ANALYSIS OF FUNDING AND EFFICIENCY IN THE FIELD
OF EDUCATION AND SCIENCE IN KAZAKHSTAN

Abstract. Today, significant amount of attention is paid to the development of science and education because information and knowledge are the main drivers of progress.

This study aims to analyze the financing and implementation of such documents of the state planning system as: the State Program of Education and Science Development of the Republic of Kazakhstan for 2016-2019, the State Program of Education and Science Development of the Republic of Kazakhstan for 2020-2025, and the National Project «Quality Education «Educated Nation».

As a result of the analysis, it was found that over the two years of the National Project «Quality Education «Educated Nation», its annual actual funding is less than that of each year of the entire period of 2016-2020, but the share of fulfilled benchmarks and measures is generally higher than in the first year of the State Program of Education and Science Development of the Republic of Kazakhstan for 2020-2025.

Recommendations were formed on the presentation of implementation of the main parts of the National project «Quality Education «Educated Nation» in the form of the information system.

Keywords: state program, funding, National Project, implementation, analysis, education, disbursement of funds.

Introduction.

Education is one of the most important areas that has a great positive effect on the development of the country. The sphere of education is regulated by the state which is engaged in the development of it. Since 2016, 2 state programs and 1 national project have been implemented in Kazakhstan in the field of education development.

In 2016, the State Program of Education and Science Development of the Republic of Kazakhstan for 2016-2019 was approved. The goal of the Program was to increase the competitiveness of education and science, to provide the development of human capital for sustainable economic growth [1].

On December 27, 2019, the State Program of Education and Science Development of the Republic of Kazakhstan for 2020-2025 was approved [2]. The goal of the Program was to:

– increase the global competitiveness of Kazakhstani education and science, education and training of the individual on the basis of universal values;
– increase the contribution of science to the socio-economic development of the country.

In 2021, the State Program of Education and Science Development of the Republic of Kazakhstan for 2020-2025 was canceled and in the same year national projects were approved in Kazakhstan. In the field of education, the National Project «Quality Education «Educated Nation» was approved [3]. The main goal of this National Project is to improve the quality of education for students at all levels of education. The implementation period of the National project «Quality Education «Educated Nation» is from 2021 to 2025.

In the modern world significant amount of attention is paid to the development of science and all levels of education, since information and knowledge that are transmitted through television, the Internet, and other means of communication and new technologies are the main drivers of progress. But, the synthesis of new qualitative information is impossible without an appropriate level of education. Education is a key factor that forms a competent highly educated specialist. Thus, the development of the education sector is impossible with sufficient and effective funding.
The aim of this study is to analyze the financing and implementation of such documents of the state planning system as: the State Program of Education and Science Development of the Republic of Kazakhstan for 2016-2019, the State Program of Education and Science Development of the Republic of Kazakhstan for 2020-2025, and the National Project «Quality Education «Educated Nation».

**Literature review**

Financing the education sector is an essential factor for its development. The trend towards increasing budget investments in the education system is determined by the increasing role of human capital in the economy.

The study by Baktymbet A. et. al. found that all three types of human capital (education, R&D and healthcare) are underinvested. It is emphasized that this fact negatively affects the development of human capital in Kazakhstan [4].

Aryn A.A. in a 2018 study founded that in most OECD countries, public funds for higher education and its participants account for more than 22% of all public budget expenditures [5].

In a study by Valero A. and Van Reenen J. the data on universities of 1500 territories from 78 countries since 1950 was analyzed. It was found that the increase in the number of universities is positively associated with faster subsequent economic growth. Thus, a correlation was found that a 10% increase in the number of universities is associated with over 0.4% higher GDP per capita in a region [6].

Aidargaliyeva N. analyzed the growth dynamics of the school education market in the context of 28 years. Based on the obtained results, the author determined that the load on the school system is expected to continue to grow and it's needy to increase the school network, which requires its restructuring [7].

The definition of the State Program is given in the Decree «On approval of the State Planning System in the Republic of Kazakhstan»: «the state program is a document that defines the goals, objectives and approaches to the implementation of individual policies, mainly affecting ideological, regulatory, etc. aspects of development and not requiring the allocation of significant financial resources» [8].

The definition of the National Project is given in the Decree «On approval of the State Planning System in the Republic of Kazakhstan» [8].

Briefly, the National Project can be characterized as follows. The national project is a document that provides comprehensive interdepartmental interaction and priority budget financing for the implementation of the state planning system's document's components.

**Materials and methods**

During this research, general scientific methods were applied: observation and comparison, analysis and synthesis. Also, special methods were used, such as analytical and graphical approaches.

**Results and discussion**

At the beginning of the analysis, some clarifications should be described regarding the State Program of Education and Science Development for 2016-2019 (hereinafter referred to as SPESD 2016-2019), the State Program of Education and Science Development for 2020-2025 (hereinafter referred to as SPESD 2020-2025) and the National Project «Quality Education «Educated Nation» (hereinafter referred to as the National Project). The first of the state programs to consider is the SPESD 2016-2019. The second one is the SPESD 2020-2025. Although the implementation period of the SPESD 2020-2025 was a six-year period from 2020 to 2025, this program was canceled in 2021, when National Projects were presented instead of State programs [2]. In the field of education, the National Project «Quality Education «Educated Nation» was approved, the implementation period of which is from 2021 to 2025. In both state programs (SPESD 2016-2019 and SPESD 2020-2025), their target indicators (hereinafter referred to as indicators), benchmarks and measures were analyzed. Regarding the National project, its benchmarks and measures were analyzed, except for strategic benchmarks.

According to the sources, the highest amount of funding (11.58 trillion tenge) was planned to be allocated on the SPESD 2020-2025 [1]. Then, the second largest planned funding (1.97 trillion) is for the National Project [3]. And the smallest amount of funding (1.87 trillion) was planned to be allocated to the SPESD 2016-2019 [2]. The planned funding of SPESD 2016-2019, SPESD 2020-2025, and the National Project «Quality Education «Educated Nation» in each year is presented on Figure 1.
The next step is to consider the planned funding for each year from 2016 to 2025. According to Figure 1, it can be seen that the planned amount of funding for the SPESD 2016-2019 remained in the range of 380-580 billion tenge. The planned financing of the National Project increases from year to year, starting in 2021 from a level equal to 168.2 billion tenge, and reaching 606.9 billion tenge in 2025. In turn, in comparison with the SPESD 2016-2019 and the National Project, the planned funding for the SPESD 2020-2025 significantly exceeds them. For each year, the planned funding for the SPESD 2020-2025 is at least twice that of the SPESD 2016-2019. Comparing the SPESD 2020-2025 and the National Project for each respective year, it can be seen that the planned funding of the SPESD for the period from 2021 to 2025 is on average 6 times higher than that of the National Project for the same period from 2021 to 2025.

The next aspect of consideration is the actual financing of the analyzed State programs. Actual financing data is presented in Figure 2. It should be noted that the actual year-end implementation of indicators, benchmarks and measures, and the actual year-end funding, of the SPESD 2020-2025 is presented only for 2020. For the subsequent years (2021, 2022, 2023, 2024, 2025), actual year-end implementation of the SPESD 2020-2025 is not presented due to the fact that the Program was canceled on October 12, 2021 [2]. Thus, data on the actual funding is presented on Figure 2, in which the time period from 2016 to 2019 corresponds to the SPESD 2016-2019, the year 2020 corresponds to the SPESD 2020-2025, and the period from 2021 to 2022 corresponds to the National Project.

Figure 1. The planned volume of financing of the State programs and the National project in each year

Source: compiled by the author based on data [1], [2], [3]

Figure 2. Actually allocated funds, disbursed and undisbursed funds of the SPESD 2016-2019, the SPESD 2020-2025, and the National project

Source: compiled by the author based on data [9], [10], [11], [12]
Figure 2 shows that the largest amount of funding was allocated in 2020 (924.3 billion tenge), and the smallest in 2021 (167.2 billion tenge). The percentage of disbursed funds from 2016 to 2020 was above 99%, but in 2021 and 2022 it decreased to 88.9% and 88.5% respectively. In 2021, funds were allocated by 696.8 billion tenge less than in 2020. The amount of allocated financial resources for financing the National increased in 2022 compared to the previous year by more than 60 billion tenge. Although the share of undisbursed financial resources increased slightly, but in monetary terms, the amount of undisbursed funds increased by 7.5 billion tenge. Thus, during the implementation of the National Project, the share of disbursed funds decreased, and a smaller amount of funds was actually allocated for its implementation compared to the SPESD 2016-2019 and the SPESD 2020-2025.

The next aspect is to consider the implementation of indicators, benchmarks, and measures of the State Programs. The total number of indicators that were fulfilled, not fulfilled, or partially fulfilled is presented in Table 1.

### Table 1. Implementation of indicators, benchmarks, and measures of the State Programs of Education and Science Development for the two time periods: from 2016 to 2019, and 2020

<table>
<thead>
<tr>
<th>Line #</th>
<th>Status</th>
<th>2016-2019 years</th>
<th>2020 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Planned indicators</td>
<td>12 indicators</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>Fulfilled indicators</td>
<td>7 indicators</td>
<td>58.3%</td>
</tr>
<tr>
<td>3</td>
<td>Partially fulfilled indicators</td>
<td>3 indicators</td>
<td>25%</td>
</tr>
<tr>
<td>4</td>
<td>Unfulfilled indicators</td>
<td>0 indicators</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>Waiting for information on implementation of indicators</td>
<td>2 indicators</td>
<td>16.7%</td>
</tr>
<tr>
<td>6</td>
<td>Planned benchmarks</td>
<td>71 benchmarks</td>
<td>100%</td>
</tr>
<tr>
<td>7</td>
<td>Fulfilled benchmarks</td>
<td>64 benchmarks</td>
<td>90.1%</td>
</tr>
<tr>
<td>8</td>
<td>Partially fulfilled benchmarks</td>
<td>5 benchmarks</td>
<td>7%</td>
</tr>
<tr>
<td>9</td>
<td>Unfulfilled benchmarks</td>
<td>2 benchmarks</td>
<td>2.8%</td>
</tr>
<tr>
<td>10</td>
<td>Planned measures</td>
<td>269 measures</td>
<td>100%</td>
</tr>
<tr>
<td>11</td>
<td>Fulfilled measures</td>
<td>267 measures</td>
<td>99.3%</td>
</tr>
<tr>
<td>12</td>
<td>Partially fulfilled measures</td>
<td>2 measures</td>
<td>0.7%</td>
</tr>
<tr>
<td>13</td>
<td>Unfulfilled measures</td>
<td>0 measures</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: compiled by the author based on data [9], [10]

In the SPESD 2016-2019, it was planned to fulfill 12 indicators (Table 1). According to the results of the entire implementation period of the program, 7 indicators were fulfilled, which is 58.3% of the planned value. And 3 indicators were partially fulfilled, which is 25% of the planned value. In turn, in the SPESD 2020-2025, it was planned to fulfill 6 indicators in 2020. At the end of 2020, 3 indicators were actually fulfilled, which is 50% of the planned value. The number of partially fulfilled indicators in 2020 is 2 indicators, which is 33.3% of the planned value. Thus, the performance of indicators in 2020 decreased compared to the entire period of 2016-2019.

Benchmarks of the studied State programs (Table 1) are worthy of analysis by the next step. In the SPESD 2016-2019, it was planned to fulfill 71 benchmarks. In fact, 64 benchmarks were fulfilled, which is 90.1% of the planned number. 5 benchmarks were partially fulfilled (7% of the planned number). In turn, in the SPESD 2020-2025, it was planned to fulfill 35 benchmarks in 2020, and 26 of them were actually done (74.3% of the planned number). In 2020, 3 benchmarks were partially fulfilled, which amounted to 8.6% of the planned value. As a result, there is a decrease in the implementation of benchmarks in 2020 compared to the period of 2016-2019, despite the fact that the number of planned benchmarks in 2020 was half as much.

In Table 1, the data on the measures of the studied State programs is presented. As in the case of indicators and benchmarks, the number of planned measures in 2020 was significantly less than in the period of 2016-2019. Despite this fact, as a percentage of the period 2016-2019, 99.3% of the measures were fulfilled, whereas in 2020 63.1% were. Also, there is an increase in partially fulfilled and unfulfilled measures in 2020 compared to the period of 2016-2019. In 2020, 25.1% of measures were partially fulfilled, and 11.8% were not. In the period 2016-2019, the share of partially implemented activities was 0.7%, and there were no unfulfilled measures at all.

The data on the implementation of the National Project is available only on its benchmarks and measures. There is no data on fulfillment of 3 strategic indicators. So, only fulfillment of benchmarks and measures can be analyzed. The data on implementation of the National Project is presented in Table 2.
Table 2. Implementation of benchmarks and measures of the National Project «Quality Education «Educated Nation»

<table>
<thead>
<tr>
<th>Line #</th>
<th>Status</th>
<th>2021 year</th>
<th>2022 year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number</td>
<td>In percentage to the planned value</td>
</tr>
<tr>
<td>1</td>
<td>Planned benchmarks</td>
<td>11 benchmarks</td>
<td>100 %</td>
</tr>
<tr>
<td>2</td>
<td>Fulfilled benchmarks</td>
<td>10 benchmarks</td>
<td>90.9 %</td>
</tr>
<tr>
<td>3</td>
<td>Partially fulfilled benchmarks</td>
<td>0 benchmarks</td>
<td>0 %</td>
</tr>
<tr>
<td>4</td>
<td>Unfulfilled indicators</td>
<td>1 benchmarks</td>
<td>9.1 %</td>
</tr>
<tr>
<td>5</td>
<td>Benchmarks under implementation</td>
<td>0 benchmarks</td>
<td>0 %</td>
</tr>
<tr>
<td>6</td>
<td>Planned measures</td>
<td>18 measures</td>
<td>100 %</td>
</tr>
<tr>
<td>7</td>
<td>Fulfilled measures</td>
<td>18 measures</td>
<td>100 %</td>
</tr>
<tr>
<td>8</td>
<td>Partially fulfilled measures</td>
<td>0 measures</td>
<td>0 %</td>
</tr>
<tr>
<td>9</td>
<td>Unfulfilled measures</td>
<td>0 measures</td>
<td>0 %</td>
</tr>
<tr>
<td>10</td>
<td>Measures under implementation</td>
<td>0 measures</td>
<td>0 %</td>
</tr>
</tbody>
</table>

Source: compiled by the author based on data [11], [12]

Table 2 shows that there was a decrease in the share of fulfilled benchmarks and measures over the period from 2021 to 2022. In 2021, the share of fulfilled benchmarks was 90.9%, but in 2022 it was 76.9%. The share in 2021 was higher than in 2022, but, at the same time, at the end of 2022, 1 benchmark was partially fulfilled, 1 benchmark had the status «under implementation». In 2021, all 18 planned activities (100%) were completed, while in 2022 the share of completed measures was 77.3%.

The total planned funding values show that the largest funding was planned to be allocated for the SPESD 2020-2025. The planned funding of the SPESD 2020-2025 is 487.6% more than the planned funding of the National Project, and 519.7% more than the planned funding of the SPESD 2016-2019. The planned funding of the SPESD 2020-2025 is 487.6% more than the National Project, and 519.7% more than the SPEED 2016-2019.

Comparing the planned funding for each year, it is observed that the planned funding of the SPESD for the period from 2021 to 2025 is on average 6 times higher than that of the National Project for the same period from 2021 to 2025.

Comparing the actual data on the results of financing of each of the considered program documents, during the period of implementation of the National Project, the share of disbursed financial resources decreased, a smaller amount of funds was actually allocated compared to the SPESD 2016-2019 and SPESD 2020-2025.

In 2020, compared to the period of 2016-2019, there is a decrease in the share of fulfilled indicators, benchmarks and measures. And the share of partially fulfilled and unfulfilled indicators, benchmarks and measures increased.

The following has been observed in the result of comparison of the actual implementation of the benchmarks and measures of the SPESD 2016-2019, SPESD 2020-2025 and the National Project. The smallest share of fulfilled indicators is in 2020 (74.3%), the largest is in 2021 (90.9%). The smallest share of fulfilled measures is in 2020 (63.1%), the largest is in 2021 (100%). In general, the share of fulfilled benchmarks and measures was at a high level at the end of the 2016-2019 SPESD, then it decreased in 2020 which was the first year of the SPESD 2020-2025. Then, the share of fulfilled benchmarks increased in 2021, but decreased in 2022 to a level that is higher than in 2020.

As a result, despite the increased funding and reduced number of indicators, benchmarks and measures, their implementation was lower in 2020 (SPESD 2020-2025) than in the entire period of 2016-2019 (SPESD 2016-2019). In turn, in the period 2021-2022 (National project), the amount of planned and actual financing decreased, compared to the period 2016-2019 (SPESD 2016-2019) and the year of 2020 (SPESD 2020-2025), and also the number of planned benchmarks and measures was reduced. But, in 2021-2022 (National project) the share of fulfilled benchmarks and measures increased in comparison with 2020 (SPESD 2020-2025). So, from all the above, it can be concluded that in the two years of the implementation of the National Project, its annual actual funding is less than that of each year of the entire period of 2016-2020, but the share of completed benchmarks and measures is generally higher than in the first year (2020) of the SPESD 2020-2025.

Recommendations regarding the reviewed and analyzed State programs and the National project «Quality Education» Educated Nation» can be formed as follows. It is advisable to create an information system that reflects the real-time status of the implementation of Programs, National Projects, etc.
In such information system for the National Project, it is possible to reflect:
- the state of the current actual financing of each measure and benchmark;
- the disbursement of financial resources directed, for example, to each of the tasks of the National Project;
- the data in both natural units and percentage terms;
- calculation and presentation of the socio-economic effect;
- the level of implementation of the aforementioned measures, benchmarks, etc. for each region and city of the country.

As a result, the presentation of the implementation of the National Project in the form of such information system is extremely useful, since it simplifies the comparison of the implementation of various components of the project both among themselves and in each of the regions and cities of the country. Real-time comparison can help determine which of the benchmarks or measures are fulfilled on time, what time period was required to complete each separate benchmark, measure, etc. Also, this approach reduces the time spent on a detailed analysis and interpretation, and increases the accuracy of data analysis. Thus, the presentation of the implementation of the National Project in the form of an information system can help improve the efficiency of monitoring the quality of its implementation.

**Conclusion**

In this research, the analysis was conducted, regarding the financing and execution of such documents of the state planning system as: the State Program of Education and Science Development of the Republic of Kazakhstan for 2016-2019, the State Program of Education and Science Development of the Republic of Kazakhstan for 2020-2025, and the National Project «Quality Education «Educated Nation».

It was found that over the two years of the National Project, its annual actual funding is less than that of each year of the entire period of 2016-2020, but the share of fulfilled benchmarks and measures is generally higher than in the first year of the SPESD 2020-2025. Recommendations were formed on the presentation of the implementation of the main parts of the National project «Quality Education »Educated Nation» in the form of the information system. This is extremely useful for simplifying the comparison of the performance of various components of the National Project both among themselves and in each of the regions and cities of the country. And, it also reduces the time spent on interpreting and analyzing information.

Thus, the development and implementation of an information system reflecting the current financing and implementation of the National Project can help to improve the efficiency of monitoring the quality of its implementation, and subsequently affects the improvement of the quality of education for students at all levels of education.

**ACKNOWLEDGMENTS**

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**REFERENCES 1:**

1. Постановление Правительства Республики Казахстан от 24 июля 2018 года № 460 «Об утверждении Государственной программы развития образования и науки Республики Казахстан на 2016 - 2019 годы» // Электронный ресурс. – URL: https://adilet.zan.kz/rus/docs/P1800000460 (дата обращения: 06.04.23)

2. Постановление Правительства Республики Казахстан от 27 декабря 2019 года № 988 «Об утверждении Государственной программы развития образования и науки Республики Казахстан на 2020 - 2025 годы» // Электронный ресурс. – URL: https://adilet.zan.kz/rus/docs/P1900000988 (дата обращения: 06.04.23)

3. Постановление Правительства Республики Казахстан от 12 октября 2021 года № 726 «Об утверждении национального проекта «Качественное образование «Образованная нация» / Электронный ресурс. – URL: https://adilet.zan.kz/rus/docs/P2100000726 (дата обращения: 24.03.23)


8. Постановление Правительства Республики Казахстан от 29 ноября 2017 года № 790 «Об утверждении системы государственного планирования в Республике Казахстан» / Электронный ресурс. – URL: https://adilet.zan.kz/rus/docs/P1700000790 (дата обращения: 06.04.23)


REFERENCES 2:
3. Postanovlenie Pravitel'stva Respubliki Kazakhstan ot 12 oktyabrya 2021 goda № 726 «Ob utverzhdenii natsional'nogo proekta «Kachestvennoe obrazovanie «Obrazovannaya natsiya»« / Ehlektronnyi resurs. – URL: https://adilet.zan.kz/rus/docs/P2100000726 (data obrashcheniya: 24.03.23)
8. Postanovlenie Pravitel'stva Respubliki Kazakhstan ot 29 noyabrya 2017 goda № 790 «Ob utverzhdenii Sistemy gosudarstvennogo planirovaniya v Respublike Kazakhstan» / Ehlektronnyi resurs. – URL: https://adilet.zan.kz/rus/docs/P1700000790 (data obrashcheniya: 06.04.23)

АНАЛИЗ ФИНАНСИРОВАНИЯ И ЭФФЕКТИВНОСТИ В СФЕРЕ ОБРАЗОВАНИЯ И НАУКИ В КАЗАХСТАНЕ

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Аннотация. В настоящее время большое внимание уделяется развитию науки и образования, так как информация и знания являются основными двигателями прогресса.

Данное исследование направлено на анализ финансирования и реализации таких документов системы государственного планирования, как: Государственная программа развития образования и науки Республики Казахстан на 2016-2019 годы, Государственная программа развития образования и науки Республики Казахстан на 2020-2025 годы и Национальный проект «Качественное образование «Образованная нация».

В результате анализа было установлено, что за два года действия Национального проекта «Качественное образование «Образованная нация» его фактическое годовое финансирование меньше, чем такое за каждый год всего периода с 2016 по 2020 годы, но доля исполненных показателей и мероприятий в целом выше, чем в первый год реализации Государственной программы развития образования и науки Республики Казахстан на 2020-2025 годы.

Сформированы рекомендации по представлению реализации основных частей Национального проекта «Качественное образование «Образованная нация» в виде информационной системы.

Ключевые слова: государственная программа, финансирование, Национальный проект, реализация, анализ, освоение средств.