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Development of Innovative Activity in Republic of Kazakhstan

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Abstract: Today innovation is not just one of the phenomena determining the growth, development and structural changes, etc. Innovation became the essence of modern development in all spheres of the economy. Kazakhstan's economy is experiencing a number of problems: the dominance of the materials sector, lack of high-end technologies, financial resources and professionals, especially in innovative sectors of the economy and a number of other problems. But for all that, there is an understanding at the governmental level, that to change the situation, it is necessary to search for new technologies, to deal with technology implementation in order to improve the efficiency of the national economy and its integration into the international environment. According to the research conducted, the main directions of innovations in Kazakhstan are focused in industrial agriculture, including biotechnologies and in the development of certain sectors of alternative energy. The successful modernization and innovative development of Kazakhstan's economy require that the results of the research and development meet the expectations of scientists, entrepreneurs and investors. To this end, special conditions for the inventions in high-tech sectors that contribute to development and export of the national technologies and innovative products should be created at country's innovative centers.

Key words: Innovations · High-end technologies · Investments · Entrepreneurs

INTRODUCTION

The economic science and economic development experience show that introduction of innovations and new technologies provides an effective modernization of economy. The experience of the developed countries shows that innovative activity becomes one of the priority directions of the state economic policy of the world leading countries. Incredible as it may seem, studies show that the regions are becoming increasingly important in securing economic growth through the innovations and entrepreneurship, as well as through interaction and the close ties that may arise between the various parties concerned [1-3]. At the same time, development of a process economy requires a combination of scientific and technological approaches based on innovation activities, encouragement of direct foreign investments, the adoption of innovative programs and the advancement of education. This is possible only if the system, aimed at developing innovations, is brought up to the national level and under a number of other conditions: a well-funded education system, the constant development of the infrastructure, maintaining a favorable environment for investments and innovations, as well as stable economic, legal and political conditions [4, 5]. At that, we should take into account the national peculiarities of the emerging economies-the level of technology, science and other factors [6, 7]. To this extent, Kazakhstan is not an exception.

There have been huge changes in the area of innovative activity in the economic space of Kazakhstan since 2002. The laws "About innovative activity" and "About the state support of innovative activity" have been passed. In 2003 by the Decree of President of the Republic of Kazakhstan (RoK) "The strategy of industrial-innovative development of RoK for 2003-2015"; in 2010 "The Decree about the Strategic plan for development of Republic Kazakhstan till 2020", "The Government program of the forced industrial-innovative development for 2010-2014" and a number of other important decisions and decrees were confirmed. All of them were focusing on regulating and stimulating the development of innovative

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activity. It is possible to tell that a general mechanism of the organization and regulation of innovative activity has been formulated in 7-8 years. The financial institutions, financing innovative activity, are created almost from scratch. The structures supporting innovative activity, Institutes of Development, structures of industrial parks, etc. had been organized by the same way.

Nowadays the development institutes finance 146 investment projects and 96 projects are set in operation. A number of concrete examples, which were set into operation by the means of development institutes, can be mentioned below:

- Modern textile enterprises in the South Kazakhstan area produce goods both for the domestic and export markets.
- New food manufactures on cultivation and processing of fish and soya production have been launched in Almaty region.
- Floor coverings and woodworking production have been started up in Karaganda region.
- Steel pipes and sucker-rod pumps manufacture for oil and gas branch have been launched in the North Kazakhstan region.
- In the western region of the country the unique X-ray machine factory has been modernized and the metal-rolling production factory has been constructed.
- In the infrastructure area the North-South electric power line has been constructed and the territory of Aktau seaport has been expanded.
- A large transport-logistic center with warehouses have been constructed in Almate.
- Construction of the railway "Shar-Oskemen", connecting Oskemen and other cities of the country, has been finished in the east.

These days innovations are not simply one of the phenomenas defining economic growth, development and structural shifts, but also became an essence of the modern development in all spheres of economy. Innovations represent novelties introduced in manufacture or in a sphere of services in the form of objects, technologies, products which is the result of scientific researches, inventions and discoveries and qualitatively different from their analogs (or do not have analogs).

The development of economy has always been driven on the basis of introduction of new technologies. But for a long time this process has been running extremely slowly. In the conditions of modern scientific and technical development, especially during the recent time, when the developed countries are entering into the postindustrial period, economic development has got a qualitatively new character. Its basic lines are defined by the following: firstly, statement of the innovative process (creation, distribution and use of innovations) in the center of qualitative, quantitative and structural changes; secondly, transformation of innovative process into a constantly operating factor; thirdly, there is no precedent for the high speed of changes. In our opinion, it can be ascertained that now in the most developed countries a new type of economic development, i.e. innovative, as an expression of proceeding technological revolution, is carried out. The economy is in the process of constant changes, i.e. evolutionary development.

The national innovative system includes four basic elements, i.e, scientific potential, innovative business, innovative and financial infrastructure.

Despite all these positive moments, there are a number of unsolved problems in the innovative development of Kazakhstan: low innovative activity of the enterprises, insufficient scientific and technical potential, weak efficiency and labor productivity, low science linkage of the economy and manufactures and an absence of professional innovative management.

In the world practice three quarters of all research, development and experimental-design work is carried out by the private concerns. USA is indisputable leader of the world innovative process. In 2006 this country spent 343 billion dollars for the research and development work that makes up 40 % of all expenses spent by the world on research and development. More than 71 % of the total expenses spent on research development work in the USA is financed by the private corporations, 14 %-by universities and only 11 %-by the government. For example, in 2004 "Ford Motor" company spent 7,4 billion dollars on research and development, "Microsoft" spent 6,2 billion dollars. According to the Statistics Agency of RoK, in 2008 and 2009 only 4 % of the enterprises were considered as innovative-active (Refer to the Table 6). For comparison: the share of the is innovative-active enterprises in the USA is about 50 %, in Turkey-33%, in Hungary-47%, in Estonia-36% and in Russia-9,1 %.

The Main Part: One of the main indicators of innovative development of Kazakhstan is the innovative activity of the enterprises.

Table 1: Innovative activity of the enterprises in the Republic of Kazakhstan

	Quantity of respondents, total			quantity of the innovative-active enterprises			Level of the activity in the field of innovations, %		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
Republic of Kazakhstan	11 172	10 096	10 937	447	399	467	4,0	4,0	4,3

Table 2: The share of innovative production in relation to GNP, %

	2007	2008	2009	2010
Share of innovative production in GNP, %	1,19	0,69	0,51	0,66

Table 3: Expenses on the research and development

	2008	2009	2010
Internal expenses on research and development in established prices, million tenge	34 761,6	38 988,7	33 466,8
In percentage to a GNP	0,22	0,24	0,15

Table 4: Internal current expenses for researches and workings out by kinds of works

	Million tenge		
Type of expenses	2008	2009	2010
Internal current expenses, total	33685,9	38 538,0	33 466,8

According to methodology of Statistics Agency of RoK the level of innovative activity of the enterprises is defined as the relation of quantity of the innovative-active enterprises (i.e. occupied with any kinds of innovative activity) to total number of investigated enterprises. Refer to the table 1 for a generalized picture of the data of innovative activity of the Kazakhstan enterprises in dynamics from 2007 to 2009. We can observe a decrease in the level of innovative activity of the domestic enterprises: in 2007-4,8, in 2008-4,0 and in 2009-4,0 [8].

The share of innovative production in 2010 was 0,66 % of the gross national product (GNP). The data given in the table 2 shows a decrease of this indicator in comparison with 2007.

In particular, other states' expenses on scientific research and development make up the following numbers: the USA-246,2 billion dollars (2,9 % of GNP), Japan-3 % of GNP, Germany-2,35 % of GNP, France-2,25 % of GNP, Sweden-4,0 % of GNP. And in Kazakhstan this indicator is on level of 0,24 % from GNP. Table 3 shows the dynamics of gross national product changes and volume of expenses on research and development from all sources.

The main financing sources of innovative activity in Kazakhstan are the means of the state budget. The state finances scientific researches through the system of the state order and grant allocation. A private sector and development institutes use the direct financing mechanism of the concrete innovative-investment projects which carry mainly an applied character.

Having analyzed a current state of development of innovative and scientific-technical activity, to a number of the following features of innovation development can be allocated:

- Fall of scientific and technical level of a domestic production and specific gravity of new science-consuming output in the total production;
- Still domination of a raw sector of economy and suppression of the science-consuming processing branch;
- Backwardness of the motivation mechanism and real economic incentives for a commercialization of innovative and scientific-technical activity;
- Insufficiency of internal financial resources and low appeal of innovative sphere to the foreign capital.

The main objective of innovative process is an achievement of economic, scientific-technical, ecological and social effect, which can be realized with the introduction of innovations. The analysis of innovative activity in Kazakhstan shows that the "science-manufacture" cycle is not complete. Innovative process comes to the end at the initial stages and sometimes without falling outside the limits of basic researches or a stage of manufacturing of a pre-production model as the domestic enterprises are not able to introduce them into the production.

According to the Ministry of the Industry and New technologies of RoK, in Kazakhstan there are only 4,3 % of the enterprises which are innovative active [9].

When scientists invent something they go to a bank, businessmen and the state structures to present their idea. But nobody wants to finance their idea. Money is allocated only for the ready project. For a scientist it is difficult to transform the idea to the project which would pay back itself and would make a profit.

One of the solutions of this problem, which is now being discussed in the government, is a creation of a network of commercialization offices. Almost every scientific research institute, high school abroad has its own center or cooperates with the external commercialization center, which collects and estimates scientists' works from the point of possibility to extract a profit. They are managers transforming a knowledge into the money.

Nowadays in Kazakhstan scientists and businessmen do not understand each other. One speak in a language of the mathematical equations and chemical formulas, others-in a language of money. Therefore the problem of commercialization office is to take scientists' idea and having estimated it, to develop a project which will convince the businessman in the advantage of introducing innovations.

Such "bridges" between scientists and businessmen should be in every region and every high school and scientific research institutes should use these services. We should adapt internationally recognized techniques of commercialization to the Kazakhstan conditions and develop necessary actions for a training on commercialization of our businessmen and innovators.

These days a large number of enterprises struggle for a survival. They should pay credits, keep workplaces and employees' salaries. What kind of innovations in this case there can be a speech about? They are not able to observe what know-how have appeared in the world and what technologies could be introduced. Therefore one of the main tasks is to inform a business about the best world practice. It is necessary to develop programs which would be aimed to involving large enterprises and small and medium-sized business into the innovative activity. It can be a training and co-financing researches. For example, from the last year the Ministry of the industry and new technologies of RoK is realizing the program on introduction of managerial technologies through the center of engineering and technologies. These technologies allow to raise considerably labor productivity and to optimize the cost price without scale investments. Similar programs should be realized more accurately and more on a substantial scale. It is necessary to develop tools which would allow the enterprises to be involved in the innovative process.

There are two methods of stimulation tools which are especially important. The first one is a method of direct stimulation. We attract the business to introduce and developed innovations through taxes, grants and technical policies. For example, in the Program of the forced industrially-innovative development the norm of deductions of expenses of the enterprises on the research is increased from 100 to 150 %. The budgetary program on gratuitous delivery of innovative grants has been started this year.

The second method is a creation of environment which would stimulate, inform and motivate businessmen with the ideas on introduction of innovative technologies.

The lion's share of the public funds allocated for innovative projects goes to a transfer of technologies. There is a question: why do we buy others' innovations, instead of introducing our own ones? We make the innovations and we are continuing to do it. But it is necessary to understand really that we have considerably lagged behind the developed countries. We do not say that we will not be engaged in it. It is necessary to create our own system and base. But, firstly, it is impossible to be competent in everything. And, secondly, to realize the tasks set by the President of RoK on the forced development we can not wait for the own competence development. A unique real solution is to begin with a transfer of the most effective technologies for priority branches. But it is also necessary to be able to adopt another's technologies. It is the whole industry which includes the methods, approaches and nuances.

The offset policy, escalating own engineering competencies, adaptation and improvement of foreign technologies-these are the things that should accompany a technologies transfer. One more aspect, allowing understanding the necessity to direct the main efforts on a transfer, is that scale modernization is necessary for our industry. The problem is that our enterprises have lagged behind for about 20-30 years and not in a condition to successfully introduce this or that modern technology. It is the same as putting an internal combustion engine on the carriage. Modernization should create a base for a subsequent active growth of innovation of our enterprises. And the forced modernization means a transfer of technologies first of all.

Kazakhstan needs to develop the following perspective innovative directions: agriculture, including biotechnologies, development of some directions of alternative power, for example wind, processing of a technogenic waste. Having developed such innovative directions, our country can become a world leader in these spheres.

Last year the AIG company started to use the know-how practice, invented by the Danish researchers in Almaty under the contract with the city authorities. The practice is about repairing of pipes, without opening an asphalt. 11 kilometers of underground communications have already been repaired in a year.

The essence of the method is that a minirobot with a videocamera is entered in an old water or sewer pipe. It surveys a pipe, defines defects, then clear its walls. After the machine enters "stocking" made from special strong fiber which is later fixed by the special structure forming fiberglass. As a result, there is new pipe inside an old one, but with a slightly smaller diameter and its durability is much higher than the usual metal pipe has. The basic advantage is saving on restoration of roads.

The “ND and Co” company which has been producing photo-electric systems of various capacity for more than 17 years in cooperation with the Kazakh national university after Al-Farabi, the Kazakh national technical university after K.I. Satbaev, Almaty institute of power and communication, the Ministry of preservation of the environment of the Republic of Kazakhstan, Saiman Corporation and other companies in the field solar energy usage. In particular, photo-electric stations have been installed on the forestry in Ucharale, in Aksay, Koklaysay, Shymkent and Almaty regions. The company makes not only such ministations for illumination of houses and territories, but also the systems of illumination of highways and parks, light supports and elements of light landscape design-and everything works on the energy of the sun.

An active innovative activity forms specific branch structure of national economies of the developed countries where the hi-tech production is prevalent. They are characterized by a low material and labour-output ratio, but a high part of the total added cost of expenses for research and development work and "soft" technologies branchches, which are based on the results of the intellectual work, i.e. new knowledge [10, p. 43].

CONCLUSION

For a successful modernization and innovative development of the Kazakhstan economy it is necessary that the results of research and development work would meet expectations of scientists, businessmen and investors. In order to meet this objective it is necessary to create special conditions in the innovative centers of the country for the development in the high technological branches, promoting creation and export of domestic technologies and innovative production. And as mentioned earlier, it is necessary to create networks of commercialization offices which will collect and estimate the scientists work from the point of possibility to extract a profit, i.e. make ready projects. Having a concentration of an investment climate and talented scientists, it is possible to realize new interesting ideas and innovative projects.

In the conditions of innovative economy origin in Kazakhstan where a science, manufacture and education are united in the uniform mechanism, the basis of further increase of people’s well-being is intellectual potential. Thereupon, the legislative solution of innovations and rights problem and problems of economic interest of innovations’ authors is required.

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