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Import Substitution Policy in the Chemical Industry of Pavlodar Region in the Republic of Kazakhstan

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Abstract:

The present paper studies the development of the modern state of the entire industry in the Republic of Kazakhstan using the example of Pavlodar region. The emphasis is placed on the analysis of the main positions on the development of the chemical, oil-refining and petrochemical industries of Pavlodar region in recent years. The article considers investments in the development of the above-mentioned industries in the region. It also provides a brief description of the major industrial companies that sell their products in the studied sectors of the manufacturing industry in the region. The method of the comparative analysis of statistical data on chemical and oil-refining production contributed to studying the quantitative values of these sectors in the context of the region. As a result, the authors propose pursuing the policy of import substitution in the chemical and petrochemical industries in the region as a protectionist policy and realizing the potential for the use of production facilities of the manufacturing industry in Pavlodar region.

Keywords: manufacturing industry; import substitution; chemical industry; nanocomposites; investments.

JEL Classification: L6; O14.

Introduction

Currently, an extensive program on the improvement of industrial development 'State Program of Industrial and Innovative Development of Kazakhstan for 2015-2019' (SPIID) has been launched in the Republic of Kazakhstan. The aim of this program is to promote the diversification of the manufacturing industry and to increase its competitiveness. In the dynamics of the development of the manufacturing industry in Kazakhstan for the last period, a decline can be observed in production volumes, which has an adverse effect on the structure of the economy as a whole and individual industrial regions (Jaksybaev 2002).

The research question is very relevant as far as Pavlodar region is one of the developed mining regions of Kazakhstan. Most of the region's mineral resources, such as building stone, limestone, salt, sand, ceramic raw materials, etc., are of national importance. In the country's mineral resources complex, this area also has a leading position in the industry. The development of the industrial infrastructure in Pavlodar region has been increasingly enhanced due to internal and external investment. However, little attention has been paid to the possible potential to create new products that can be made at the local level, on the basis of existing enterprises, with a focus on import substitution.

Based on the priority sectors of the economy, the above-mentioned program provides some recommendations for the policy of import substitution of certain products in the chemical and petrochemical sectors of Pavlodar region, which can be made on the basis of operating industrial enterprises. All this defines the novelty of the research topic, namely the proposals for import substitution of chemical and petrochemical products, since product types, suggested in this paper, have not been manufactured at the local level in Pavlodar region before (Zhakupov and Atasoy 2014).

The purpose of the research is to develop new chemical products on the basis of operating enterprises of Pavlodar region for import substitution and market expansion with a focus on the competitiveness of the chemical and petrochemical industry.

To implement this purpose, it is necessary to address the following tasks:

- to examine the current state of the chemical and petrochemical industry;
- to analyze the foreign economic activity of the chemical and petrochemical industry;
- to develop recommendations on the import substitution policy in the chemical and petrochemical industries in the region.

1. Methods

For the analysis of indicators, the research used data presented by the Agency of Statistics of the Republic of Kazakhstan, the Development Program of the Territory of Pavlodar Region for 2016-2020, the information-analytical system of project management, the industrialization map of Kazakhstan and electronic resources, as well as a number of research works by domestic and foreign scientists.

To identify the dynamics of quantitative indicators, the authors used statistical methods of comparison of time series. The comparative analysis of recent data showed an overview of the industry development of Kazakhstan and Pavlodar region in particular.

The investigation of the research topic covered such methods as a comparative analysis of the industrial development of Kazakhstan, analysis. For more extensive information, statistical methods of studying this area of research was applied. The results of quantitative indicators, processed by this method, are presented in Tables, charts and diagrams.

To prepare this article, the authors used purely statistical, information and analytical sources, mainly dealing with the development of industry not so much in the Republic of Kazakhstan as in the context of Pavlodar region. For a more accurate study of this field of economics, there is a need to study the country's regions separately because each region of Kazakhstan carries a separate potential for the development of industry as a whole.

When collecting analytical data, the authors used mainly the reports of the Agency of Statistics of the Republic of Kazakhstan, as well as progress reports on implementation of the industrialization map of Pavlodar region.

To study the import substitution policy in the chemical and petrochemical industry, the authors analyzed the paper by Don Rosato (2015), who considered nanocomposites: technologies, strategies and trends. A number of his works and research are devoted to creating nanocomposites in laboratory conditions.

Particular attention in this paper was paid to the analysis of works by Chvalun, S.N., Korobko, A.P., Novokshonova, L.A., Brevnov, P.N. (2008), who studied the properties of polymer-silica nanocomposites and their physicochemical synthesis aspects.

2. Results and Discussion

2.1. Overview of the industry development of Pavlodar region

Pavlodar region is characterized by a diversified structure of the economy, as far as the backbone of the economy in this region is the sectoral industry. It is the largest industrial center in the northeastern part of Kazakhstan, presenting a diversified complex focused on the production of electric energy, alumina, petroleum refining, machinery manufacturing, food processing, building materials and pharmaceuticals, which is more detailed shown in the sectoral structure of the volume of production in Pavlodar region (Table 1).

Table 1. Structure of industrial production by industry in Pavlodar region for 2013 – 2015

Industry group	Production volume							
	2013		2014		2015		January-August 2016	
	thous.tenge	%	thous.tenge	%	thous.tenge	%	thous.tenge	%
Industry, total:	1,334,756,016	100	1,110,597,696	100	1,044,224,314	100	856,401,365	100
								including:
Mining and quarrying industry	104,755,951	7.8	113,235,467	10.2	119,247,709	11.4	107,986,260	12.6
Manufacturing industry	959,350,012	71.9	708,148,920	63.8	677,760,979	65.0	587,704,482	68.6
Electricity, gas and steam supply, air conditioning	255,966,723	19.2	277,891,729	25.0	236,487,748	22.6	153,383,308	17.9
Water supply, sewerage system, control over waste collection and distribution	14,683,330	1.1	11,321,580	1.0	10,727,878	1.0	7,327,315	0.9

Source: (Agency of Statistics of the Republic of Kazakhstan 2016).

Figure 1. The sectoral structure of industry of Pavlodar region for 2013 – 2015

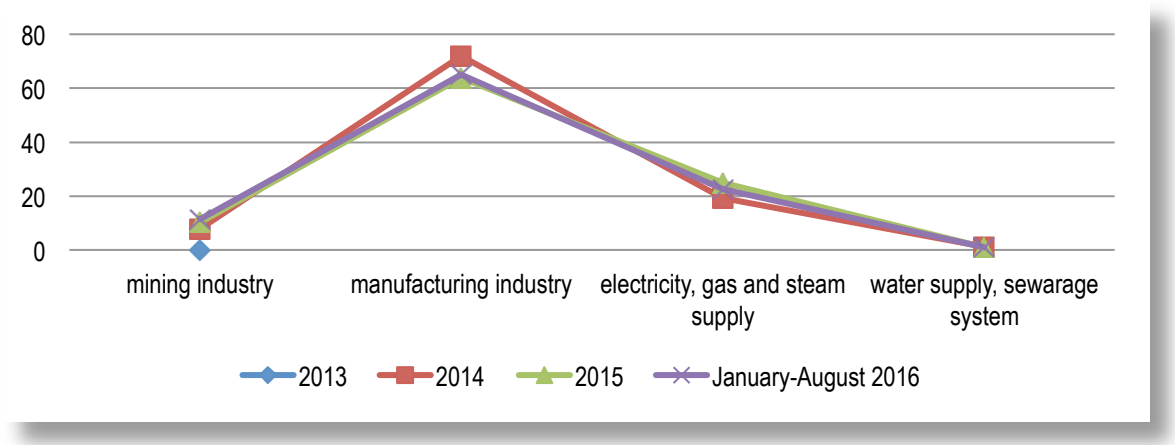


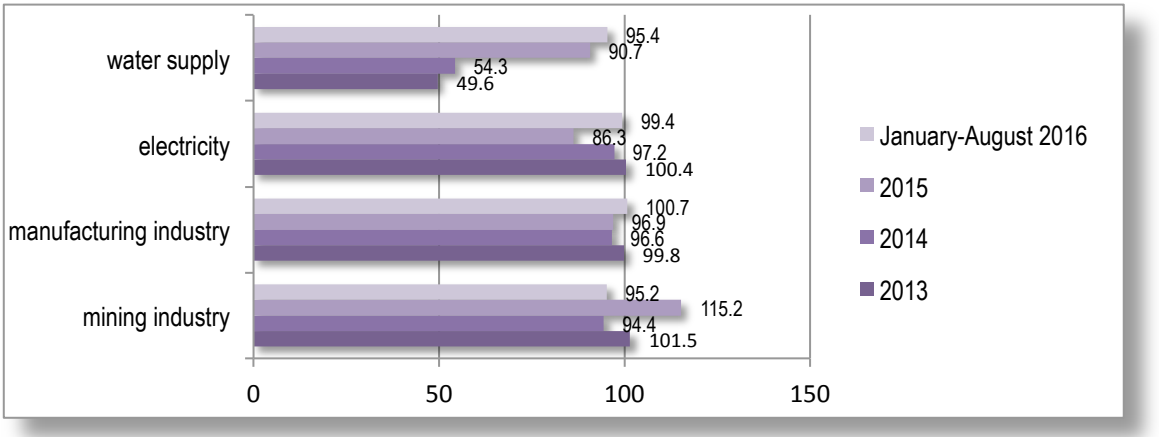
Figure 1 shows that during 2013-2015 in the sectoral structure of industrial production in Pavlodar region there was an increase in the share of the mining industry by 3.6% (from 7.8% to 11.4%) and in the field of electricity – by 3.4% (from 19.2% to 22.6%). In the manufacturing industry, the share of production decreased by 7% and amounted to 65% in 2015.

Consider the volume index (VI) of industrial production by main types of economic activities in the region (Table 2).

Table 2. The VI of industrial production by main types of economic activities in Pavlodar region for 2013 – 2015

Industry	VI of industrial production, %			
	2013	2014	2015	January-August 2016
Industry, total	99.2	96.1	96.1	101.1
Mining and quarrying industry	101.5	94.4	115.2	145.7
Manufacturing industry	99.8	96.6	96.9	96.9
Electricity, gas and steam supply, air conditioning	100.4	97.2	86.3	95.2
Water supply, sewerage system, control over waste collection and distribution	49.6	54.3	90.7	102.3

Figure 2. The VI of industrial production by main types of economic activities in Pavlodar region for 2013-2015, %



According to Figure 2, a more stable development of industrial production in the context of Pavlodar region can be seen in January-August 2016, as far as the VI amounted to 101.1% of the previous period, and the region occupied the seventh position in the ranking. In 2015, in comparison with the previous period, there was the same low level of production volumes and the VI amounted to 96.1%, due to the complication of the external economic environment and weak economic activity in Kazakhstan.

In January-August 2016, 11,595 billion tenge was spent on industrial output in the Republic of Kazakhstan, which constituted 97.7% of the corresponding period level (The development program of the territory of Pavlodar region for 2016-2020 2015). Despite the improved position in January-August 2016, the plan targets were not achieved in 2015 – the VI of electricity amounted to 86.3% (by 10.9% less compared to 2014), volume – 236,487,748 thousand tenge. The failure to achieve this index was mainly due to a decrease in competitiveness as a result of continuous variation of the price balance.

In the manufacturing industry, the output VI of metallurgical industry products amounted to 105.5%, which exceeds the plan by 4.7%, including the iron and steel industry (104.6% with planned 98.7%), the color industry (106.7 % with planned 104.2%), metal casting (101.8%), manufacturing of finished metal products (120.5% with planned 107.5%), manufacturing of rubber and plastic products (102.0 % with planned 100.0%) (Agency of Statistics of the Republic of Kazakhstan 2016).

In the chemical industry, there is a decrease in the production of chemical products, where the VI amounted to 84.4% in January-August 2016, which falls short of the plan by 16.6%, while the output VI of other non-metallic production was 63.3% for this period, which is lagging behind the plan by 34.7% (Agency of Statistics of the Republic of Kazakhstan 2016).

In the mining industry, the VI of metal ore production was 444.8% with planned 411.7%. In other sectors of the mining industry, the VI amounted to 124.4% with planned 103.0% (Plans for the reconstruction and modernization of 'PPP' LLP 2015). The decline in this industry was due to the decrease in production volumes of refined petroleum products, where the VI was 92.3%, which is lower than planned by 1.1%. 'Pavlodar Petrochemical Plant' LLP was marked by a decrease in the production of gasoil (90.0%), heating oil (81.4%),

petroleum coke (83.4%), and no production of kerosene (Agency of Statistics of the Republic of Kazakhstan 2016).

In the engineering industry, the VI amounted to 77.7% in January-July 2016, which falls short of the plan by 22.5%. This reduction is connected with the lack of contracts for the release of railway coaches at 'Kazakhstan Wagon Company' LLP. It was also due to a decrease in the production of electrical equipment in 'KazEnergoKabel' JSC by 34.5%, a reduction in the manufacturing of trucks at 'Prommashkomplekt' LLP – by 10.0%, and a decrease in parts of railway locomotives, trams and rolling stock, mechanical control equipment at 'RITAM-Pavlodar' LLP and 'Plant 'Format LLP' - by 24.5% (Management of Industrial and Innovative Development of Pavlodar region 2016).

2.2. Review of investment projects for industry development with a focus on import substitution in Pavlodar region

An increase in the growth of the industry of Pavlodar region in the basic industries during the reporting period was mainly due to the implementation of major investment projects of the modernization and re-equipment of existing production facilities.

For example, in 2015, five investment projects were implemented in the manufacturing industry and energy sector, with the total volume of investments - 443.2 billion tenge, and 1,992 jobs were created. To date, projects have already released products (Akimat of Pavlodar region 2016).

The main features of projects, aimed at import substitution, are shown in Table 3.

Table 3. Brief review of investment projects for the development of the industry of Pavlodar region in 2016.

Project aim	Final result	Time frame	Investment amount	Sales forecast
Project 'Production of Agrochemical Products in the Territory of SEZ Pavlodar' (Applicant - 'Agrohimrpogress' LLP)				
Production of agrochemical products for the internal market of Kazakhstan	11.0 thousand tons of chemicals per year, 118 jobs	Introduced on June 22, 2016	3.3 billion tenge	Internal sales market
Project 'Plant on Production of Railway Axles and Formation of Wheel Sets in the Republic of Kazakhstan' (Applicant – 'R.W.S. Wheelset' LLP) (Euromonitor International 2016)				
Production of railway axles and wheel sets for Kazakhstan and other Central Asian countries	42 thousand axles and 20 thousand wheel sets per year, 200 jobs	2nd quarter of 2016	11.9 billion tenge, including 9.6 billion of debt funds, and 2.4 billion tenge of its own funds	Internal sales market, Central Asian countries
Project 'Greenhouse Complex 'GreenhouseKZ' LLP' (Ekibastuz) (Applicant – 'R.W.S. Wheelset' LLP)				
Local rose growing	10 million roses per year, 70 jobs	Introduced in February 2016	3.2 billion tenge	Internal sales market
Project 'Construction of the Greenhouse Complex' (Pavlodar) (Applicant - 'Pavlodar Greenhouse Complex' LLP)				
Tomato growing	1,600 tons of tomatoes per year, 50 jobs	Introduced in March 2016	1.8 billion tenge	Internal sales market
Project 'Recycling of Crushed Stone' (Applicant - 'Zholbarys' LLP)				
Creating a system for processing of crushed stone for construction	300.0 thousand cubic meters per year, 25 jobs	2nd quarter of 2016	140 million tenge	Internal sales market
Project 'Construction of the Coal Preparation Facility' (Maysky District) (Applicant - 'Direct' LLP)				
Creating a complex for coal preparation	300 thousand tons of coal per year, 30 jobs	Introduced in May 2016	0.8 billion tenge	Internal sales market
Project 'Modernization of the Production of High Pressure Sleeves' (Pavlodar) (Applicant - 'Agromir' LLP)				
Production of high pressure sleeves	500 thousand sleeves per year, 4	Introduced in August 2016	50 million tenge	Internal sales market

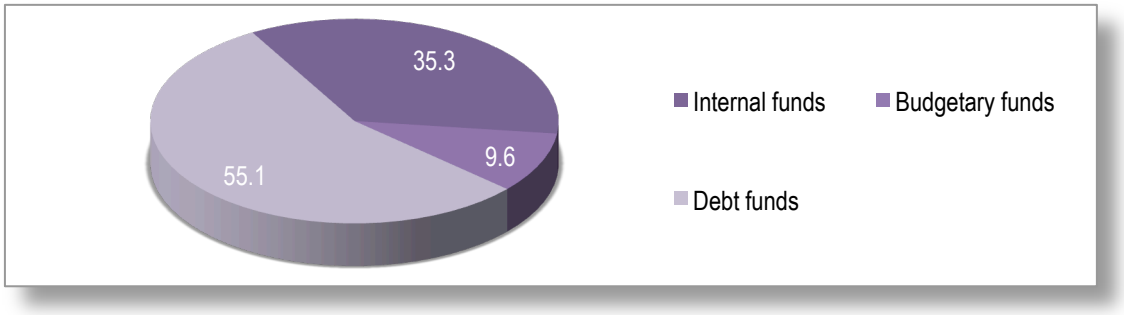
Project aim	Final result	Time frame	Investment amount	Sales forecast
	jobs			
Project 'Modernization of the Production of Precast Reinforced Concrete and Concrete Units and Products' (Applicant - ' ZZhBI TemirTas Pavlodar' LLP)				
Production of precast reinforced concrete and concrete units	66.6 thousand exterior and interior wall panels per year, 133 jobs	Planned to be introduced in December 2016	818.3 million tenge	Internal sales market

Source: (Akimat of Pavlodar region 2016; Euromonitor International 2016; Management of Industrial and Innovative Development of Pavlodar region 2016).

It is also planned to start the investment project in the field of energy 'Cyclic-Flow Overburden Complex No.2', initiated by 'Eurasian Energy Corporation' JSC, until January 1, 2017 (The information-analytical system of project management 2016).

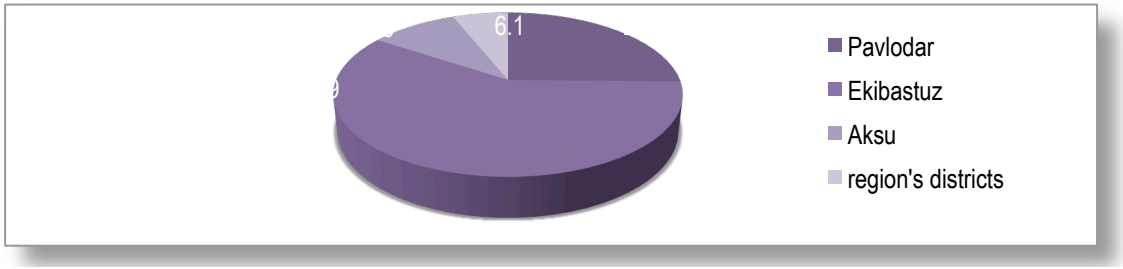
At the end of the period from January to July 2016, investments in the fixed assets of Pavlodar region's industry development constituted 176.2 billion tenge, namely 98.0% of the corresponding period of the last year. The greatest share in the structure of investments relates to foreign funds (Figure 3).

Figure 3. Structure of funding sources of Pavlodar region's industry for January-June 2016, %



Regionally, investments mainly go to the industry located in the territory of cities, namely about 93.8% (Figure 4).

Figure 4. Structure of investments in the fixed capital of Pavlodar region's industry in the context of cities and districts, %



The volume of investments in the fixed assets of the manufacturing industry was 116.1 billion tenge, while the VI amounted to 111.6% of the previous period. The volume of foreign investments was 97.0 billion tenge (Management of Industrial and Innovative Development of Pavlodar region 2016).

A characteristic feature of the manufacturing industry of Kazakhstan is the complete availability of local raw materials and fuel. The leading manufacturing industries are the iron and steel industry (39%), the oil-refining industry (37%) and engineering (13%). The petrochemical industry is also of particular interest, as far as recently, there has been a downward trend in the production of petroleum products in Pavlodar region (Kondratenko and Chukov 2014).

2.3. Development of the petrochemical industry of Pavlodar region

According to the rating of the petrochemical industry of Kazakhstan, Pavlodar region takes the third place after Atyrau and South Kazakhstan regions of Kazakhstan. In 2015, the share of the oil-refining industry of Pavlodar

region in the structure of industrial production amounted to 9.9% of the region's volume of manufacturing production.

Consider the change in production indicators of the region's petrochemical industry in recent years (Table 4).

Table 4. Petrochemical production volumes in Pavlodar region for 2013 – 2015

Main indicator	2013	2014	2015	January-August 2016
Oil production in monetary terms, thousand tenge	358,694,135	59,589,700	52,580,160	35,693,899
The total volume of petrochemical products, thousand tons	4,900.4	4,667.1	4,745.1	3,058.0
including:				
▪ Motor fuel (gasoline, including aviation), thousand tons	1,146.8	1,239.8	1,244	910.1
▪ Kerosene, including jet fuel, thousand tons	136.2	113.6	31.5	-
▪ Gasoil (diesel), thousand tons	1,879.1	1,665.7	1,617.2	1,061.8
▪ Heating oil, thousand tons	914.7	793.6	899.6	429.7
▪ Propane and butane reduced, thousand tons	97.5	202.2	108.7	59.6

Source: (Agency of Statistics of the Republic of Kazakhstan 2016).

In 2015, as compared with 2013, a decline in petroleum production can be observed. It was caused by a reduction in the volume of oil supplies by tolling organizations and in the world oil prices, which remains a relevant issue in 2016 because, as of August 2016, the volume of petroleum products amounted to only 35,693,899 thousand tenge, which in relative terms was less by 32% compared with the previous period.

The low level of oil prices slowed growth in Kazakhstan, which resulted in a balance deficit. In 2016, the price level is still unchanged and amounts to 0.7%. In 2017, a slight recovery to 1% is projected (Plans for the reconstruction and modernization of 'PPP' LLP 2015).

In January-August 2016, the VI in the oil-refining industry was only 92.3%.

The representative in the petrochemical industry in Pavlodar region is 'Pavlodar Petrochemical Plant' LLP (PPP LLP). In order to increase the depth of oil refining at the plant, a unique facility was first built in the CIS – a complex for deep processing of KT-1 heating oil. In the manufacturing industry, there is a decrease in production volumes, as far as the VI of refined petroleum products amounted to 92.3% with planned 93.4%. At 'PPP' LLP there was also a reduction in the production of gasoil (VI – 90.0%), fuel oil (VI – 81.4%), petroleum coke (VI – 83.4%), and a lack of kerosene release (Management of Industrial and Innovative Development of Pavlodar region 2016).

In order to increase the volume of oil refining, there is a project being undertaken to modernize the production up to 7 million tons per year. The aim of the project is the production of Euro-4 gasoline and Euro-5 diesel fuel, which is currently the highest technological redistribution. To implement these aims, 'PPP' LLP implements the project 'Modernization of the Pavlodar Petrochemical Plant' (Plans for the reconstruction and modernization of 'PPP' LLP 2015). The project will involve foreign companies as developers of base projects – technology licensors in the oil-refining industry: UOP Limited (United Kingdom), Siirtec Nigi (Italy) and Haldor Topsoe (Denmark).

A number of projects with an investment of over 6 billion tenge were launched in the chemical industry in 2013-2015, namely 'Manufacture and Sales of High-Tech Disinfectants' (applicant – 'BO-NA' LLP), 'Setting of Powder Polypropylene Granulation' (applicant - 'Company Petrochem LTD' LLP). In 2017, it is planned to complete the project 'Modernization of the Pavlodar Petrochemical Plant', the applicant of which is 'PPP' LLP (Kazakhstan's industrialization map 2016).

In the future, the development of the chemical industry is related to the expansion of the activities of the special economic zone 'Pavlodar' (SEZ 'Pavlodar'), aimed at import substitution (Table 5).

Table 5. Brief review of investment projects in the chemical industry of Pavlodar region as of September 1, 2016

Project aim	Final result	Time frame	Investment amount	Sales forecast
Project 'Production of Inhibited Hydrochloric Acid in the Territory of SEZ 'Pavlodar' (Applicant - 'Chemical company 'Ertis' LLP)				
Production of inhibited hydrochloric acid used for the acid treatment of bottom-hole zones of oil wells in the oil industry companies	40 thousand tons of inhibited hydrochloric acid per year (22-24% concentration)	2012-2021	593,930 million tenge, including fixed assets – 319,410 million tenge	Kazakhstan – 80%, Russia's regions – 20%
Project 'Construction of a Sulfuric Acid Plant' (Applicant - 'Sulfuric Acid Plant' LLP)				
Production of sulfuric acid with high added value, which will be competitive in the domestic market of the Republic of Kazakhstan; solving problems of storage and processing of sulfur, which has a negative impact on the environment	180 thousand tons of sulfuric acid per year, corresponding in quality to GOST 2184-77; electrical energy – 6250 kW (surplus - 3250 kW)	2013-2017	16,929 million tenge (including VAT), including debt capital – 8,809.04 thousand tenge	Kazakhstan and Russia
Project 'Production of Polyaluminium Chloride' (Applicant - 'Khimpromproduct' LLP)				
Construction of a polyaluminium chloride production plant	Drinking water treatment	2013-2017	3,231 million tenge	Internal market

Source: (Management of Industrial and Innovative Development of Pavlodar region 2016).

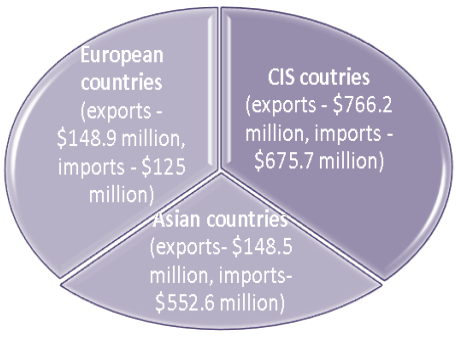
In the chemical industry, the highest share in industrial production in the region accounts for 'Company Nephtechim LTD' LLP, which amounts to 59%, and 'Caustic' JSC, which is 30% of the share.

2.4. Foreign economic activity of Pavlodar region

The share of Pavlodar region in the total trade turnover of the Republic of Kazakhstan was 9.0% in the period January-July 2016. The export share of the region in the country's total trade turnover structure is 17.1% and the import share - 5.5% (Agency of Statistics of the Republic of Kazakhstan 2016).

The main trade partners of Pavlodar region are the CIS countries, European countries (Netherlands, Germany), Asian countries (China, Turkey).

Figure 5. Main trade partners of Pavlodar region in the context of foreign trade activities for 2015



In January-July 2016, the volume of foreign trade turnover amounted to $619,197.7 thousand, and the trade balance was positive and amounted to $99,738.7 thousand (Table 8).

Table 8. Foreign trade turnover of Pavlodar region in January-July 2016

Country	Exports			Imports		
	amount, ton	value, $ thousand	share, %	amount, ton	value, $ thousand	share, %
Total	11,151,352.3	359,468.2	100	767,317.0	259,729.5	100
including:						
Belarus	5,050.0	6,959.0	1.9	3,202.0	4,056.4	1.6
Kyrgyzstan	32,988.9	6,093.3	1.7	3,974.7	1,394.7	0.5
Russia	11,113,313.4	346,415.9	96.4	760,140.1	254,278.3	97.9

Source: (Agency of Statistics of the Republic of Kazakhstan 2016).

Table 8 shows that in January-July 2016, Russia takes the prevalence in the share. At the same time, by each position there is a decrease in turnover.

There is a decline in exports by major commodity groups: mineral products (by 66.6%) and metallurgy (by 31.6%). At the same time, there is an increase in the exports of food industry products (by 51.9%) and mechanical engineering by 5 times. In January-April 2016, there is also an increase of the imports of mineral products by 56.2% (by imports of coke and semi-coke of coal, petroleum calcined coke and anthracite) (Management of Industrial and Innovative Development of Pavlodar region 2016).

Table 9. Dynamics of foreign trade indicators of Pavlodar region

Indicator	Volume of trade, $ million		
	2013	2014	2015
Foreign trade turnover, total	4,409.5	2,864.3	2,491.8
Exports of goods	1,997.1	1,517.1	1,115.0
Imports of goods	2,432.4	1,347.2	1,376.8

The volume of exports in 2015, as compared with 2013, decreased by 26%, or $402,100,000 million. The main share of exports belongs to the shipment of raw materials, namely mineral products, chemical industry products. The reduction in exports is connected with the fall in the world prices for products of the export-oriented enterprises of Pavlodar region, a corresponding reduction in the volume of production, as well as a decline in demand.

Moreover, on August 1, 2016, the Order of the Minister for Investment and Development of the Republic of Kazakhstan J.M. Kasymbek 'On the Introduction of a Ban on Export of Waste and Scrap of Ferrous Metals from the Territory of the Republic of Kazakhstan' came into force.

Engineering products, chemicals, metallurgy products, building materials, food and consumer goods are imported from Russia to Pavlodar region. Russian regions are supplied with alumina, aluminum, crane products, polypropylene, seamless tubes, cables and wires, coal, ore concentrates of non-ferrous metals, oil and salt. Consider the imports of Pavlodar region by commodities (Table 10).

Table 10. Imports of Pavlodar region for 2014 by major industrial products

Product list	Imports, $ thousand
Other railway or tramway passenger coaches, not self-propelled; luggage vans, post office coaches and other special purpose railway or tramway coaches, not self-propelled	46,131.2
Disodium carbonate	33,155.7
Other parts of boilers	35,559.2
Other coke and semi-coke of coal	34,983.6

Product list	Imports, $ thousand
Other parts for steam turbines	23,147.4
Axles assembled or unassembled, other	18,758.7
Bars and rods of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn or hot-extruded, but including those twisted after rolling	17,838.1
Coal - anthracite with limiting output of volatile substances (in terms of dry mineral matter free base) not exceeding 10%	12,577.6
Other crushing or grinding machines	10,830.3
Electric generating sets, other: turbo-generators	8,943.2
Railway or tramway track fixtures and fittings	8,790.1
Line pipe of a kind used for oil or gas pipelines, other, longitudinally welded, other	8,737.1
Other structures of iron or steel	6,456.4
Tubes, pipes and hollow profiles, seamless, of iron (other than cast iron) or steel: other	4,922.0
Railway or tramway goods vans and wagons, not self-propelled, covered and closed, other	4,862.5
Other bogies and bissel-bogies	4,696.0
Rails flat-bottomed, new, with a linear meter mass of 46 kg or more	4,374.7
Programmable controllers with a voltage not exceeding 1,000 V, other	3,955.2
Refractory bricks, blocks, tiles and similar refractory ceramic constructional goods, containing by weight more than 7% but less than 45% of alumina (Al_2O_3)	3,934.5
Other poly(vinyl chloride) plasticized	3,110.7
Casing of a kind used in drilling for oil or gas, longitudinally welded, other	3,077.3

The main trading partner of the region is the Russian Federation, whose share in the total volume is more than 60%. A decrease in exports is recorded for mineral products, certain types of ferro-alloys (Management of Industrial and Innovative Development of Pavlodar region 2016). The trade turnover of Pavlodar region with the Customs Union members in 2013 amounted to $2,848.7 million, of which $2,822.3 million falls on Russia. In 2014-2015, there were opened representative offices and other companies, planning to supply finished products to the Russian market: medical products, furniture, energy saving lamps, packaging products.

2.5. Import substitution policy in the petroleum refining and chemical industry of Pavlodar region and future development prospects

The most common petroleum products refer to fuels. These are diesel fuel, heating oil, jet fuel, and gasoline. The second place is taken by the production of plastics. The concentrate remaining after oil distillation is called a tar and used in the manufacture of road and building covering. Oil recycling involves changing the structure of its components – hydrocarbons. It provides the raw material, of which synthetic gums and rubbers, synthetic fabrics, plastics, polymer films (polyethylene, polypropylene), detergents, solvents, paints and varnishes, dyes, fertilizers, pesticides, wax and many more are made. Oil refinery waste is also utilized. Coke, used in the production of electrodes and in metallurgy, is made of oil refinery waste. Sulfur, which is obtained from oil during its processing, especially high-sulfur, is used in the production of sulfuric acid (RBC Information website 2016).

Currently, the aforementioned petroleum products are imported by Kazakhstan, but the production of some of the elements is also possible in Pavlodar region by modernizing the equipment and production facilities.

For the active development of the chemical industry in Pavlodar region, it is necessary to introduce the technology for the production of such products as maleic anhydride and nanocomposite materials, which today are widely used in all fields of industrial chemistry.

The production of the following petroleum products may also bring a huge benefit for the region:

▪ *Disodium carbonate* (Na_2CO_3) (carbonic acid sodium salt). The resultant disodium carbonate is used in the manufacture of glass, laundry detergents, soaps and enamel for obtaining ultramarine (Information website 'Syl.ru' 2016). It also helps to eliminate water hardness, to degrease metals and to carry out desulphurization, the object of which is pig iron. Sodium carbonate is a good oxidant and acidity regulator, it is contained in dish detergents, cigarettes and pesticides. It is also used in the food industry as an additive E500, preventing ingredients from coagulating and caking, and for the preparation of the photo developer (Khimprom – chemical products 2016).

▪ *Polyvinyl chloride* (PVC) plasticized (FPVC, PVC-F, PVC-P). It is used for the insulation of cables and communication cables, and it replaces rubber, lead and cotton yarn (Big Encyclopedia of Gas Oil 2015). It is also sprayed on metal, concrete, brick, wood, cloth and plastic.

In *medicine*, PVC products are extremely varied, easily produced and may be used within the human body. Containers for the blood and viscera, catheters, tubes for feeding, pressure measurement instruments, surgical gloves and masks, surgical tires, blister packaging for Tablets and pills are made of PVC products (Central Asia Company 2016).

In the *automotive industry*, PVC is used for the production of coverings, sealing materials, cable insulation, cabin trim, instrument and door panels, armrests etc. PVC is used in the manufacture of safety bags, protective panels and other structures that protect passengers from injuries in case of accidents.

PVC properties allow it to occupy one of the leading lines in the goods market, as far as PVC is versatile, weather-proof, energy efficient, fire-resistant, hygienic, durable, economical, safe and easily disposed. Waste generated after the manufacture of polyvinyl chloride can be processed up to five times or disposed, while the quality of PVC is practically unchanged (Central Asia Company 2016).

In the field of nanocomposites, there is an extensive list of chemicals that can improve the economic situation of the region's chemical industry and increase the competitiveness of enterprises. Namely, these are the following products: epoxy resins, polyurethane, polyetherimide, polystyrene, polybenzoxazole, polymethyl, methacrylate, polycaprolactone, polyacrylonitrile and others (Buznik, Fomin and Alkhimov 2005).

Conclusion

The analysis of the industry development of Pavlodar region helped to reveal the following:

- In 2015, the share of production in the manufacturing industry decreased by 7% and amounted to 65%. In 2015, in comparison with the previous period, there was no change in the low level of production volumes and the VI amounted to 96.1%, due to the complication of the external economic environment and weak economic activities in Kazakhstan. The decline in the manufacturing industry can be explained by the decrease in production volumes of refined petroleum products, where the VI amounted to 92.3%, which is lower than planned by 1.1%.
- Five investment projects in the manufacturing industry and energy sector were carried out in 2015, with the total volume of investments of 443.2 billion tenge and 1,992 jobs created. To date, projects have already released products. By July 2016, within the framework of SPIID in Pavlodar region, eight projects worth 22.0 billion tenge have been implemented and 630 jobs have been created.
- In January-July 2016, as compared with the same period of the previous year, the region's trade turnover decreased by 20%, amounting to $153,166.3 thousand. In the reporting period, exports decreased by 16%, while imports - by 25%.

Therefore, an overall decline in the development of the main industries can be observed in Pavlodar region over the last period.

To solve this problem, the production of petroleum and chemical industries in the region with a focus on import substitution can be considered in the long term. Given the list of goods imported to the territory of Pavlodar region, it is suggested to launch the manufacture of the following products, which do not require extensive renovation and modernization:

- Disodium carbonate Na_2CO_3 (carbonic acid sodium salt), which can be used in the manufacture of glass, laundry detergents, soaps and enamel for obtaining ultramarine. It also helps to degrease metals and to carry out desulphurization, the object of which is pig iron.
- Polyvinyl chloride (PVC) plasticized (FPVC, PVC-F, PVC-P), which is used for the insulation of cables and communication cables, and it replaces rubber, lead and cotton yarn. It is used in the production of insulation materials, floor tiles, linoleum, food packaging, furniture upholstery and lining materials.
- Maleic anhydride (maleic acid anhydride, 2.5-furandione). Maleic anhydride ($C_4H_2O_3$), which is used in the construction industry for the manufacture of polyester and alkyd resins. It is widely used in

agriculture as plant growth regulators, defoliants, fungicides and insecticides. It is also used as a component in the lubricating oil, reducing friction.

- Nanocomposites, which can be used in the manufacture of aircraft components, in medicine, in the automotive industry, in the field of light industry.

The potential of Pavlodar region is huge, given the existing stock of industrial facilities, its geographical location and available raw materials, which will improve the socio-economic situation of Pavlodar region and Kazakhstan in general. However, it is also necessary to take into account the fact that additional production in this region will exacerbate the environmental situation, as far as, for example, the production of maleic anhydride is very toxic. New products can also be uncompetitive in the markets of Kazakhstan and the CIS countries.

References

[1] Agency of Statistics of the Republic of Kazakhstan. 2016. Available at: http://www.stat.gov.kz/ (accessed: September 30, 2016).

[2] Akimat of Pavlodar region. 2016. Available at: http://www.pavlodar.gov.kz/ (accessed: October 4, 2016).

[3] Big Encyclopedia of Gas Oil. 2015. Available at: http://www.ngpedia.ru/id281951p1.html (accessed: September 30, 2016).

[4] Buznik, V.M., Fomin, V.M., and Alkhimov, A.P. 2005. *Metal-polymer nanocomposites (production, properties, application)*. Novosibirsk: Publishing House of the SB RAS.

[5] Central Asia Company. 2016. Available at: http://www.ca-com.kz/index.php/stati/12-polivinilkhlorid (accessed: September 28, 2016).

[6] Chvalun, S.N., Novokshonova, L.A. Korobko, A.P., and Brevnov, P.N. 2008. Polymer-silica nanocomposites: physicochemical aspects of synthesis by polymerization in situ. *Russian chemical journal 'D.I. Mendeleev Journal of Russian Chemical Society'*, 5: 52-57.

[7] Euromonitor International. 2016. Available at: http://www.euromonitor.com/kazakhstan (accessed: October 6, 2016).

[8] Information website 'Syl.ru'. 2016. Sodium carbonate: properties, preparation and use. Available at: http://www.syl.ru/article/99068/karbonat-natriya-svoystva-poluchenie-primenenie (accessed: September 22, 2016).

[9] Jaksybaev, S.I. 2002. *Mineral resources of Pavlodar region*. Pavlodar: Eko.

[10] Kazakhstan's industrialization map. 2016. Available at: file:///D:/Downloads/karta_industrializacii_kazahstana.pdf (accessed: September 30, 2016).

[11] Khimprom - chemical products. 2016. Available at: http://www.himprom-s.ru/karbonat.phtml (accessed: September 22, 2016).

[12] Kondratenko, V.V., and Chukov, V.A. 2014. Economic development of the Pavlodar area. Specific and tendencies. *Bulletin of Innovative University of Eurasia*, 3: 18-22.

[13] Management of Industrial and Innovative Development of Pavlodar region. 2016. Available at: http://www.innovations.pavlodar.gov.kz/ (accessed: October 18, 2016).

[14] Plans for the reconstruction and modernization of 'PPP' LLP. 2015. Available at: https://www.pnhz.kz/modernization/modernization_plans/ (accessed: September 15, 2016).

[15] RBC Information website. 2016. Amazing facts about oil: food, toys and medicines are made of it. Available at: http://www.rbc.ru/economics/27/11/2012/5704002e9a7947fcbd442f1b (accessed: September 30, 2016).

[16] Rosato, D. 2015. *Nanocomposites: technologies, strategies, trends*. New chemical technology - Analytical portal of the chemical industry. Available at: http://www.newchemistry.ru/letter.php?n_id=291 (accessed: September 15, 2016).

[17] The development program of the territory of Pavlodar region for 2016-2020. 2015. Approved by the session of the Pavlodar regional maslikhat (XLVI session, V convocation) of December 10, 2015, No. 398/46.

[18] The information-analytical system of project management. 2016. Investment projects in the framework of SPIID. Available at: http://iasup.kidi.gov.kz/ (accessed: October 4, 2016).

[19] Zhakupov, A. and Atasoy, E. 2014. Geographical aspects of city regional development Pavlodar. *Sustainable development*, 19: 28-36.

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