TUE-PB-2-MKM-04

HOW PUBLIC RESEARCH IS ORGANIZED WITHIN THE STATE SCIENTIFIC AND TECHNICAL PROGRAMS: A DIFFERENT VIEW FROM UZBEKISTAN

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Abstract: *The research mainly discusses the organization the research activity in the framework of the state scientific and technical programs of Uzbekistan. It gives some statistical and general information about the current scientific and technical programs of the republic. It also states some information regarding the yearly organized fair which is the main event for the connection of science and production in Uzbekistan. At the end of the research, there will be given short conclusion.*

Key words: *Science, technology, research, innovation, finance, innovative developments, projects, economic development.*

JEL Codes: D03, E02

Introduction

Phelps and Nelson (1966) introduced the idea of technological catching up across the world countries. The idea states that a country may reduce the technological difference between leader countries by imitating technologies which are discovered in the leader country (Manca, 2009), or to do it by own developments. An important role on the process plays the implemented in the country science and technology policy. Usually a government in terms of technological capability building, upgrading its industrial infrastructure and economic reforming procedure was main initiator. For instance, The participation of government on the technological advancing procedure is unusual by the western standard and it gives a country an unusual capacity to think tactically and to make crucial changes of direction as a nation society (Sheridan, 1993).

The condition for the efficient use of the existing intellectual potential in Uzbekistan is a concentration of scientific potential, financial and logistical resources for the priority areas of science and technology, which refers to the main areas of research and development, the implementation of which should provide a significant contribution to the socio-economic and technological development of the country and the achievement of the expense of the national socio-economic goals.

Body

Committee for Coordination of Science and Technology Development under the Cabinet of Ministers approved the following priorities for the development of science and technology in the Republic of Uzbekistan for the period 2012-2020 years:

1. The spiritual, moral and cultural development of the democratic state and the legal community, the formation of an innovative economy;
2. Energy, energy - resource conservation;
3. Development of renewable energy;
4. Development of information and information and communication technologies;
5. Agriculture, biotechnology, ecology and environmental protection;
6. Medicine and Pharmacology;
7. Chemical and Nanotechnologies;
8. Earth sciences (geology, geophysics, seismology).

In Uzbekistan, attention is paid to the spiritual and moral upbringing of the younger generation (because it contributes to the formation of moral sentiments (of conscience, duty, responsibility, citizenship, patriotism), moral character (patience, charity), a moral position (ability to discern both good and evil, ready to overcome the trials of life), moral behavior (availability of service to people and fatherland, goodwill of the person), this is why the direction is defined as the first priority.

In addition, ecology as a science includes all complex interaction of factors - both natural and technological as well as social, moral, ethical. Furthermore, social factors are now becoming the defining, leading, is a conscious activity of people who are actively defending their goals, interests, often far removed from the interests of society and humanity as a whole, reaching sometimes at odds with those interests.

Another priority is energy, energy and resource saving issues. On the one hand, Uzbekistan is one of the richest countries in the world for fuel and energy resources. On the other, the country inherited a heavy legacy from the former soviet regime, namely the energy- and resource-intensive, obsolete technologies, which have a negative impact on the environment. Accordingly, this scientific direction is given special attention.

The use of renewable energy sources - an extremely unfavorable ecological situation in the world, the relevant international obligations of Uzbekistan, as well as great potential of using solar energy have predetermined the need to make this area as a priority.

As shown by comparative analysis, mainly the development of national science priorities is based on the trends in the development of world science. Thus, the direction of biotechnology are presented in the 5 and 6 priority areas. 4 priority directions of Uzbekistan are aimed for the development of information technologies. The direction of materials technology (development of new materials), ecology and conservation are presented in all directions.

To implement the above mentioned priorities, there are established a national scientific and technical programs of fundamental, applied research and innovation developments (Fig. 1).

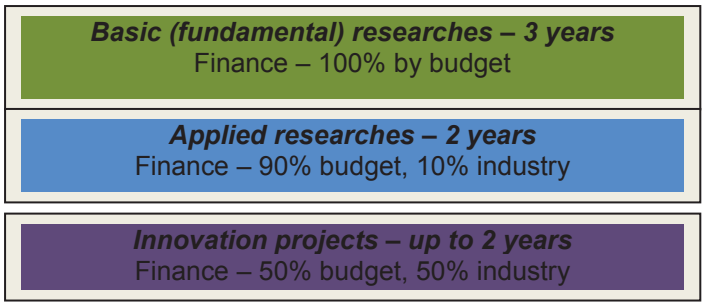

Fig.1. State scientific and technical programs of the Republic of Uzbekistan
Source: Committee for Coordination of Science and Technology Development (CCSTD), 2016

Scientific and technical programs of fundamental researches for the period - up to five years, aimed at obtaining new knowledge about the laws of nature and society, to create the necessary theoretical framework for application development. Primarily funded the works, which are directed to ensure the increase of knowledge and scientific potential, with strategic importance in terms of the future use of the results.

Scientific and technical program of applied research, realized in the period up to three years based on the results of basic research and focused on the creation of new types of equipment and technologies to achieve a breakthrough in a particular area. This program is an original source for the replenishment of the innovative package of proposals for their further development in the economy. The tasks of innovative programs of scientific and technical works, which should be realized within the two years, is to improve the technological level and competitiveness of production, providing the output of innovative products to the domestic and foreign markets, import substitution and export-oriented economic structure formation.

Such a mechanism of the organization of research and innovation, allows to concentrate the available scientific and technical potential of the country to address the priorities of socio-economic and scientific-technical problems, ensure the effective use of scientific and technological capacity, introduction to the production the latest achievements of domestic science and technology and advanced scientific technologies.

The largest within the state scientific-technical programs is a program of applied research, for the realization of which is allocated more than 60% of the budget (Fig. 2).

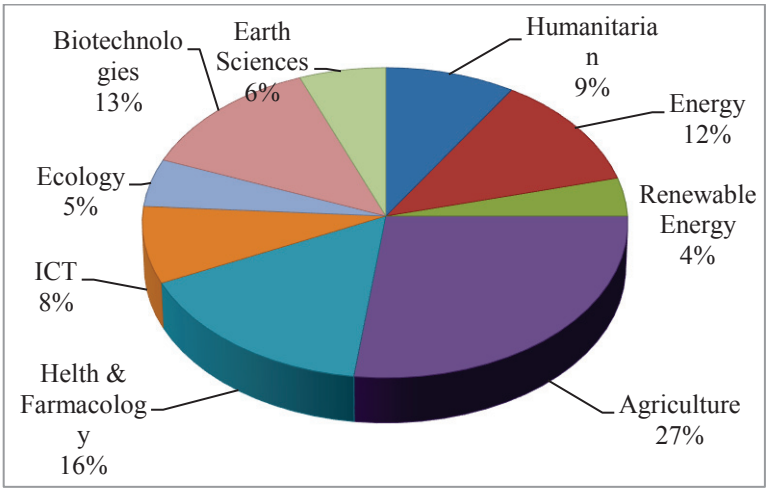

Fig.2. The distribution of the budget for the research areas within the scientific and technical programs for applied research

Source: Committee for Coordination of Science and Technology Development (CCSTD), 2016

At first glance, as the figure 2. shows that for the scientific direction ecology allocated only 5% of the total. But here it should be noted that there are certain requirements for the implemented research projects. Almost all research projects must meet environmental safety requirements and include environmental protection measures. Projects that do not meet these requirements are not included in the state of scientific and technical projects. In addition, areas such as renewable energy, agriculture, health care and pharmaceuticals are directly related to the research in the direction of the environment.

Most of these research projects aim is to identify possible relationships between various technologies, and especially the chemical, biochemical, agrochemical, energy, destructive or harmful effects on the natural realm to create the overall ecological safety of the environment, including chemical, biochemical, radiation.

One of the effective mechanisms of organizing the transfer of domestic technologies, which are developed within the state scientific and technical programs, including environmental technologies is the annual Fair of innovative ideas, technologies and projects. The main objective of the Fair is to ensure the integration of science and production, promote the conclusion of contracts for the implementation presented innovative developments.

Every year more than 500 innovative developments and ideas are demonstrated, and more than 400 contracts are signed for the implementation of development and implementation of innovative ideas. At the Fair the developments and technologies are demonstrated in the following five areas: industry, agriculture, medicine and pharmacology, information technologies, science and education

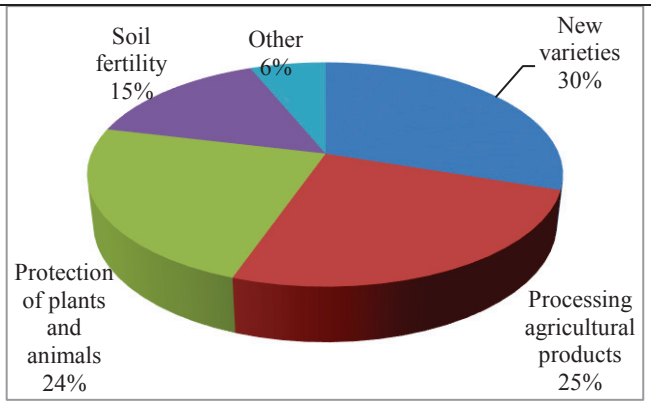

Figure 3. Signed contracts in the direction of "Agriculture"

Source: Committee for Coordination of Science and Technology Development (CCSTD), 2016

Based on the needs and interest of industries, companies and businesses sometimes organized additional directions. For instance, in 2014 was organized a new direction, "Energy saving technologies", in 2015 direction of "high-tech", and in 2016 taking into account the Uzbek-Japan Symposium on Ecotechnologies, it was decided to organize a new direction "Ecotechnologies".

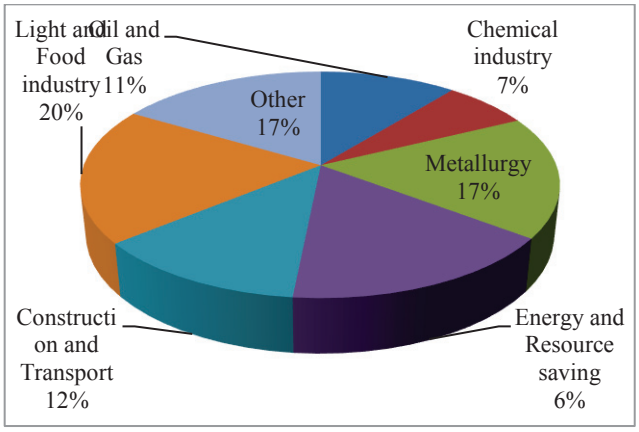

Figure4. Signed contracts in the direction of "Industry"

Source: Committee for Coordination of Science and Technology Development (CCSTD), 2016

As part of the Fair of innovative ideas, technologies and projects, the largest number of contracts concluded in areas of "Agriculture" (47%) and "Industry" (35%). Figure 3 and 4 are presented the main directions of contracts for the implementation of innovation in these two areas.

As shows the analysis of figure 3., today the main consumers in the field of agriculture, namely farmers, interested in innovative technologies which are associated with new varieties of agricultural plants, processing of their products, protection of plants and animals, increasing soil fertility, also conservation of irrigation waters and agricultural machinery is for great interest. Thus, we can conclude that innovation in the field of environmental technologies is the most interested developments in the intellectual property market of Uzbekistan.

Also, innovative developments for obtaining cheap electricity through micro hydro power plants, use of high water plants for sewage and use of biogas, drought and salt resistant plants are under special interest.

Consumers in the direction of "Industry" interested in energy-saving technologies, the use of local raw materials in light industry, chemical, metallurgy and construction, mining and processing of oil and gas.

All this points to the fact, that industrial activity of humankind should gradually change their basics. We are stepping to the new era, which is naturally called ecological because it will focus on the establishment of industries that do not destroy the equilibrium state of the biosphere, and fit into its biogeochemical cycles.

Moreover, we have to notice that Uzbek R&D should be more internationalized. Despite the concept was introduced recently (Edler and Flanagan, 2009; OECD, 2005; Schuch, 2011), it could be very efficient. As some argue internationalization have both sides, as inward dimension it attracts foreign resources such as human resources, etc., and outwards dimensions like research which is generated for abroad (Edler and Boeckholt, 2001).

Conclusion

As the conclusion, to achieve this goal, it is necessary to:

Conduct constant analysis of global trends in the development of environmental technologies, status, problems and prospects of innovative technologies related to the surrounding environment;

Provide state support for the development of new methods of creating and implementing environmental, environmentally friendly, energy-saving and ecotechnologies;

Create favorable conditions for the development of international cooperation in the field of industrial safety and the environment;

Develop and strengthen the legal aspects of economic development and the environmental protection;

Develop mutually beneficial cooperation between the state, non-governmental environmental organizations and the business community.

We hope for this we have all the necessary conditions, reason and mainly willingness to work together.

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