

In addition, raising investments, sharing infrastructural resources, and implementing evidence-based practices will strengthen and facilitate scientific research and innovation. Scientific research areas will be developed according to the cluster principle by Max Planck's model. At the same time, scientific research laboratories corresponding to international standards will be established.

A National Technology Transfer Office will be established, and technology transfer capabilities in leading scientific and research institutes will be strengthened.

A National Technology Transfer Office will be established, and similar capabilities will be strengthened in leading scientific research institutions. A national platform of open access to scientific-research information will be created, on which information about scientific-research personnel, infrastructure, achieved results, and projects will be placed.

The following Goals and objectives are envisaged under the third sectoral priority:

Goal 3.1: Strengthening the effectiveness and sustainability of the early and preschool education system

Objective 3.1.1:Ensuring access to updated early and preschool education and development

Goal 3.2: Improving the effectiveness and sustainability of the management of the general educational institution

Objective 3.2.1:Development of monitoring and evaluation system for general educational institutions

Goal 3.3: Enhancing the efficiency of the vocational education system

Objective 3.3.1:Sharing of responsibility for the development and implementation of vocational education policy between the public and private sectors

Goal 3.4: Support for sustainable development of higher educational institutions

Objective 3.4.1:Development of a financing system focused on the sustainability of higher education

Objective 3.4.2:Development of digital information management system for higher education

Goal 3.5: Improving the efficiency of research, science, technology, and innovation systems

Objective 3.5.1:Development of a long-term, result-oriented, and targeted funding system for science, research, innovation, and technology

5 IMPLEMENTATION OF THE STRATEGY

Under the leadership of the Ministry of Education and Science of Georgia, the Interagency Council for the Development of the 2022-2030 Education and Science Strategy and Action Plan, created by the Resolution N304 of the Government of Georgia on June 28, 2021, ensures the coordination of the implementation of the strategy and action plan and the implementation of all necessary measures within the framework of the rights and duties granted by the resolution. In particular: informing and engaging stakeholders in implementing the strategy and action plan, planning and conducting periodic meetings, discussing projects initiated by the Secretariat, thematic working groups, and other stakeholders, and, if necessary, presenting recommendations. The Council meeting shall be held at least once a year; however, in case of any need, the Secretariat shall ensure, at the initiative of the member agency of the Council, the gathering of a thematic working group and the provision of relevant information to the interested parties in order to ensure the planning and implementation of a specific activity.

The Ministry will coordinate the strategy implementation. In order to ensure the achievement of strategic goals, specific institutional and organizational development and strengthening of the sector are envisaged by the 2022-2024 action plan of this strategy (Appendix N2). The action plan defines the activities the Ministry of Education and Science plans to implement in the given years. Decisions regarding additional activities are made taking into account the need, Georgian legislation, and budget.

In addition, the Ministry has a key role as a catalyst to ensure overall coordination, monitoring, and evaluation of the strategy. In order to fulfill its role as a coordinator, monitor, and evaluator, the Ministry requires strengthening and capacity building. The new strategy is in line with the Resolution of the Government of Georgia N629; however, in order for the internal organization and work processes of the Ministry, as well as functional relations to be aligned with the subordinate LEPLs, appropriate policy documents for institutional development will be created, which will contribute to the increase of the Ministry's capacity and activity efficiency.

The parties involved in the process of developing strategy and action plans are:

- Parliament
- Central and local authorities
- Business sector and trade unions
- Academic community
- International and local donor organizations
- Non-governmental and civil society organizations

- Persons involved in teaching and learning processes
- Educational institutions
- Other interested parties of the field.

5.1 SOURCE OF FINANCING

The strategy and action plan will be implemented within the framework of the assigned responsible agencies provided by the state budget of Georgia according to the country's basic data and directions document (BDD), which is the basis of state budget financing. International and other donor organizations will also finance the action plan activities through the sources indicated in the budget document.

The involvement of international partners and donor organizations will also be ensured for the effective implementation of the strategy and action plan. The annual action plan determines the volume of financial resources needed to implement the strategy. The Government of Georgia will closely and actively cooperate with the international community to effectively mobilize resources for the activities specified in the action plan.

During the strategy implementation period, in the absence of total funding, it is planned to develop a format of cooperation with international donor organizations, the Ministry of Finance of Georgia, and the Parliament of Georgia for the successful implementation of the strategy and avoidance of delays in the implementation process.

5.2 RISKS

Several external and internal risks are associated with implementing strategic goals and objectives, which may impede progress and pose significant threats to specific aspects of strategy implementation. The successful, efficient, and effective strategy implementation depends on the timely detection and reduction of internal and external risks. Internal and external factors can affect the implementation of the plan and, therefore, the achievement of the objectives. Based on the analysis of the given factors to manage the risks, it will be possible to timely identify and initiate the alternative goals and objectives so that the overall vision and policy avoid the threat of stopping the implementation.

Based on the experience of the past years, one of the critical risks to the implementation of the Objectives envisaged by the strategy are global challenges, including the pandemic, international peace, and regional security, and their long-term impact on the education and science system.

The risks to the strategy implementation can be categorized in two main directions:

1 Risks related to the budget. In particular, in the case of the occurrence of the risks mentioned above or in the period after them, it is expected that the risk for the mobilization of finances and the maintenance of sustainable growth of financing might occur, which will negatively affect both the transition period and the subsequent stages of implementation.

2 Program-related risks: the risks to implementing program activities include the content of the planned activities and possible changes in the forms of their implementation directly. In particular, implementing individual programs may become impossible at the system level in the conditions of changes in priority directions or the conditions of rapid response needs in the targeted direction.

The redistribution of financial resources to meet new needs can create a significant risk to implementing measures that depend on state funds allocated for the strategy. In addition, since implementing some planned activities depends on external funding sources, such as international partners' assistance, the possible risks can also affect the volume of donor assistance.

In order to ensure the effective and timely implementation of the unified national strategy of education and science, the human resources of the state agencies responsible for implementing the action plan are significant. The outflow/reduction of resources from the public sector may pose a significant threat to the strategy implementation process.

Shifting priorities at the sectoral and national levels can also hinder progress and prevent achieving set goals and objectives.

In order to reduce the negative effect of possible risks on the education and science system, the government ensures the coordinated work of the target ministries and other stakeholders, the timely identification of challenges, and the implementation of interventions focused on reducing risks, which will allow the strengthening of inter-agency coordination and cooperation, which, in turn, represents the consolidation of efforts that is a necessary prerequisite for the strategy implementation. Lack of effective coordination or unclear allocation of tasks and responsibilities between multiple actors and uncoordinated action may hinder the process of effective strategy implementation.

Lack of accountability and monitoring may also be a significant obstacle to successfully achieving the goals and objectives of the strategy. Therefore, there is a need for detailed and unbiased monitoring and evaluation of the implementation process and the intermediate and final results achieved.

In addition, accountability and responsibility provide a solid foundation for sharing information and achieving successful outcomes. In addition to the risks mentioned earlier, several challenges may affect the implementation of the unified national strategy. Thus, it is necessary to provide adaptive planning and monitoring processes through which it is possible to correctly assess and consider the interaction and influence of external and internal factors and to adjust strategies and activities accordingly and effectively.

6 MONITORING AND EVALUATION

The monitoring system is an integral part of the strategy, which enables determining whether the strategic framework meets the requirements rendered in the vision and the common goal and whether the

implementation of the strategy and activities are oriented to the strategic goals and are in compliance with them. It defines whether the strategy and activities achieve the target indicators.

Monitoring and evaluation of the implementation of the unified strategy and action plan for education and science will follow the requirements established by the Government of Georgia's Policy Planning, Monitoring and Evaluation Guide. Regular monitoring and evidence-based evaluation will be conducted to assess the progress of achieving the goals and objectives defined in the unified national strategy and implementing the measures defined in the action plan. It will serve as the basis for effective management of information and accountability, resource allocation, policy development, and implementation processes.

The coordination of the collection of information related to the implementation of the strategy and action plan and the preparation of regular status and progress and monitoring reports is provided by the Department of International Relations and Strategic Development (Secretariat) of the Ministry of Education and Science of Georgia based on the information provided by the implementing/responsible agencies/departments. The report prepared by the Department of International Relations and Strategic Development of the Ministry of Education and Science will provide detailed information on the progress. The implementation status of all the activities defined in the action plan will be assessed according to the principles provided in the policy planning, monitoring, and evaluation manual.

The Department of International Relations and Strategic Development of the Ministry of Education and Science will prepare an annual monitoring report, which will include monitoring findings on activity and outcome indicators.

Every four years after the implementation of the strategy, the Department of International Relations and Strategic Development of the Ministry of Education and Science will prepare an interim evaluation report, the results of which will be integrated into the following action plan and, if necessary, in the strategy document.

In addition, the inter-agency council for the development of the 2022-2030 Georgian education and science strategy and the action plan created by the resolution N304 of the Government of Georgia on June 28, 2021, ensures the information and involvement of stakeholders in the process of implementing the strategy and action plan, initiated by the secretariat, thematic working groups and other stakeholders, reviewing projects and, if necessary, presenting recommendations to the Government of Georgia. The board meetings are held at least once a year, and the board is authorized in the following:

a) To request and receive the information necessary for its activities from the administrative bodies in the manner established by the legislation

b) To develop/prepare proposals and recommendations to update and amend the 2022-2030 strategy and action plan of education and science of Georgia

c) To invite representatives of state agencies and representatives of non-entrepreneurial (non-commercial) legal entities, non-governmental and international organizations, and specialists in the field

to participate in the sessions without the right to deliberative vote following the need of the Council's activity.

Also, for greater transparency of the monitoring process and further involvement of interested parties, the working versions of the monitoring and evaluation reports will be posted on the Ministry of Education and Science website. In monitoring and evaluation, physical meetings and virtual means will be used as tools of stakeholder engagement. The Secretariat provides working versions of the annual monitoring reports for comments to the technical working group members created within the inter-agency council framework, the results of which and the comments of interested parties are additionally discussed at a joint meeting.

In addition, the scope of the intermediate and final evaluation, criteria, questions, research design, and methodology will be agreed upon with the members of the same platform. In the case of appropriate technical feasibility, priority will be given to the type of blended evaluation, in which, besides the coordinating body and external independent consultants, stakeholders will be involved. In addition, the working versions of monitoring and evaluation reports, as well as information about the issues to be evaluated and the evaluation outline, will be published publicly for all stakeholders. A 2-week deadline will be given to submit comments electronically.

Monitoring and Evaluation Activities Calendar

Type of document	Publishing period	Publishing place
Progress Report	Report on the status of each activity every 6 months after the strategy and action plan approval	Ministry of Education and Science web page
Annual Report	By February of each succeeding year except the last year	Ministry of Education and Science web page
First Interim Evaluation Report	June 2026	Ministry of Education and Science web page
Second Interim Evaluation Report	June 2029	Ministry of Education and Science web page
Final Evaluation Report	June 2031	Ministry of Education and Science web page

7 ATTACHMENTS

Attachment 1: 2022-2030 Strategy Logical frame for Education and Science
Attachment 2: 2022-2024 Action Plan for Education and Science
Attachment 3: Summary Report of Public Consultations
Attachment 4: Passport of Indicators
Attachment 5: List of used literature