

Analysis Of Factors Influencing Inclusive Education as A Key Lever for Reaching Children with Special Educational Needs in The Republic of Kazakhstan

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Citation: Marzhan Turlubekova, et al (2024), Analysis of Factors Influencing Inclusive Education as A Key Lever For Reaching Children With Special Educational Needs In The Republic Of Kazakhstan, *Educational Administration: Theory and Practice*, 30(6), 3731-3743
Doi: 10.53555/kuey.v30i6.6270

RTICLE INFO

ABSTRACT

Purpose of the Study. Currently, inclusive education is an innovative process based on an ideology that counters discrimination and ensures equal treatment of all people, including children with special educational needs. It provides special conditions and approaches for teaching these children, which are recognized by the entire world community. However, to ensure equal opportunities and accessible education for children with disabilities and children with special educational needs, it is necessary to fully fund special (correctional) educational institutions, resource centers to support the practice of inclusion, as well as programs for further socialization for these children. The purpose of this study is to analyze approaches and ways of financing inclusive education for children with disabilities and children with disabilities by identifying factors influencing the number of children with disabilities, where one of the factors is the environment, as well as the further development of inclusion in the Republic of Kazakhstan.

The results of the study were:

1) The author hypothesized that there is a connection between the indicator “The number of registered disabled children under 18 years of age” and factors such as emissions of pollutants into the atmosphere from stationary sources and the generation of hazardous waste by enterprises. To prove or refute this hypothesis, the author conducted a correlation-regression analysis, because of which it was concluded that an increase in the growth rate of emissions of pollutants into the atmosphere emanating from stationary sources, as well as an increase in the growth rate of hazardous waste formation, contributes to an increase in the growth rate number of registered disabled children.

2) As a result of the analysis based on statistical data of the Republic of Kazakhstan, the author found that every year we see an annual increase in children who are not covered by the right to the development of inclusive education. This circumstance is facilitated by certain factors, including:

- lack of awareness about programs for the development of inclusive education in rural areas and villages.
- lack of interest of parents in the development and education of disabled children.
- Insufficient subsistence level of quality of life for parents of disabled children.
- insufficient state funding for disabled children and children with disabilities.

Conclusions. Based on the analysis carried out by the author of the article, it was concluded that at the present stage, inclusion is a leading trend in the development of the education system. The quality of development of children's coverage with inclusive education in Kazakhstan raises many questions among researchers, including the ineffectiveness of the use of innovative forms of teaching in inclusive education, insufficient knowledge of international experience in the field of approaches to inclusive education and its financing, as well as the impact of the

environment on the annual increase in children with disabilities. OOP. Therefore, these circumstances determine interest in the analysis of the theory, methodology, forms of organization and system of public administration of inclusive education in Kazakhstan and its further development. The author found that every year there is an increase in the amount of funding for children with disabilities, which is associated both with the increase in the number of disabled children from year to year, and with a small increase in monthly benefits, which, of course, is not enough for the full development and training of such children. Therefore, a well-thought-out public policy is needed regarding state regulation of inclusive education.

Keywords: inclusive education, education system, inclusion, management, preschool education, regulation, management system, innovative education, financing.

Introduction

Analyzing the factors influencing inclusive education is an important task for understanding and improving the educational system. Some of the key factors that influence inclusive education are:

1 Political support. Political will and support from government and educational authorities are essential. The development and implementation of policies and legislation aimed at creating an inclusive educational environment are critical success factors.

2 Financing. Insufficient funding can create barriers to the development of inclusive education. Ensuring adequate funding for accessible infrastructure, teacher training, personalized education programs and support for students with special educational needs is essential.

3 Educational policy and practice. The adoption of an inclusive education policy and its subsequent implementation in practice determine the effectiveness of the inclusive educational system. This includes developing flexible and adaptive teaching methods, supporting teachers and their professional development, and addressing the needs of each student.

4 Professional development of teachers. Teacher competence and training are fundamental factors for the success of inclusive education. Providing access to high-quality professional development programs, specialized support, and resources helps teachers work effectively with diverse students.

5 Parental and community involvement. Involving parents, families and the community in inclusive education helps create a supportive and inclusive environment. Parental support, trust, information sharing and collaboration with public organizations and the community.

6 Environmental impacts. Analysis of the impact of the environment on the inclusion of children with special educational needs (SEN) includes an assessment of how the environment and environmental factors may facilitate or create barriers to the successful integration of these children into the educational environment. Here are some aspects to consider in this analysis:

- Physical accessibility - the environment should be accessible to all children, including those with physical disabilities. The presence of suitable infrastructural conditions, such as adapted buildings, accessible ramps, elevators, wide doorways, etc., allows children with special needs to move freely around educational institutions.

- Healthy and safe educational and living environment - the quality of the environment plays an important role in ensuring the comfort and safety of children with special education needs. This includes clean air, safe drinking water, proper waste disposal, and physical safety on learning sites and school buildings.

- Availability of educational resources - environmental factors may influence the availability and access to educational resources for children with special education needs. This includes the availability of special educational materials, technologies and equipment, as well as providing access to information technology and the Internet.

- Natural environment and environmental education - a variety of natural environments, such as parks, gardens, ecological reserves, etc., can provide unique opportunities for inclusive education. Developing environmental education programs that include children with SEN and promote their participation in nature-related activities promotes their integration and positive interaction with the environment.

The provision of special services to children with disabilities has undergone rapid change. Better costing models for inclusive education are needed and should be based on a clearer overview of actual needs based on more reliable, disaggregated data that considers the impact of the pandemic [1]. The transition from expert and service models of serving children with special educational needs to rights-based models describe the transformation of the education system. Throughout the Central and Eastern European region, inclusive education has become a policy goal. Europeanisation, the influence of United Nations agencies and the shift away from Soviet models of education have led to new policy aspirations for the inclusion of children with special educational needs (SEN). At the same time, policies in many countries often lack the infrastructure or internal mechanisms necessary for successful implementation (such as funding, professional capacity and public will) [2]. In this article, the author examines policy change through the lens of education funding as it

relates to inclusive education. Education funding has become an important issue for both academics and international organizations, as budget choices inevitably impact on inclusive practices and lives.[3]

Review of Literature

Every child deserves to learn in an environment tailored to their specific needs. Inclusive education offers a wide range of benefits, from social and emotional to academic achievement.

There are numerous studies that have shown that inclusive education has benefits in terms of students' cognitive, social and emotional development, arguing that inclusive education provides more opportunities for the development of social, emotional and behavioral skills not only in children who need additional support, but also in children with typical development (Magyar et al., 2020) [4], (Molina Roldán et al., 2021) [5], van Kessel et al., 2021) [6]. Some studies show that students who have not experienced problems have positive attitudes, positive beliefs and a willingness to accept students with disabilities, along with a positive attitude towards learning together with them, which is a very important factor for successful inclusion (Radisavljevic-Janic et al., 2018) [7], (Alnahdi and Schwab, 2021) [8].

Changes in educational policy bring many positive results, avoiding discrimination against children with special needs [9], creating equal opportunities in education, having some academic success [10], improving communication and social interaction. However, in reality, these benefits may be reduced due to various barriers in the educational environment, for example, the reluctance of some teachers, peers, parents or management to include these children in the educational process [11].

The experience of students with various types of special educational needs (SEN) within IE has been studied and repeatedly described in the literature by foreign scientists [12; 13],

Greenberg, A. D., & Nielsen, A. H. (2015) and Mitchell, D. (2009) note that education systems can become places where collaboration, creativity, problem solving, communication and critical thinking occur among diverse populations if they are truly inclusive [14; 15]. These ultimate goals are qualitatively different from those that underlie the child placement debate, but are key to the evolution of inclusion because, as Nikolić, G., & Popović, Z. (2013) and Peters, S. (2003) point out, a child can be present in a regular school without actually being included in it [16; 17]. For many European countries, according to Cor J. W. Meijer, Amanda Watkins (2019), changing systems for financing inclusive education can still be seen as a key lever for achieving the goal of wider inclusion of students with special educational needs [18].

The rapid pace of demographic change in the European education system has placed acute pressure on the resource allocation processes supporting the provision of funding for children with special educational needs in recent decades. Resources are allocated based on the school's profile, eliminating the need for disability diagnosis Tsediso Michael Makoelle Valeriya Burmistrova (2020) [19]. Research has consistently emphasized the role of school context and composition in shaping identification of different types of funding for children with special educational needs. Therefore, according to Michael Shevlin, Joanne Banks (2021), any transition to an inclusive system, in order to be successful, will require a fundamental and complete revision of existing policies [20].

Giangrego, M., Doyle, M. B. argue that in accordance with the strategic goals of the international educational process, the implementation of inclusive education involves a set of fundamental changes and modifications aimed at promoting anti-discrimination policies, creating an inclusive society and improving the quality of education for all children in accordance with broad range of their educational needs [21, p.63]. Timo S., as well as Biktagirova G. F., Khitryuk V. V. put forward their hypotheses about the need to rely on special (correctional) educational institutions as resource centers for supporting the practice of inclusion [22, p.560; 23, p.185]. S. Cobello criticizes the actions of government officials who declare the need for socialization of people with disabilities, but in reality reduce funding for socialization programs [24, pp. 153-165]. With the development of inclusive education (Dyssegaard, C.B., Larsen M.S.), there is a gradual convergence of special and general education systems, united by a common idea in achieving success and sharing responsibility for its results [25, p.55].

The quality of the development of inclusive education raises many questions among researchers, including the ineffectiveness of using innovative forms of teaching in inclusive education, insufficient knowledge of international experience, and the influence of the environment.

Ecology can have both direct and indirect influence on children with special educational needs. our needs (OOP). Here are some ways that environmental factors can influence children with SEN:

1 Health and well-being. Poor environmental quality, such as air, water or soil pollution, can negatively affect the health of children, including those with SEN. They may be more vulnerable to exposure to pollutants and have increased sensitivity to adverse environmental conditions.

2 Availability and affordability. Some natural and public places may be inaccessible or insufficiently adapted for children with special needs. For example, a lack of accessible ramps, elevators, or accessible facilities may make it difficult for children with physical disabilities to get around and participate in activities.

3 Social integrations. Environmental factors may influence the possibilities of social integration of children with special needs. Inaccessibility or lack of adapted environments for play and interaction in the natural environment may limit the ability of children with SEN to participate in activities and interact with other children.

4 Environmental educations. Developing environmental education programs that include children with SEN can promote their active participation and education. Such programs can help children with SEN develop environmental awareness, participation in environmental projects and positive attitudes towards the environment.

5 Ecological support and adaptation. It is important to provide suitable environmental support and adaptation for children with special needs. This may include adapted training materials, equipment and technology. All these problems together require solutions and combined efforts of all interested parties and an integrated approach for its successful implementation in the country [26, p. 163].

Research Methodology

The research methodology includes a systematic approach to the analysis of factors influencing inclusive education in order to ensure coverage of children with special education needs in the Republic of Kazakhstan. The main goal of the methodology is to identify and evaluate key factors that promote or hinder the successful integration of inclusive education.

This study is of a combined nature, including both quantitative and qualitative methods of analysis. The use of quantitative and qualitative methods allows us to gain a comprehensive understanding of the current situation and identify key factors that promote or hinder the successful integration of inclusive education. The results obtained will help develop recommendations to improve the coverage and quality of inclusive education in the country.

Research Questions. At the present stage, inclusion is a leading trend in the development of the education system. The quality of development of children's coverage with inclusive education in Kazakhstan raises many questions among researchers, including the ineffectiveness of the use of innovative forms of teaching in inclusive education, insufficient knowledge of international experience in the field of approaches to inclusive education, its financing and the impact of the environment on children with special education needs.

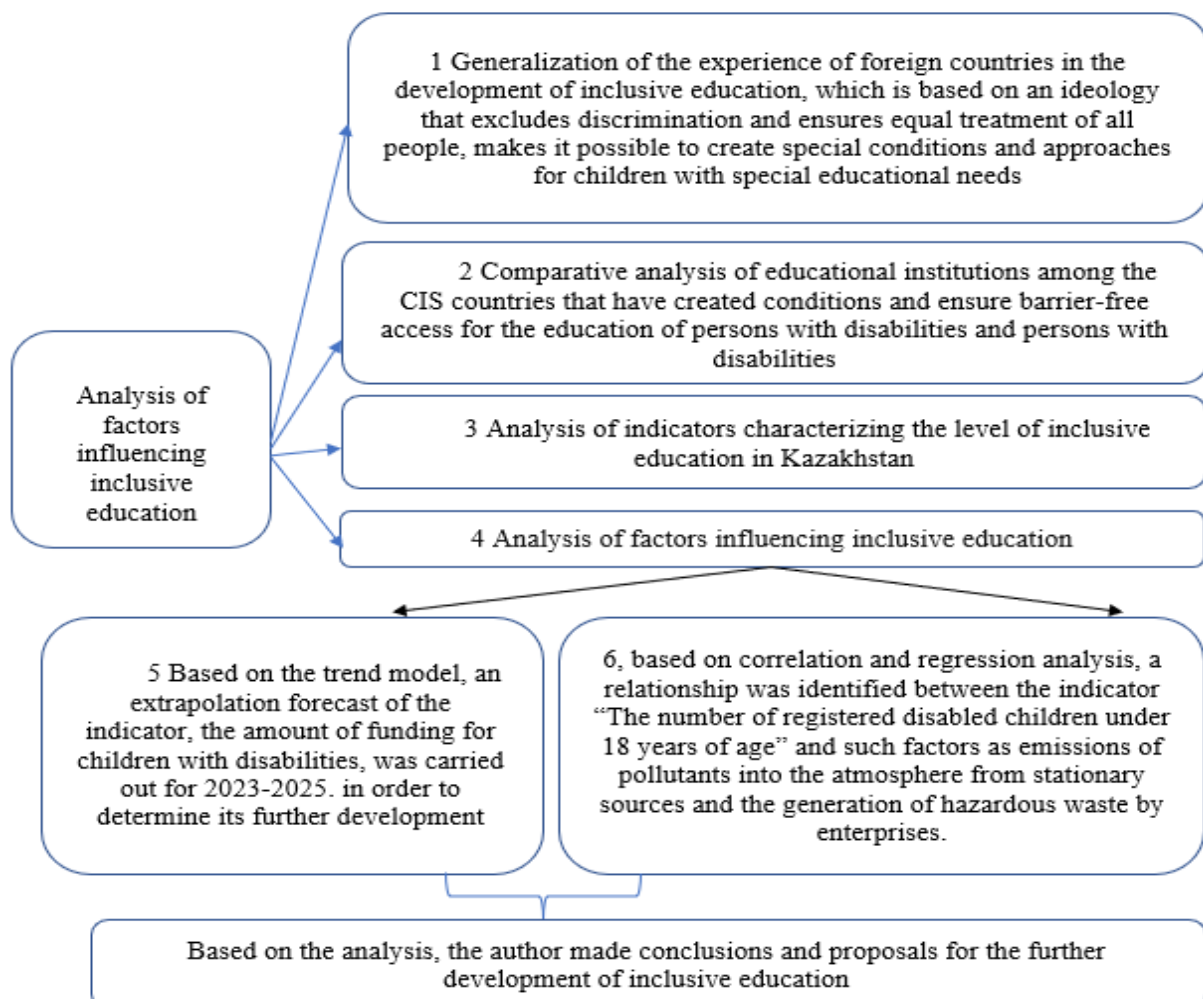


Figure 1 – Research Questions

Scientific novelty. An increase in the growth rate of the number of registered children with disabilities and children with disabilities is facilitated by an increase in the growth rate of emissions of pollutants into the atmosphere from stationary sources, as well as an increase in the growth rate of hazardous waste generation. All this indicates that every year there is an increase in the amount of funding for children with disabilities, which is associated both with the increase in the number of disabled children from year to year, and with a small increase in monthly benefits, which, of course, is not enough for the full development and education of such children. Therefore, a well-thought-out public policy is needed regarding state regulation of inclusive education.

Main part

The adoption of the UN Convention on the Rights of Persons with Disabilities approved the principles on which state policy towards people with disabilities should be based [27]. In some countries of the Commonwealth, the “accessible environment” program has been adopted and is being successfully implemented, the goal of which is to create conditions for a full life and integration into society for people with disabilities and other groups with limited mobility. But, as cross-country analysis shows, conditions for inclusive education have not been created everywhere.

In accordance with Article 24 of the Convention, paragraph 1, “States Parties recognize the right of persons with disabilities to education. In order to realize this right without discrimination and on the basis of equality of opportunity, participating States shall ensure inclusive education at all levels and lifelong learning...” At the same time, when speaking about access to education, we also mean access to general higher education, vocational training, adult education and lifelong learning without discrimination and on an equal basis with others. This cannot be said in reality, since data indicate that there are certain problems in providing inclusive education to children with disabilities and children with disabilities (Figure 2) [28].

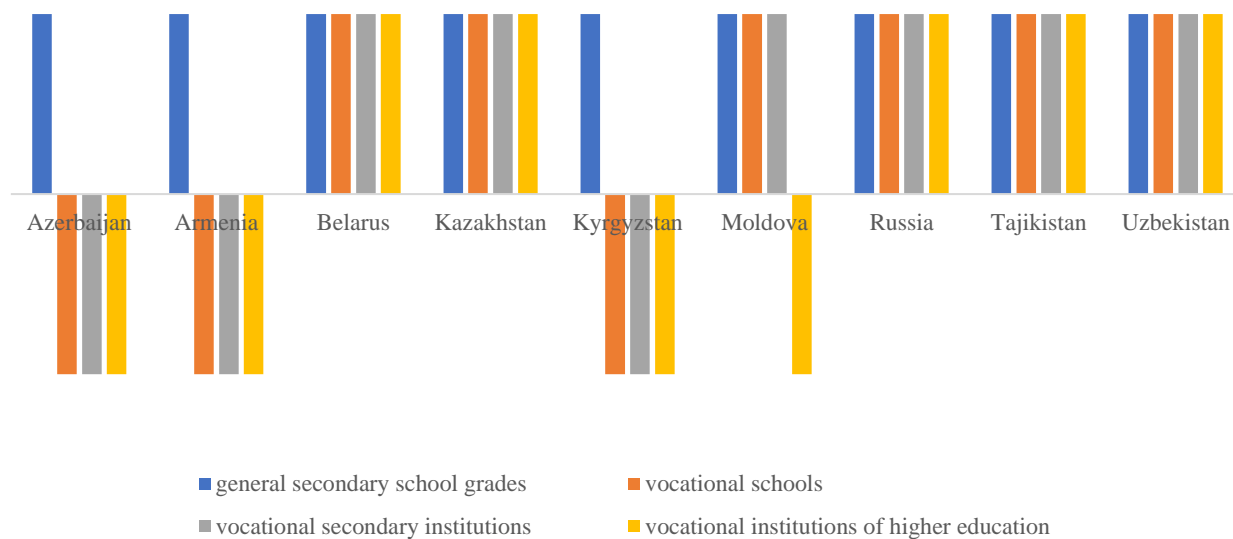


Figure 2 - Educational institutions that have created conditions and provided barrier-free access for the education of persons with disabilities and persons with disabilities

Source – Compiled by the author based on the source: [28]

According to statistical data, the number of registered disabled people in the Republic of Kazakhstan and children enrolled in inclusive education indicates that a fairly large number of parents of disabled children do not consider it necessary to develop, much less provide, education to their child (Figure 3) [29].

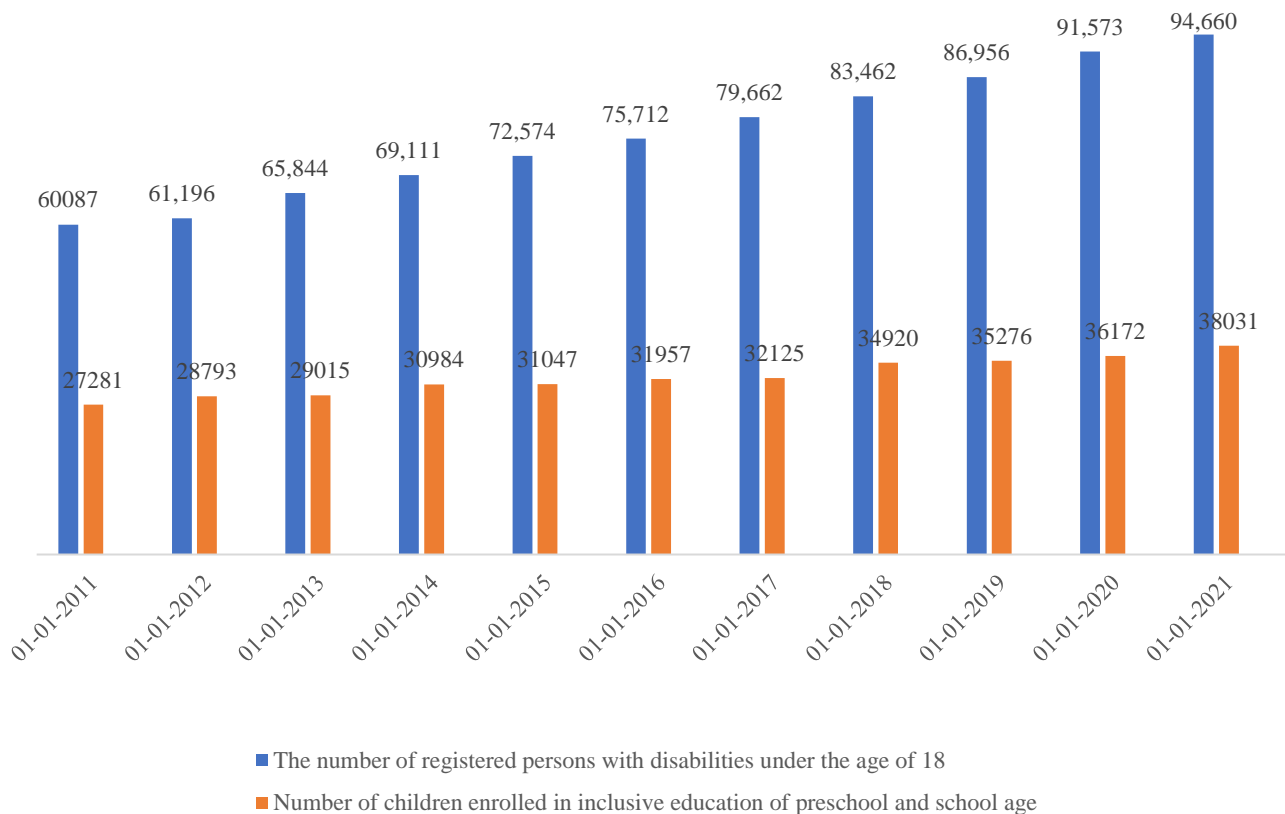


Figure 3 – Indicators characterizing the level of inclusive education in Kazakhstan, people
Source – Compiled by the author based on the source: [29]

If we consider from a regional perspective, the number of registered disabled children under 18 years of age has a certain growth trend, especially in such regions as Almaty region, Turkestan region, East Kazakhstan region, Almaty, Astana [29]. Even though there are regions where there are the largest number of children with disabilities, in general the situation with the development of inclusive education has a negative trend. According to the data presented in Table 1, we are observing an annual increase in children who are not covered by the right to the development of inclusive education. This circumstance is facilitated by certain factors, including:

- lack of awareness about programs for the development of inclusive education in rural areas and villages.
- lack of interest of parents in the development and education of disabled children.
- insufficient subsistence level of quality of life for parents of disabled children.
- insufficient state funding for disabled children and children with disabilities (Table 1, 2, 3) [29].

Table 1 – Indicators of state funding for children with disabilities

Year	The Republic of Kazakhstan		Almaty region		East Kazakhstan region		Karaganda		Turkestan		Nursultan	
	Number of children with disabilities	Wed. social size allowances for investments, tenge	Number of children with disabilities	Wed. social size allowances for investments, tenge	Number of children with disabilities	Wed. social size investment benefits, tenge	Number of children with disabilities	Wed. social size investment benefits, tenge	Number of children with disabilities	Wed. social size investment benefits, tenge	Number of children with disabilities	Wed. social size investment benefits, tenge
01.01.11	149043	14863	7597	15009	12309	15139	12547	14973	41525	14559	5 126	15007
01.01.12	151216	16172	8732	16321	12420	16448	13589	16263	40130	15860	5 737	16318
01.01.13	148652	17310	9767	17476	12322	17642	13484	17411	35819	16956	6 228	17420
01.01.14	138513	18543	9222	18630	11369	18916	11120	18607	33445	18224	7 125	18689
01.01.15	141952	20753	10061	20799	12651	21157	11035	20822	32415	20443	7 927	20909
01.01.16	141821	22192	9966	22241	13914	22629	10808	22236	30023	21893	8 504	22326
01.01.17	144783	29684	10527	29700	15208	30223	8904	29677	28362	29333	9 297	29836
01.01.18	147396	31695	11085	31682	14901	32276	8987	31630	28661	31337	7 874	31891
01.01.19	153230	39897	11914	39837	14998	41613	11183	39523	20051	39142	7 557	40023
01.01.20	161156	41801	13255	41723	15733	43621	11672	41351	19149	41057	9 065	41957
01.01.21	161826	46011	14579	46036	15528	48080	12879	45428	19475	45150	11 453	46242

Source – Compiled by the author based on the source: [19]

Table 2 - Budget funds allocated for social benefits for children with disabilities

Year	Republic of Kazakhstan billion Tenge	Almaty region, mln. the same	East Kazakhstan region, million tenge	Karaganda, mln. the same	Turkestan, million tenge	Nur-Sultan city, million the same
01.01.11	2,21	114,0	186,3	187,8	604,5	76,9
01.01.12	2,44	142,5	204,2	220,9	636,4	93,6
01.01.13	2,57	170,6	217,3	234,7	607,3	108,4
01.01.14	2,56	171,8	215,0	206,9	609,5	133,1
01.01.15	2,94	209,2	267,6	229,7	662,6	165,7
01.01.16	3,14	221,6	314,8	240,3	657,2	189,8
01.01.17	4,29	312,6	459,6	264,2	831,9	277,3
01.01.18	4,67	351,1	480,9	284,2	898,1	251,1
01.01.19	6,11	474,6	624,1	441,9	784,8	302,4
01.01.20	6,73	553,0	686,2	482,6	786,2	380,3
01.01.21	7,44	671,1	746,5	585,0	879,2	529,6

Source – Compiled by the author based on the source: [19]

Table 3 - Amount of funding for children with disabilities with a forecast for 2023-2025

Year	Republic of Kazakhstan billion Tenge	Almaty region, mln. the same	East Kazakhstan region, million tenge	Karaganda, mln. the same	Turkestan, million tenge	Nur-Sultan city, million the same
01.01.11	4,42	228,0	372,6	375,6	1209	153,8
01.01.12	4,88	285	408,4	441,8	1272,8	187,2
01.01.13	5,14	341,2	434,6	469,4	1214,6	216,8
01.01.14	5,12	343,6	430,0	413,8	1219	266,2
01.01.15	5,88	418,4	535,2	459,4	1325,2	331,4
01.01.16	6,28	443,2	629,6	480,6	1314,4	379,6
01.01.17	8,58	625,2	919,2	528,4	1663,8	554,6
01.01.18	9,34	702,2	961,8	568,4	1796,2	502,2
01.01.19	12,22	949,2	1248,2	883,8	1569,6	604,8
01.01.20	13,46	1106	1372,4	965,2	1572,4	760,6
01.01.21	14,88	1342,2	1493	1170	1758,4	1059,2
01.01.22	15,3954	1308,056	1568,7	1150,466	1754,053	967,3443
Forecast values						
2023	15,3954	1308,056	1568,7	1150,466	1754,053	967,3443
2024	17,7901	1540,156	1808,6	1357,326	1821,659	1131,889
2025	20,4236	1795,56	2070,1	1589,09	1890,808	1312,005

Source – Compiled by the author based on the source: [19]

Analyzing tables 1-3, in different regions of the Republic of Kazakhstan there is a certain amount of benefits for disabled children (“+”/“-”), due to the fact that in some areas industry is most developed, which has an adverse impact on the environment and public health.

Accordingly, in these areas there is an increase in congenital diseases leading to disability and limited opportunities. Among the possible causes and risk factors affecting congenital and acquired disabilities in children, a special place should be given to environmental pollution. Every year, a huge number of pollutants are released into the atmosphere, including from stationary sources, and hazardous waste is generated. The influence of ecology has great attention on the development of children, and since the environmental situation in the regions of Kazakhstan is deteriorating, the number of children with varying degrees of disabilities increases every year (Table 4).

Table 4 – Features of the distribution of children with disabilities, (persons)

Index	Total	Including		Из них по возрасту, лет			
		Boys	Girls	up to 7 years	7-13 years	14-15 years	16-17 years
Total number of children interviewed	9149	5141	4088	2174	4937	1299	739
of the total number of children surveyed have the following disorders:							
musculoskeletal system	3072	1708	1364	889	1588	395	200
sight	1222	682	540	286	657	184	95
hearing	903	512	391	190	503	134	76
speech	1889	1104	785	534	980	237	138
intellectual development	2214	1328	886	545	1174	319	192
mental state	2109	1240	869	424	1174	319	192
somatic (functional disorders of internal organs)	2506	1363	1143	582	1353	360	211

Source– compiled on the basis of the source: The number of disabled children and the number of children enrolled in inclusive education [Electronic resource]. // Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan URL: <https://bala.stat.gov.kz/>

The existing practice of socialization of children with special educational needs is currently underdeveloped in Kazakhstan. This weakens the child’s social position and exacerbates his unequal social status. Despite numerous government measures aimed at resolving this situation, the problem of unequal access to education

in Kazakhstan exists and requires targeted action. This is evidenced by data characterizing the number of disabled children from 0 to 17 years old, including the number of children enrolled in inclusive education. The environment also influences such types of deviations as:

- mild and moderate mental retardation (Figure 4);
- severe and profound mental retardation (Figure 5);
- children with RDA and ASD (Figure 6).

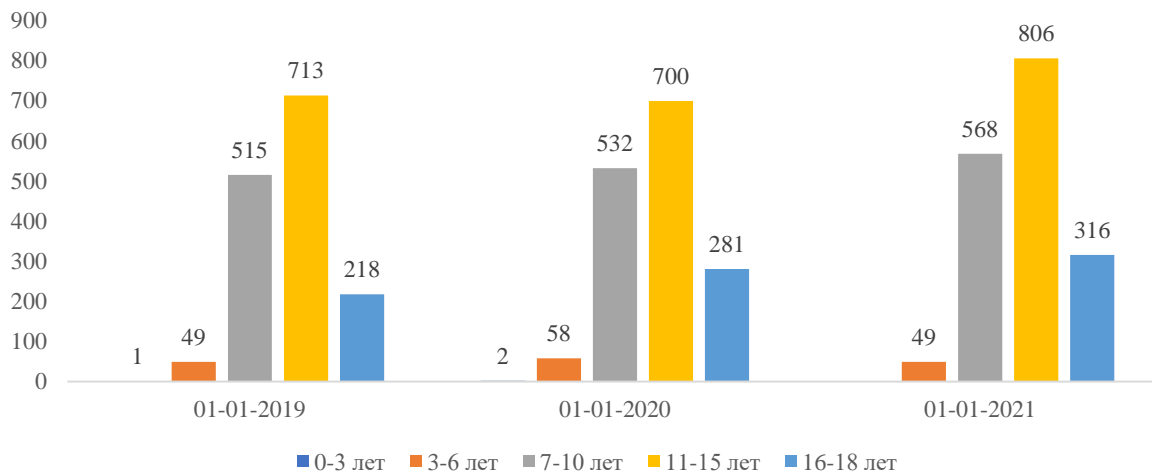


Figure 4 – Children with mild and moderate mental retardation

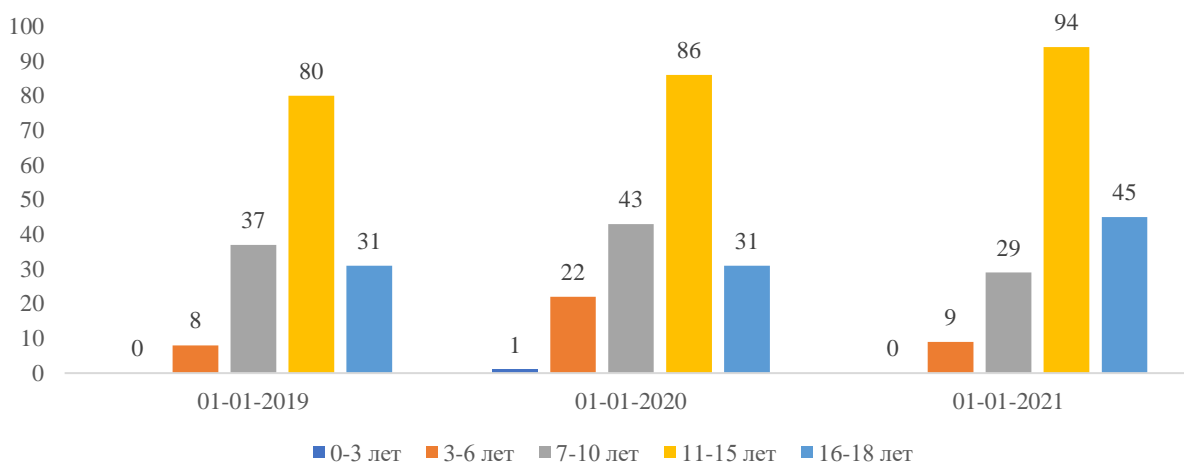


Figure 5 – Children with severe and profound mental retardation

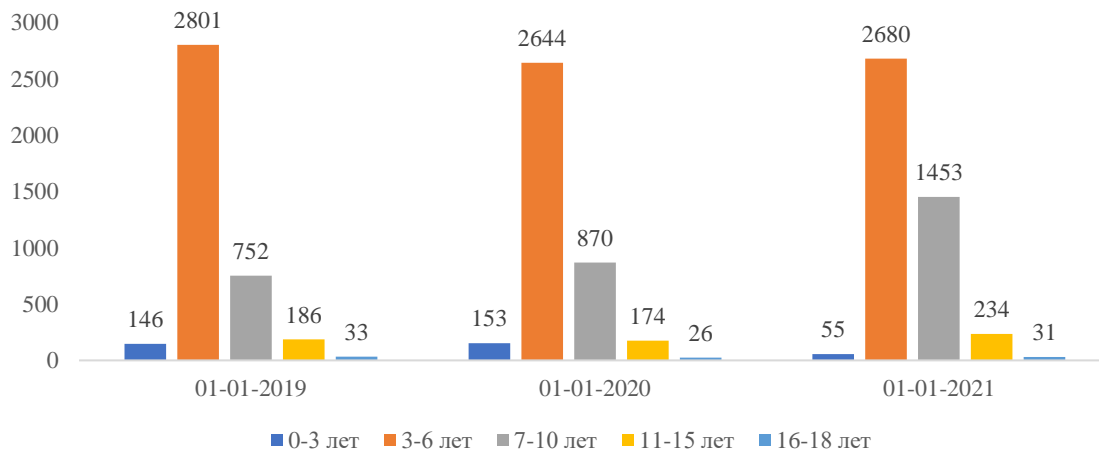


Figure 6 – Children with RDA and ASD

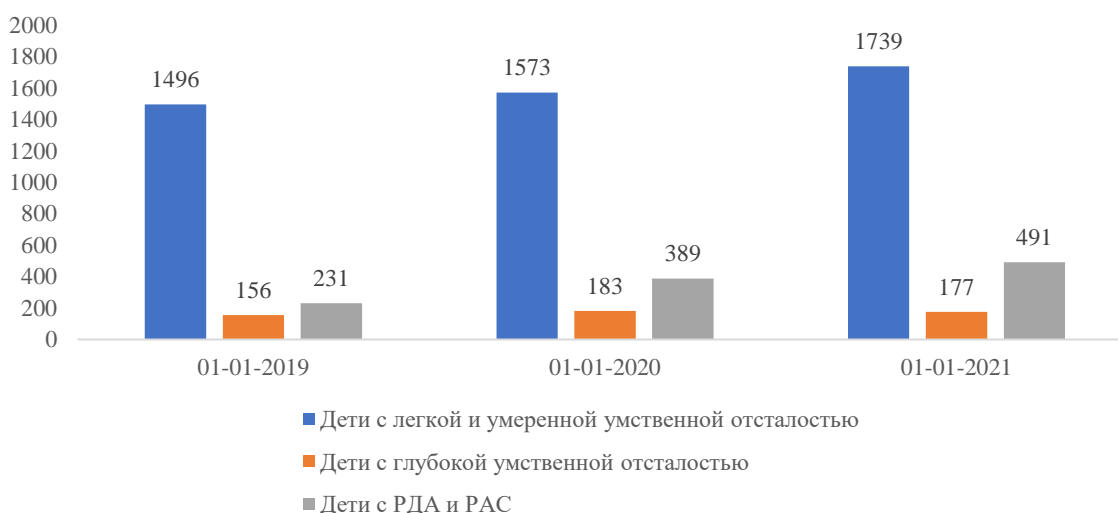


Figure 7 – Total children with severe disabilities caused by environmental deterioration

This situation is due to the fact that the increase in the number of stationary sources of pollution can lead to serious environmental problems that require appropriate measures to control and reduce pollution, as well as to transition to more environmentally sustainable and cleaner sources of energy and production. It should also be noted that investments are required aimed at protecting the environment by type of environmental activity (Table 5).

Table 5 - Investments aimed at environmental protection by type of environmental activity

Indicator	Unit of Measurement	01.2019	01.2020	01.2021	01.2022
Investments aimed at environmental protection, including:	thousand tenge	111,161,429	198,721,626	173,618,612	171,165,359
- for air protection and climate change problems	thousand tenge	10,333,129	11,008,007	15,426,845	8,046,476
- for wastewater treatment	thousand tenge	6,179,506	2,909,014	11,775,069	31,016,559
- for waste management	thousand tenge	7,541,510	9,069,412	11,151,011	14,408,303
- for soil, groundwater, and surface water protection and rehabilitation	thousand tenge	9,882,630	8,775,234	7,108,863	10,485,558
- for noise and vibration reduction	thousand tenge	16,584	x	-	x
- for biodiversity and habitat conservation	thousand tenge	3,573,298	4,154,484	5,236,991	755,868
- for radiation safety	thousand tenge	90,958	x	34,392	149,142
- for research and development	thousand tenge	323,022	82,229	475,202	327,785
- for other areas of environmental protection related to the "green economy", including:	thousand tenge	73,220,792	162,722,471	122,410,239	105,952,068
- investments in renewable energy sources	thousand tenge	70,941,690	162,448,828	114,218,620	98,901,557
- investments in energy-saving technologies and energy efficiency improvement	thousand tenge	1,793,464	234,749	5,959,183	4,833,394
- investments aimed at reducing greenhouse gas emissions	thousand tenge	105,610	399,190	65,385	31,988

Source: compiled by authors according to <https://www.stat.gov.kz>

Tightening environmental taxation can have a positive effect on improving the environment (Table 6).

Table 6 – Environmental taxation indicators

Type of environmental tax	2016	2017	2018	2019	2020	2021
Energy taxes, thousand tenge	84905236 5,6	121302973 3,2	165423234 6,1	170640280 4,8	881692071 ,6	119238280 8,8
Transport taxes, thousand tenge	50494764, 9	64334 011,1	72060 566,9	78318 677,5	63439 188,2	77638335, 0
Taxes on environmental pollution, thousand tenge	67216275, 7	72528 707,3	87125 547,6	100809 615,2	85593 121,1	110934387, 7
Taxes on resource use, thousand tenge	18236908 0,1	284612 858,7	335135 667,3	394415 327,2	359187 842,0	487890932 ,2
Total environmental taxes, thousand tenge	114913248 6,3	163450531 0,4	214855412 8,0	227994642 4,8	138991222 3,0	186884646 3,7
Share of environmental taxes in GDP						
Energy taxes, %	1,8	2,2	2,7	2,5	1,2	1,4
Transport taxes, %	0,1	0,1	0,1	0,1	0,1	0,1
Taxes on environmental pollution, %	0,1	0,1	0,1	0,1	0,1	0,1
Taxes on resource use, %	0,4	0,5	0,5	0,6	0,5	0,6
Total environmental taxes, %	2,4	3,0	3,5	3,3	2,0	2,2
Structure of environmental taxes						

Energy taxes, % of total	73,9	74,2	77,0	74,9	63,4	63,8
Transport taxes, % of the total	4,4	3,9	3,4	3,4	4,6	4,2
Pollution taxes, % of total	5,8	4,4	4,1	4,4	6,2	5,9
Taxes on the use of resources, as a percentage of the total	15,9	17,4	15,6	17,3	25,8	26,1
Total environmental taxes, % of total	100,0	100,0	100,0	100,0	100,0	100,0

Source: compiled by authors according to <https://www.stat.gov.kz>

Stricter environmental taxation can be one of the tools to help reduce the negative impact of human activities on the environment and promote the transition to more environmentally sustainable practices and technologies. However, such measures must take into account economic, social and political aspects to ensure that such changes are fair and sustainable.

Let us put forward and test a hypothesis about the existence of a connection between the indicator “Number of registered disabled children under 18 years of age, people.” and the following factors:

- emissions of pollutants into the atmosphere from stationary sources, thousands of tons.
- generation of hazardous waste, thousand tons.

To test the hypothesis, we will use correlation and regression analysis.

The statistics used for the analysis are presented in Table 7 [29].

Table 7 - Dynamics of the considered indicators

Year	Number of registered children with disabilities under 18, people	Atmospheric pollutant emissions from stationary sources, thousand tons	Hazardous waste generation, thousand tons
01.01.11	49,349	168,712	303,117.0
01.01.12	61,196	182,863	420,668.3
01.01.13	65,844	197,650	355,952.5
01.01.14	69,111	202,334	382,214.3
01.01.15	72,574	214,913	337,414.8
01.01.16	75,712	235,049	251,565.6
01.01.17	79,662	254,715	151,390.1
01.01.18	83,462	279,997	126,874.6
01.01.19	86,956	278,911	149,962.4
01.01.20	91,573	262,716	180,506.7
01.01.21	94,660	266,703	211,051.8

The results of regression analysis applied to the growth rate of the initial data show that there is a statistically significant and reliable relationship between the considered indicators (Table 8).

Table 8 - Growth rates of the considered indicators

Year	Growth rate of the number of registered children with disabilities under 18, %	Growth rate of atmospheric pollutant emissions from stationary sources, %	Growth rate of hazardous waste generation, %
01.01.12	24.007	8.388	38.781
01.01.13	7.595	8.086	-15.384
01.01.14	4.962	2.370	7.378
01.01.15	5.011	6.217	-11.721
01.01.16	4.324	9.369	-25.443
01.01.17	5.217	8.367	-39.821
01.01.18	4.770	9.926	-16.194
01.01.19	4.186	-0.388	18.197
01.01.20	5.310	-5.807	20.368
01.01.21	3.371	1.518	16.922

The results of data approximation using the least squares method are presented in Table 9.

Table 9 - Results of estimating the equation for the growth rate of the number of registered disabled children under 18 years of age

Variable	Value
R	0.855
R-squared (R ²)	0.731
Adjusted R-squared	0.654
Fisher's F-test	9.508
Constant	2.291
Regression coefficients	
Growth rate of atmospheric pollutant emissions from stationary sources, %	0.989***
Growth rate of hazardous waste generation, %	0.244***

Analysis of the obtained parameters of the multiple linear regression equation allows us to draw the following conclusions:

- an increase in the growth rate of emissions of pollutants into the atmosphere from stationary sources by 1% will contribute to an increase in the growth rate of the number of registered disabled children by an average of 0.989%.

- an increase in the growth rate of hazardous waste generation by 1% will contribute to an increase in the growth rate of the number of registered disabled children by an average of 0.244%.

Thus, the hypothesis put forward by the author about the influence of emissions of pollutants into the atmosphere and the formation of hazardous waste on the number of registered disabled children is confirmed. This hypothesis confirms that patterns of disability in a given country are influenced by trends in the development of pathological conditions, as well as trends in the development of environmental factors. It becomes obvious that the current legislation of the Republic of Kazakhstan focuses on dysfunctions of the human body as the main cause of disability (without taking into account environmental and social factors), but with special attention to issues of correction and restoration of impaired functions.

Taking into account international recommendations on the need to transition to new standards for measuring disability, the Ministry of Health and Social Development of the Republic of Kazakhstan is currently carrying out appropriate work to amend and improve legal and by-laws in order to reflect in them the biopsychosocial model that underlies the ratified Convention on the Rights of Persons with Disabilities (hereinafter referred to as KPI) [30].

Thus, the tasks of developing inclusive education include identifying the driving force behind the social development of different children (young people) included in a single space of educational activities, identifying indicators and criteria that allow assessing the results of development, the level of adaptation of a “special person” to life in society. Identification of patterns of human development in the conditions of inclusive education, the role of the environment of an inclusive class (a group of a preschool institution or university) in the development of personality, in the child’s mastery of the intellectual experience of educational activities, and the experience of social interaction can play a decisive role in introducing the ideas of inclusion into the work of educational organizations [31].

Conclusions

As Kazakhstan develops and improves its economic and social well-being, its growth will increasingly depend on improved efficiency and productivity, which requires a healthy, skilled and diverse workforce. To achieve higher-order development, Kazakhstan needs to implement several recently launched initiatives to expand access to education, improve the quality of employment and strengthen social inclusion. Kazakhstan faces the challenge of expanding and improving employment prospects for people with disabilities or health problems. The government has begun work to amend legislation in order to consolidate and implement measures aimed at achieving these tasks. However, much remains to be done, especially in terms of ensuring the implementation of strategies.

Research analysis on the problem under study shows that at the present stage inclusion is a leading trend in the development of the education system. The quality of the development of inclusive education in Kazakhstan raises many questions among researchers, including the ineffectiveness of the use of innovative forms of teaching in inclusive education, methods of financing, and insufficient knowledge of international experience. And also the environmental impact. Therefore, these circumstances determine the interest in the analysis of the theory, methodology, forms of organization and public administration system of inclusive education in Kazakhstan and its further development, which should:

- ensure that people with disabilities and disabilities receive equal benefits from public health and education programs.
- use financial incentives for health and education providers to ensure that services are accessible and provide comprehensive health assessments, treatment and follow-up.
- provide possible ways to reduce or cancel out-of-pocket payments for people with disabilities and disabilities who do not have other financial means to pay for health care and educational services.

Recommendations

Based on the analysis of factors influencing inclusive education in the Republic of Kazakhstan, the following recommendations can be proposed to improve the coverage of children with special educational needs and improve the quality of inclusive education:

1. Strengthening educational policies and regulations

1.1 Development and implementation of a national strategy for inclusive education:

- creation of a comprehensive strategy that includes clear goals, objectives and mechanisms for the implementation of inclusive education, consistent with international standards and recommendations (for example, the UN Convention on the Rights of Persons with Disabilities).

1.2 Improving the legislative framework:

- introducing changes to existing laws and regulations to ensure the rights of children with special educational needs to equal access to quality education.

2. Ensure adequate funding and resources

2.1 Increase in funding:

- increasing budget allocations for inclusive education, aimed at providing the necessary resources and infrastructure, as well as training and professional development of teachers.

2.2 Resource Allocation:

- development of effective mechanisms for the distribution of financial and material resources to ensure equal access to quality education for all children, regardless of their needs.

3. Advanced training for teachers and administrative staff

3.1 Professional development:

- organizing regular advanced training courses and trainings for teachers and administrative staff on issues of inclusive education, methods of working with children with special educational needs and the use of modern technologies.

3.2 Support for teachers:

- creation of support and mentoring systems for teachers working with children with special educational needs, including psychological support and counselling.

4. Raising public awareness and overcoming cultural barriers

4.1 Information campaigns:

- conducting large-scale information campaigns aimed at raising public awareness about the importance and benefits of inclusive education, combating stereotypes and prejudices.

4.2 Parent and community involvement:

- active involvement of parents and local communities in the process of inclusive education through consultations, seminars and joint events, which contributes to the creation of a supportive environment for children with special educational needs.

5. Improved infrastructure and accessibility

5.1 Ensuring physical accessibility:

- modernization and adaptation of school buildings and infrastructure to ensure physical accessibility for children with disabilities, including the installation of ramps, elevators, specialized toilets and classrooms.

5.2 Introduction of information technologies:

- active use of modern information technologies

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