

СЕКЦІЯ 6. УПРАВЛІННЯ ЗА ПРИНЦИПАМИ СТАЛОГО РОЗВИТКУ

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RESEARCH FUNDING: CURRENT SITUATION, PRIORITIES (USING THE EXAMPLE OF AZERBAIJAN)

The main feature of economic processes in the localized world is characterized by the transition of human civilization from an industrial society to a post-industrial one. This process is measured by the impact on all spheres of public life as a result of the growing possibilities of science and technology, its global nature, scientific and technological achievements leading to large-scale socio-economic changes. Thus, an innovative process comes to the fore, realizing the transformation of newly acquired knowledge into products or technological innovations, as well as the commercial implementation of an innovative idea.

In the modern world, science has definitely become a productive force of society. In modern conditions, the process of assimilation and transfer of the results of scientific and technological progress requires the participation of science. Nowadays, it is necessary to improve the quality of education, develop the knowledge and skills of young researchers, scientists and employees through training and programs, adapt personnel training to the requirements and conditions of the labor market, and conduct scientific research. research in foreign and domestic companies, as well as the effective use of human capital.

Scientific research is a form of existence and development of science. Scientific (research) activity is an activity aimed at acquiring and applying new knowledge. Encouraging measures to raise the independence of private and public universities and research institutions to a higher level will create the basis for achieving higher achievements in this field. An example of a clear purpose, systematic interpretation of data and systematic collection can be cited as important characteristics of scientific research [2].

Great leader Heydar Aliyev attached great importance to science, education and the development of scientific fields in Azerbaijan during the leadership of the country both before and during the period of independence. In the 70s of the last century, sending Azerbaijani students to Russia to study in different cities was an unusual initiative for that time and a very effective policy. It is no coincidence that as a result of this policy, many of our influential compatriots currently working in various cities of the former USSR, as well as staff holding

high positions in Azerbaijan, are students who left our republic for different countries of the USSR at that time.

President of Azerbaijan Ilham Aliyev, a worthy follower of the great leader, signed many decrees and orders on the development of science and the complete solution of problems in this area, approved state programs. Also, in this regard, it should be emphasized that the publication orders approved "National Strategy for the Development of Science in the Republic of Azerbaijan in 2009-2015" and "State Programs for the implementation of the National Strategy for the Development of Science in the Republic of Azerbaijan in 2009-2015" dated May 4, 2009 [3].

The formation of an intellectual young society and a knowledge-based economy in the socio-economic, socio-political and cultural development of the republic will make it possible to achieve high contributions in the field of scientific activity.

Finally, as a continuation of the attention of the state and the head of the country to science, on June 14, 2016, the Law of the Republic of Azerbaijan "On Science" was adopted, defining the leading role of science in ensuring the economic, social, political and cultural development of the country [6].

Recently, one of the most important measures taken towards the development of science and scientific and technological progress is the creation of the Science Development Fund under the President of the Republic of Azerbaijan by order of Ilham Aliyev dated October 21, 2009 [4].

The purpose of the Science Development Fund is to protect the scientific and technical potential of the country and its effective use, enhance the role of science and technology in solving problems, provide in the field of natural, technical, humanitarian and social sciences represented by scientific organizations, research and educational institutions, other relevant institutions and individuals in the Republic of Azerbaijan, as well as financing applied and search-innovative scientific research, programs, projects and other important scientific events for the state and society, stimulating the scientific activity of scientists and creating additional creative opportunities for them.

The main task of the foundation is to promote the welfare of the people, the welfare of scientists and the development of the country, strengthen the state, identify and improve the priority strategy for the development of science and education, successfully implement research projects of local young researchers capable of competing in the field of science and education in the country, should serve at a high level for the implementation of results and decision-making, as well as for in order for these results to find their application in the economy in the near future.

In recent years, the activities of many research institutes have been intensified in Azerbaijan at the expense of the state and priority areas of

development have been actively promoted. In the Republic of Azerbaijan, special attention and care is paid to increasing science and high-tech products. Recently, we have been observing a stage in the development of economic capital in the improvement of new innovative ideas [4].

When analyzing the indicators of innovative development of the national economy, business structures in the public and private sectors of Azerbaijan are measured by their share in GDP and economic growth, expenditures of the state budget and the budget, expenditures on science. Table 1 shows the age of scientific research personnel.

Table 1. Age structure of researchers in Azerbaijan

The age structure of the scientific staff	Researchers	Doctors of Sciences	Doctor of Philosophy
The number of researchers is total, people. (as a percentage of the total number of researchers)	14522	1422 (9.79%)	5785 (39.83%)
30 do up to age	1756	28 (1.59%)	99 (5.63%)
40-49 at the age of	2961	150 (5.1%)	1483 (50 %)
50-59 at the age of	2728	278 (10.2%)	1300 (47.6%)
60-69 at the age of	2520	453 (18%)	1258 (49.9%)
70 and older	1358	449 (33.1%)	700 (51.5%)

Source: compiled by the authors based on [1]

The analysis shows that 47.6% of the total number of researchers in the scientific field are over 50 years old. According to the number of employees engaged in research and scientific projects in scientific institutions, the number of people under the age of 40 who received a doctorate in 2022 is 64 people (only 2%), which cannot be considered positive.

In addition, the Law on Grants of the Republic of Azerbaijan was adopted on April 17, 1998. The main purpose of this concept is to implement the points specified in any agreements or decisions.

The grant includes social and humanitarian projects, production in regions affected by natural disasters, repair work to restore social facilities and infrastructure, programs in the fields of science, education, health, culture, information, publishing and sports, research and design work. programs, the State and assistance provided in accordance with this Law for the preparation and implementation of other programs of importance to society. Since, in the accepted general concept of the grant, grants are provided for any specific purposes [5].

Below are statistics on the amount of funding for grant projects over the past 10 years [Table 2].

Table 2. Number, volume and source of financing of grant projects in Azerbaijan

The amount of financing	Number of projects	Project share, %	Total finance-total amount, manat	How much are the expenses in the average financial volume compared to the low one , in times
Low financial volume (up to 10 thousand manats)	33	36.26	251500.00	-
Average financial volume (10 thousand manat-100 thousand manat)	58	63.74	1818500.00	7,2
Total	91	100,00	2070000.00	-

Source: compiled by the authors based on [1]

Data analysis shows that medium-sized projects are in the first place both in terms of volume and number of grant projects. This suggests that among the grant projects, medium-volume financing projects are of greater interest. And so, the most useful project is the medium-funded one, which society gets the most effect.

Any grants provided on behalf of the Azerbaijani State are provided at the expense of the State budget of the Republic. For such grants, special funds can be allocated in a separate line in the expenditures of the state budget. However, in this case, no additional types of taxes can be applied or existing tax rates can be increased to form these funds. It is known that most projects of this type are financed from the state budget (80-85%). From this point of view, in order to improve control over these projects, the State should often organize monitoring and analyze the current situation by creating a special commission. Otherwise, the financial costs will not be carried out as intended, and there will be no significant progress in achieving a high level of results of research projects [5].

In recent years, the efforts made by the country's leadership to create conditions for the normal activities of young scientists and researchers, to solve their social problems (for example, improving the living conditions of young scientists) stimulate their more productive activities (Table 3).

Table 3. Statistics of the competition for young scientists and researchers

Institutions	Number of managers and performers	Fraction, %
Nana	158	65,56
Educational establishments	42	17,43
Non-governmental organizations, other institutions and individuals	21	8,71
Field research Institutes and other government agencies	20	8,30
Total	241	100

Source: compiled by the authors based on [1]

The analysis shows that the majority of participants in the competition of young scientists and researchers were employees of ANAS. And this, in turn, indicates a relative rejuvenation of the composition of ANAS. The second place in terms of specific weight is occupied by educational institutions, 48.13% lower than in ANAS. From this we can conclude that the share of young scientists and researchers in non-governmental, other institutions and financial persons, as well as field research institutes, is very low. The reason why young researchers at these enterprises have a fairly small share, primarily this process may be due to the fact that wages are very low in the amount of funds allocated by the state and other organizations to the research field. In this regard, an appropriate action plan should be developed to stimulate youth at the expense of funds allocated for research both in research institutes and in other enterprises funded from the state budget, and a mechanism for its implementation should be developed.

In order to ensure the continuous and dynamic development of scientific research, research enterprises, increase creativity, potential and training of personnel and their development, the provision of science with such means as investment, technical equipment and information is considered an important problem. One of the important problems on this issue of science is the financing of all types of research enterprises from the state budget.

As in the development process that took place during the period of industrialization, development in the developed countries of the world has also reached such a level that the share of knowledge-intensive products in the GDP of these countries has increased. So, the countries that took the leading places in development in all areas of the world's economy were leaders in this area as well.

The World Institute for Statistical Research and Economics annually publishes a ranking table of countries in terms of funds allocated to research and development of science. According to the results of data for recent years, the list of TOP 10 countries that invest the most in science is headed by the United States

with \$ 511.1 billion. The share of spending on science in GDP in the United States is 2.74 percent. The amount of research and development costs per US researcher is 359.9 thousand manats.

China is next on the list. The annual funds allocated to science amount to 451.2 billion dollars. The amount of research and development expenses per researcher in this country is 266.6 thousand dollars, where science expenditures are equal to 2.12 percent of GDP. Japan, with about 700,000 scientific researchers engaged in real science, has \$168.6 billion allocated to science, ranks 3rd in the ranking and is considered one of the world's leading countries in the field of science. The country has consistently high positions in various fields, including high technology and automotive, energy conservation and robotics, medical and space research.

Germany is in 4th place with \$118.5 billion, Korea is in 5th place with \$79.4 billion, France is in 6th place with \$62.2 billion, India is in 7th place with \$50.1 billion, the United Kingdom is in 8th place with \$47.2 billion. The British traditionally, and rightly so, pay most of their attention to natural and technical sciences. It is these huge investments in science that have led to the emergence of countless important inventions and discoveries in the country that resonate with modern and urgent problems of the world. It is no coincidence that more than 70 British scientists have been awarded the Nobel Prize.

The main purpose of mentioning these statistical indicators, which are available to everyone in our time, is not to compare the changing spending on science in the leading countries of the world with similar indicators of our country, but once again to form an idea of how important science is. for the development of countries.

Every year, certain investments are allocated to higher education institutions and research institutes at the expense of the state budget. The main purpose of this type of investment is the integration of Azerbaijan into developed countries and the creation of new mechanisms for the recognition of our state in foreign countries, new achievements of young scientists and researchers in scientific work, and the provision of jobs. The tendency to act according to these mechanisms is rapidly developing in many countries of the world, revealing the social and economic values of the country.

In 2022, 202.9 million manats were allocated from the state budget for science in Azerbaijan. This amount is 0.7 percent of budget expenditures compared to 2023 and about 10.6 percent more than the approved figure for 2021. 134 million manats of funds will be allocated to the National Academy of Sciences of Azerbaijan (ANAS) and 46 subordinate institutions.

In general, it should be borne in mind that over the past 5 years (2019-2023), the share of education expenditures in state budget expenditures amounted

to 4.2%, and in absolute terms it increased by 2 billion 227 million 400 thousand manats, that is, 2.0 times.

Of the expenditures allocated to science in 2023, 48.6 million manats (21.3%) will be allocated to, 114.9 million manats (50.3%) will be allocated to scientific institutions under the jurisdiction of a number of state bodies, including 75.6 million manats from the Ministry of Science and Education, 17.1 million manats from the Ministry of Agriculture, 9.0 million manats from the Ministry of Justice, 6 million manats from the Ministry of Culture, 4.1 million manats from the Science Development Fund under the President of the Republic of Azerbaijan, 3.1 million manats in the field of science relate to other events [7].

Based on the analysis of scientific papers published in journals indexed in Scopus for 2020-2023, we cited the indicators of 5 universities under the Ministry of Science and Education as an example.

According to the results, Baku State University (BSU) has shown the highest achievement with the number of 2,627 articles over the past 4 years. In these years, BSU took a leading position in the South Caucasus region in terms of the number of scientific articles. The Azerbaijan State University of Petroleum and Industry (ASUNP), the Azerbaijan State University of Economics (ASUE) and the Azerbaijan Technical University (AzTU) annually demonstrate a steady increase in the number of published articles. BSU, ASUNP and ASUE are also among the top three in the country. In 2023, the number of scientific publications of these universities has increased significantly. Over the years, 5,157 scientific papers from these universities have been included in the database.

The inclusion of our state in the international production chain will in itself have a positive impact on improving the education-science-production relationship. Currently, ANAS has taken steps to establish a research university in order to establish a chain of "education-science-production". The share of research and development expenditures in Azerbaijan's GDP (0.5%) is lower than the global average. Currently, the share of science expenditures in GDP ranges from 3-5% in developed countries.

The manifestation of innovations in modern research institutions, such as nanotechnology today, will create conditions for the long-term development of the fundamental basis of the economy, the development of foreign-interstate relations in the future and the development of innovations in this technology in a more organized form.

In 2021, banks created a mechanism for preferential lending to startups. In order to finance investment projects of business entities in the field of ICT, the State Fund for the Development of Information Technologies allocates grants for ICT projects, and local banks are selected as trustees of the financial mechanism for providing preferential loans to the fund.

Based on the scientific results of our research, we can note that the elderly and young people are already very inclined to carry out research work. But of the problems they face, the most important is the stimulation of labor by the state and the enterprises they work for. In our opinion, in this direction, the state should expand financing opportunities and provide incentives based on the results achieved.

The above analysis gives reason to conclude that there is still much to be done in the field of scientific research in the country in order to bring developments to the level of developed countries. Therefore, in order to activate this area and finance it, it is necessary to involve non-governmental institutions, as the most developed countries.

For the development of neglected research institutions, it is important to organize new measures to increase the business activity of such institutions in carrying out government reforms. The development of these research institutes in each area will lead to the development of a socio-economic base and enlightenment.

Industries based on the achievements of scientific and technological progress, especially in the field of petrochemistry, continue to form in our country. In addition, attention to startups is growing. The organization of industrial parks and so on is just the beginning. However, in our country, support should be provided to large companies and holdings behind the research work of scientific institutions. Thus, our institutions belonging to the private sector, various companies and holdings should place orders to scientific institutions to conduct relevant research, projects and experiments in determining their development prospects. At the same time, these enterprises should require highly qualified and high-quality personnel from universities.

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