

Ayapbergen Taubayev<sup>1</sup>

## PECULIARITIES IN THE DEVELOPMENT OF NATIONAL INNOVATION SYSTEMS WITHIN THE CUSTOMS UNION

*The article considers national peculiarities in the formation and further development of innovative systems within the Customs Union. Similar problems at the stage of the national innovation systems formation are determined, and the main differences in the development of innovation activities are outlined, the definition of which will in the long term enable establishing the inter-country cooperation in science and innovation.*

*Keywords:* national innovation system; the Customs Union; national innovation policy.

Аяпберген Таубаєв

## ОСОБЛИВОСТІ РОЗВИТКУ НАЦІОНАЛЬНИХ ІННОВАЦІЙНИХ СИСТЕМ КРАЇН МИТНОГО СОЮЗУ

*У статті розглянуто національні особливості становлення та подальшого розвитку інноваційних систем країн-учасниць Митного союзу. Розкрито схожі проблеми етапу формування національних інноваційних систем та основні відмінності у розвитку інноваційної діяльності, визначення яких дозволить у перспективі налагодити міждержавне співробітництво в науково-інноваційній сфері.*

*Ключові слова:* національна інноваційна система; Митний союз; національна інноваційна політика.

*Літ. 11.*

Аяпберген Таубаєв

## ОСОБЕННОСТИ РАЗВИТИЯ НАЦИОНАЛЬНЫХ ИННОВАЦИОННЫХ СИСТЕМ СТРАН ТАМОЖЕННОГО СОЮЗА

*В статье рассмотрены национальные особенности становления и дальнейшего развития инновационных систем стран-участниц Таможенного союза. Выделены схожие проблемы этапа формирования национальных инновационных систем и основные отличия в развитии инновационной деятельности, определение которых позволит в перспективе наладить межгосударственное сотрудничество в научно-инновационной сфере.*

*Ключевые слова:* национальная инновационная система; Таможенный союз; национальная инновационная политика.

### Problem setting

The Republic of Kazakhstan, the Republic of Belarus and the Russian Federation in accordance with the Agreement of 6 October, 2007 established the Customs Union (The Agreement..., 2007). Formation of the Customs Union defined a single customs territory, within which there are no customs duties, neither economic limitations, except special protective, antidumping and countervailing measures. Correction of customs and other controls exceeded the expectations: the growth of mutual trade during the first 9 months of 2011, within the Customs Union has made 44% against the previous year. This is twice as more than the growth of international trade in general. Since 1 January, 2012 the next step is that along with the common market of goods the common market services, capital and labor will work in accordance with the already signed agreements to form the Common Economic Space (Glaziev, 2011). In this regard, we have made an attempt to identify country charac-

<sup>1</sup> Doctor of Economic Sciences, Associate Professor, Vice Rector on Science, Karaganda Economic University, Kazakhstan.

teristics and key issues of national innovation systems in the countries of the Customs Union.

#### **Latest research and publications analysis**

In 1987, for an explanation of national differences in the level of technological development C. Freeman proposed the concept of a national innovation system (Freeman, 1982). In the contemporary theory national innovation system (NIS) is defined as "a set of institutions which jointly and individually contribute to the creation and dissemination of new technologies, and provide the foundation for the employee of government formation and implementation of policies that affect innovation. As such it is a system of interconnected institutions, intended to create, store and transfer knowledge, skills and artifacts that define the new technology". Thus, the effectiveness of innovative economic development depends not only on how effective the activities of independent economic agents (firms, research organizations, universities etc.) are alone, but also on "how they interact with each other as elements of a collective system and use of knowledge, as well as with public institutions (such as values, norms, rules).

The transition from the linear (in the chain "science – production – consumption") to the system description of the innovation process in practice marked the reevaluation determinants of economic growth, focusing on institutions and relationships. Another fundamental characteristic of the NIS is the central role of enterprises in the innovation process. Science can produce knowledge, and even stimulate the demand, offering new, previously unknown technology, mastering of which provides amplification of the competitive position of companies, but it is the latter who carry out the practical implementation of innovations, promoting them to customers, and forming the linkages (Gokhberg, 2002).

NIS is a set of interrelated institutions (structures), engaged in production and commercialization of science and technology within national borders – small and large companies, universities, government laboratories, industrial parks and special business incubators. Another part of NIS is the set of institutions (legal, financial and social), providing innovations and having strong national roots, traditions, political and cultural characteristics (Ivanova, 2001).

#### **Unresolved issues**

Innovation systems are formed under the influence of many factors set for each country, including its size, natural resources, geography and climate, features in the historical development of state institutions and forms of entrepreneurship. These factors are the long-term determinants of the direction and rate of evolution of innovations. In addition, each is characterized by a certain structural NIS and some degree of order, suggesting adequate stability of institutional interaction. Thus, each country is forming its own national institutional configuration elements.

**The research objective** is based on the current situation in the national innovation systems of the Customs Union, to identify common problems and major differences in the implementation of state innovation policy, to develop further recommendations to strengthen mutual cooperation in innovations between the members of the Customs Union.

#### **Key research findings**

*Republic of Kazakhstan.* Assessment of the state of science and innovation in Kazakhstan with the position of forming a national innovation system, allowed sub-

stantiating decisions on its modernization in the ways that are appropriate to the needs of the "new economy." Only a comprehensive approach to the restructuring of the national innovation system within the "institutions – mechanisms – policy" framework would help to overcome the imbalances and bottlenecks on the way of innovative development of Kazakhstan's economy.

In the last decade Kazakhstan science is in qualitatively new economic, social and political conditions, which largely determined its current condition. A change in the socioeconomic situation in the short and long term, of course, will have a direct impact on the factors and trends in its future dynamics. Yet we cannot ignore that the institutional structure of Kazakhstan's science and its internal relationships, mechanisms, mainly formed long before the radical political and economic reforms, not always contribute to the effective integration of science in the market environment. Scientific organizations and scientists themselves face these unfamiliar realities and try various means to adapt to the new conditions. However, this adaptation occurs in the absence of a timely response by the state, inform policy decisions aimed at the adequate transformation of science and its role in bringing about positive social and economic reforms in the country. Systemic crisis which hit the country has also contributed to a sharp deterioration of the situation in science.

Developing over the decades by the so-called "Soviet model" corresponding to the administrative-command system of management, Kazakh science had 3 specific characteristics: large-scale, centralized management, and almost fully financed by state (Alzhanova, 2007; Kenzheguzin, 2005; Mukanov, 2004). In this state, the scientific system of the country has met the market reforms and the main determinants of this model remain valid to this day:

1) The institutional structure of Kazakhstan science is still archaic and does not correspond to market requirements. A key role in the development of innovations is played by intra-science integrated into the real economy, which in Kazakhstan is still not formed yet.

2) In the structure of Kazakhstan the share of science remains small in the proportion of higher education institutions involved in R&D (about 5% of spending on science, as compared to 21% in the EU, or 14–15% in Japan and the US) (Barlybaeva, 2006).

3) Kazakhstan science is weak in innovations. The serious disadvantages are its planning system and the economic mechanism of innovation spread. Besides, often inappropriately borrowed, foreign technologies hinder further domestic development.

4) National innovation system of Kazakhstan today is not balanced; its main elements – scientific and technical sphere, enterprises and innovation infrastructure – stay isolated from each other.

*Republic of Belarus.* In recent years, the country is focusing its efforts on the preservation and development of scientific, technological and innovative capacities. Improved is the management of science, the state expands and strengthens the basis for the contemporary legal and regulatory framework of scientific and innovative activities, reorganized academic and university science. Measures were also taken to increase the level of production innovations, the development of information and innovation infrastructure, small and medium-sized high-tech enterprises, complex high technology etc.

All these actions did not have systemic character to establish the adequate development of market relations and the international standards within the national innovation system in Belarus. As a result, the republic has only individual fragments of a potentially integrated system: scientific and educational institutions, innovation-oriented manufacturing enterprises and specialized enterprises of innovation infrastructure with various degree of innovativeness and creativity.

The basis for sectoral innovation exists in the adopted scientific and technical centers within the corporate structures of automobile, tractors, harvesters, engines, microelectronics, television and communications subsectors. At the same time under new economic conditions industries in their organization of innovation processes move from the establishing scientific organizations to ordering specific products to enhance their competitiveness.

At the same time in the whole industrial complex the level of innovative activity of enterprises is only 13% which is 4 times less than in the countries of the European Union. As a result, the shared of new products development in manufacturing is only 2.3% per year which is the threshold from the point of view of economic security (The Concept of..., 2006).

In general, we can identify the following key problems existing in the innovation environment, which negatively affect the development of innovation capabilities in Belarus:

- the lack of systematic, structured legal framework for the implementation of all stages of innovations, as well as for their public support, including direct (public funding) and indirect (tax preferences, state guarantees etc.), as well as the legal framework governing the conditions for the establishment of enterprises and the relationship between the actors of innovation infrastructure;
- limited effective demand at the domestic market for technology and innovation, low demand from the perspective of the real sector of economy – in terms of their commercial application – the results of scientific and technical activities, the lack of current market of innovative products;
- the lack of special financial mechanisms to support individual elements of the innovation infrastructure, innovative entrepreneurs and independent innovation projects, namely venture financing (venture capital funds), special financial mechanisms to support companies in their rapid growth, certified appraisers companies and intellectual property, investment, leasing, insurance of innovative high-tech equipment and appliances, the stock market for high technology companies, trading houses etc.;
- weak networking among scientific institutions, educational institutions and industrial enterprises;
- lack of modern forms of innovative management and commercialization of innovations (through the market of scientific and technical products) etc.

*The Russian Federation.* Based on the characteristics of the current level and directions of development the main segments of NIS Russia – education, science, business, infrastructure, it may be noted that one of the key problems of the Russian NIS is the lack of coordination between the 3 main components of the NIS – R&D, higher education and business. This causes the following unfavourable conditions:

- low efficiency of research results commercialization;

- the absence of demand in potential academic and university sectors of science;
- the disbalance in the development of individual elements of the innovation infrastructure, the lack of effective economic cooperation between them, resulting in poorly functioning mechanisms of knowledge transfer and new technologies at the domestic and global markets;
- the absence of specialized training personnel for specific areas of innovation;
- the destruction of the reproduction chain of scientific personnel, engineering personnel in many areas of science and technology.

Assessing the impact of the innovation system in Russia (some of its components), we can also conclude about fairly low efficiency of the Russian NIS in the following areas:

- government regulation;
- venture businesses and other forms of interaction within NIS;
- high administrative barriers;
- the weak relationship between science and industry;
- poor material and technical base;
- limitations in achieving the targets of socioeconomic development (Zveriev, 2009).

One of the most critical points in Russian innovation system is the link between the research carried by public institutions and private companies. There are several structures designed to fill this gap, such as industrial parks (which appeared in the late 1980s), the centers for commercialization of innovations (appeared in 1996), and technology transfer centers (appeared in 2003). However, despite these efforts, the gap between public and private research and development has not yet been overcome.

In Russia, most of the research is done in the public sector, while acquired knowledge should be used mainly in the private sector (Gothberg, 2002). Developed countries are addressing this problem through public-private partnership arrangements that have proven to be effective. In Russia, there are some examples of the use of this mechanism, but in practice the problems of legislative, administrative and psychological nature impede the development of successful partnership.

The most important resource for the innovative breakthrough of Russia is its military-industrial complex (MIC). Despite the severe economic crisis of the 1990s, it retained its status, potential and its HR – that is the ability to create new types of equipment. MIC can be an engine that provides long-term, independent of primary industries, qualitative growth of the domestic economy. In its structure, MIC has lots of industries and unique enterprises. It includes about 1,700 companies in different fields: electronics, aviation, rocket and space and other industries with a significant potential for innovations.

#### **Conclusions and prospects for future developments in this area**

Overall, based on the generalized representation of issues and stages in the formation of the national innovation systems of the countries of the Customs Union, we can note the presence of a similar underlying problem: the lack of coordination between the 3 main components of the NIS – R&D, higher education and the business. In addition, as well as the major problem, it can be stated the low market impact of research and the lack of development in the commercialization of scientific research in the countries of the Customs Union.

**References:**

Договор о создании единой таможенной территории и формировании таможенного союза от 6 октября 2007 года. <http://www.evrazes.com/docs/view/75>.

Концепция национальной инновационной системы Республики Беларусь. – Минск, 2006. – 39 с.

*Альжанова Ф.Г.* Рынок технологий в условиях глобализации: институты и механизмы развития в Казахстане. – Алматы, 2007. – 284 с.

*Барлыбаева Н.* Национальная инновационная система США. // Промышленность Казахстана. – 2006. – №10. – С. 36–40.

*Глазьев С.* Таможенный союз: результаты превзошли ожидания. <http://nashmir.kz/news/tamozhennyi-soyuz-rezultaty-prevzoshli-ozhidaniya>. 27.12.11

*Гохберг Л.* Национальная инновационная система России в условиях "новой экономики" // Вопросы экономики. – 2002. – №8. – С. 24–29.

*Зверьев А.В.* Формирование национальной инновационной системы: мировой опыт и российские перспективы: Автореф. дисс. ... докт. экон. наук. – Москва, 2009. – 57 с.

*Иванова Н.* Национальные инновационные системы // Вопросы экономики. – 2001. – №7. – С. 59–71.

*Кенжегузин М.Б., Днишев Ф.М., Альжанова Ф.Г.* Наука и инновации в рыночной экономике: мировой опыт и Казахстан. – Алматы, ИЭ МОН РК, – 2005. – 248 с.

*Муканов Д.* Индустриально-инновационное развитие Казахстана: потенциал и механизмы реализации. – Алматы: Дайк-Пресс, 2004. – 274 с.

*Freeman C.* (1987). *Technology Policy and Economic Performance*. London Pinter Publishers.

Стаття надійшла до редакції 28.05.2013.