

Innovative Development of Engineering Is a Basis of Economy Modernization of Kazakhstan

Shuakhbay Zamanbekovich Zamanbekov

Kazakh State Teacher Training University, Almaty, Kazakhstan

Abstract: The article is devoted to the actual problem connected with development of engineering on innovative basis which is the most important condition of steady and dynamic economic growth of Kazakhstan. Analysis to a current state of engineering of the republic and necessity of reasoning the innovative development of this branch for implementation of diversification and national economy modernization is given in it. Possibility of using the mechanism of state and private partnership for acceleration of innovative progress in engineering and release of innovative production that is necessary for updating of technical equipment of production in branches of the economy and raise of their competitiveness is considered in the article.

Key words: Diversification • Modernization • Innovation • Versatility • Priority

INTRODUCTION

At the present stage the Republic of Kazakhstan is a dynamically developing country. Due to successful implementation of basic regulations of the strategy program "Kazakhstan-2030" the country was included into the number of fifty competitive countries of the world ahead of schedule, having made breakthrough in its development that is characteristic for the Central Asian leopard. It is confirmed by steady economic growth of Kazakhstan for 15-year period from the date of adopting this strategy which in separate years reached 10%. In 2012 production of the gross domestic product (GDP) per capita made more than US \$ 12 thousand [1]. For comparison we'll notice that in 1993 this indicator made US \$ 700. According to the forecast of social and economic development of Kazakhstan for 2013 the gross domestic product per capita will make more than US \$14 thousand at general economic growth of the country for 6% [1].

For ensuring further economic growth of the country in modern conditions it is necessary to change existing ratio of growth of raw and processing sectors of economy in favor of the last one. Use of mechanism of economic growth based on a flow of cheap money received from export of natural resources,

doesn't allow to rely on stability of stable economic development of the country and put its economy in dependence on a world price situation on raw materials [2]. Therefore the main and the only direction providing creation of opportunities for accelerated economic growth is diversification of the economy and its implementation assumes relative reduction of the share of extracting branches in the economic structure at advancing development of processing sector [3]. It will allow the country to turn from the supplier of raw materials and materials into the exporter of goods with a high share of added value in the world markets and create Kazakhstani "niches" in the system of the world economy. Nowadays the indicator of the share of processing sector in the GDP of the country makes no more than 13% that is considered to be inadmissibly low. Production of extractive industry of Kazakhstan continues to occupy nearly 90% of all export of the country as it still remains national economic basis for the next period.

For activation of restructuring of the economy on the basis of carrying out its diversification and modernization, transition of the Republic of Kazakhstan to innovative way of development is necessary that nowadays is the main keynote of their economic development for industrially developed countries [4, 5].

Corresponding Author: Zamanbekov, Kazakh State Teacher Training University,
Ayteke bi street, 99, 050000, Almaty, Kazakhstan.

For transition to such way of development the country has sufficient resource potential and necessary legal base of innovative activity which basis is made by Laws of the Republic of Kazakhstan "About state support of innovative activity", "About science" and a series of state programs on industrial and innovatively development adopted for the last decade.

Among these most important and integrated programs is the Program on development of innovation and assistance of technological modernization in the Republic of Kazakhstan for 2010-2014. This program is a logical continuation of the country's policy pursued on diversification of economic structure for retreat from its raw direction. It integrated in itself the main approaches of Strategy of industrial and innovative development for 2003-2015 and the most important regulations of the Program of forced industrial and innovative development of the Republic of Kazakhstan for 2010-2014 for implementation of breakthrough innovative, industrial and infrastructure projects which will allow to create strong base for a further sustainable development of national economy [1].

As a result of implementing these projects with using KZT 120 billion allocated for them, the head of the state N.A. Nazarbayev within his address at a forum "Innovative Kazakhstan-2020", held in the summer 2011 in Almaty declared that by 2020 Kazakhstan has to have all features and attributes of the working state of innovative type.

In this regard, there is an urgent necessity in accelerated development of a machine-building complex for carrying out modernization of existing enterprises and creating new high productive enterprises that is the most important condition of implementing innovative industrialization of the country. The main objective facing the machine-building complex is to increase technological level of production, ensure mechanization and automation of all stages of production, produce cars and mechanisms of a new generation capable to provide repeated increase in labor productivity, introduce progressive power and resource-saving technologies, etc.

Due to necessity of this task solution a demand of the machine-building branch development by the economy of the country for implementation of its modernization is increasing and realization of the most important role of this branch related to formation through its interaction with innovative sphere of technical and technological potential for perspective growth of branches of national economy and their future

competitiveness is increasing as well [4, 6]. Proceeding from such role of the branch, engineering has to be first in development of economy and improvement of its branch structure on the basis of diversification. Assortment and quality of products produced by machine-building industry determine to a great extent the development of other branches of the economy on innovative basis. In the Republic of Kazakhstan therefore, priority significance is given to implementation of the above stated programs of innovative industrialization on engineering development together with metallurgy and production of finished metal products. At its innovative development new samples of equipment and technologies are produced and in subsequent are introduced into production and increase competitiveness of manufacturing enterprise capacities and production made by them [7].

At the present stage the machine-building industry of Kazakhstan is characterized by difficult communication system both industrial and financial character, versatility of introducing enterprises, their spatial remoteness and various production potential. This industry is in a technological chain of extracting and processing industries participating in machinery and equipment production. The enterprises of machine-building industry depend on closely connected enterprises that deliver raw materials, energy, materials, replenishing junctions and mechanisms, they summarize all merits and disadvantages of their economic activity. Because of this circumstance the infrastructure of machine-building enterprises that is being formed in the republic doesn't correspond to the international practice.

Nowadays less than 5% of industrial and manufacturing capital funds (further IMCF), come to the share of machine-building complex, only 1, 9% from the volume of investment into fixed capital of production purpose and about 1% from the cost of annually launched IMCF, 13% of the total number of industrial and production personnel, degree of wear reached 60%, including their active part 80-90%. On the majority of enterprises the ratio of capital renewals is 1-3% and the ratio of their retirement reaches 9, 6%. Thereof IMCF cost in the last years is annually reducing by 7-8%, the share products of Kazakhstani production on inside republican market of machine-building production makes about 20%, other 80% is defrayed at the expense of import. In developed countries more than 1/3 of total volume of industrial output come to the share of machine-building complex and 3,1% in Kazakhstan.

Modern machine-building complex of Kazakhstan consists of more than twenty industries and subindustries: power, elevating and transport, railway, electrotechnical, chemical and oil engineering, engineering for light and food- processing industry; instrument engineering; tractor and agricultural engineering; mechanical engineering for animal breeding and forage production; machine tool construction, automotive, electronic, aviation industry and some others. This complex defines strategic condition of industrial potential of the state, provides activity of branches of the economy: fuel and energy, mining and metallurgical and agro-industrial complexes, transport and communication, light and food industries. In the same time development of machine-building complex depends on the condition of production in key branches of the economy, included into mining and metallurgical complex. At the first sight the condition of production in this complex is characterized as normal one as it is a key sector of national economy that provides 1/4 part of commercial products of all industry of Kazakhstan and more than a half of its export. But despite such significance of this complex, scientific-technical supply of its production lags behind modern demands and inquiries from consumers who are carrying out innovative activity [8].

In metallurgical industry there is practically no industrial production of science-intensive, high technology, special materials and alloys for developing modern machine-building production in the country. In this industry the demanded range of rolled products and metalware for product release of innovative production of engineering by domestic producers hasn't been produced yet [9]. Industrial production of materials and metalware on the basis of the latest technology-powder metallurgy, electrometallurgy, electroplating, new foundry and chemical technologies haven't been organized yet. Production made by means of such technologies would find broad application in such priority sectors of machine-building complex, as:

- Tractor and agricultural engineering, including production of the equipment and spare parts for industries which are engaged in processing of agricultural production;
- Transport engineering, including production of tanks, vans, equipment for carrying out railway works, containers, parts of track structure, equipment and spare parts for railway transport;

- Engineering for the oil and gas extraction and oil and gas processing industries;
- Production of the equipment for mining and metallurgical complex;
- Automotive industry;
- Electronic and household engineering.

Coordinating actions from the state with the support system measures of innovative process carried out according to the Industrialization Map of Kazakhstan for 2010-2020 are necessary for creation of high technology engineering industry on the basis of developing its priority directions. On the basis of Industrialization Map of the country it is planned to realize 294 projects with a total amount of investments KZT 8,1 trillion. In the economy of the country from the beginning of using this sum of money there was increase of renewal technological equipment of machine-building enterprises along with creation of new types of production. However the infrastructure of these enterprises doesn't correspond to the international practice yet. Wearing of major and auxiliary equipment of main funds of mechanical engineering remains high. The degree of using modern means of measurement and control at all stages of life cycle of production, especially when developing a new product is low. Commercial products of engineering are generally made for the Republic of Kazakhstan. The quality management system of production, standardization and certification don't conform to world requirements.

None of the existing machine-building enterprises has system of ecological management on MI ISO 14001 and system of professional safety and health on ONSAS 18001. There is a shortage of experts with scientific degrees, engineering personnel and highly qualified workers necessary for implementation of structural adjustment in machine-building complex and providing of high quality production produced in it. All this puts back innovative development of engineering and development process as well as implementation of diversification and modernization of the economy of the country [3, 4].

Transfer of national economy to industrial and innovative development, activization of work on implementing its structural adjustment and restructuring of operating enterprises with the purpose of phasing out from production outdated ones and adjustments of production of essentially new or modified production demand intensifying role of the state that coordinating

at the state level of interaction of state and private partnership provides coherence of national, branch and regional priorities of development, concentration of resources on priority directions [10].

However the mechanism of state and private partnership, namely transfer of objects of the state ownership, with application of project financing principles in concession, on exploitation and maintenance, in trust management by property is used insufficiently in national innovative system. The effective legislation doesn't allow to apply different types of contracts used in the world practice. It is one of the reasons that impedes attraction of foreign and domestic investments for development of priority branches of the economy including engineering.

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