The object of this study were projects based on public-private partnership. The results of the state of public-private partnership projects in various sectors of the economy of the Central Asian countries and the assessment of the prospects for their development are presented.

The study uses a comparative public-private partnership project and a forecast analysis of the economic performance of the economies of the Central Asian countries.

A comparative analysis revealed the predominant areas of public-private partnership projects. The Republic of Kazakhstan is ahead of other Central Asian countries in the implementation of public-private partnership projects with a total cost of USD 2.863 billion. There are 136 projects in the Republic of Uzbekistan, dominated by the sphere of housing and communal services (collection, removal, sorting, and processing of solid household waste) and the field of culture and sports. There are three agricultural projects in the Kyrgyz Republic. In the Republic of Tajikistan, 32 projects are being developed, mainly aimed at the development of transport infrastructure. Turkmenistan is implementing two projects related to transport infrastructure and manufacturing.

Forecast analysis of economic indicators of countries makes it possible to identify the prerequisites for the use of market mechanisms to improve the agriculture of countries and the prospects for development from implementation for the agro-industrial complex of the Republic of Kazakhstan. The most important task of the strategic development of countries with commodity economies is to increase food security. The creation of favorable conditions for the development of economic relations between the state and the private sector is inextricably linked with the need to provide state support measures and legal regulation

Keywords: public-private partnership, project, wholesale distribution center, grain product subcomplex, food security, economy

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IMPACT OF THE PROFILE OF PUBLIC-PRIVATE PARTNERSHIP PROJECTS ON THE ECONOMIC POTENTIAL OF CENTRAL ASIAN COUNTRIES

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1. Introduction

All over the world, the level of innovation of the economy is determined by the scale of application of new knowledge and advanced technologies, as well as the capacity of the market for high-tech products. The study of innovations and their impact on the economic efficiency of the country is important from the strategic point of view of sustainable long-term development. This is relevant for emerging economies, which include the countries of Central Asia. The state can attract more investments, both internally and externally, expanding the innovative potential of the country. By becoming more successful in one's region, one can enter the world market [1].

Investment policy plays a crucial role in ensuring sustainable economic development and international cooperation in any state. The state can regulate the investment process by creating a system of certain conditions and requirements. The system includes methods and working tools of the state's influence on the investment policy of the private sector. The public-private partnership (PPP) program is one of the most effective tools for the impact of investment regulation by the state in the interaction of government and business.

PPP makes it possible to solve topical issues of public sectors, using the resources of private businesses, and thereby increasing the efficiency of using budget funds [2].

In addition, public-private partnerships (PPPs) play a huge role in ensuring global food security. Thus, some authors argue that PPP mechanisms are the best practices for the development of the agri-food industry [3].

Stimulating the transition to an innovative path of development requires significant public and private investment.

Investment policy determines the effectiveness of investments, playing a crucial role in the sustainable development of the national economy and the expansion of international cooperation.

The role of the state in the investment sphere is expressed in the creation of a mechanism for regulating the investment process. The mechanism of state regulation of investment processes is a set of tools and methods of state influence on the investment policy of business entities.

One of these working tools for state regulation of investments is the interaction between public authorities and businesses, the Public-Private Partnership (PPP) program.

The experience of public-private partnership (PPP) functioning is considered worldwide as a necessary condi-

tion for the development of an effective market economy. PPP makes it possible to involve the resources of the private sector in industries owned by the state, as well as to use private entrepreneurial initiative to increase the efficiency of spending budget funds [3].

Innovations are one of the main strategic objects of the country's development. The innovative way of development ensures not only the achievement of economic growth but also the improvement of the quality of life in the country as a whole, through the active introduction of innovations, both in the economic sphere and in the social spheres [4].

In addition, public-private partnerships (PPPs) play a huge role in ensuring global food security. Thus, some authors argue that PPP mechanisms are the best practices for the development of the agri-food industry [5].

There is experience of transnational PPPs focused on the fight against hunger and malnutrition around the world, for example, the Global Alliance for Improved Nutrition (GAIN) and the International Alliance against Hunger (IAAH) [6]. Both PPPs contribute to the achievement of the Sustainable Development Goals and operate at both the global and national levels. However, they differ in terms of private sector involvement, governance structure, and their overall approach to food and nutrition security [7].

Transnational public-private partnerships (PPPs) are a relatively new form of governance. Governance refers to various institutionalized ways of social coordination to create and implement collectively binding rules or to provide collective goods. In PPPs, non-state actors (non-profit organizations and companies) work with state actors (intergovernmental organizations and state donor agencies). Implementation takes place at several transnational, national, and local levels to provide collective benefits.

Fig. 1 shows the states belonging to the countries of Central Asia: the Republic of Kazakhstan, the Republic of Uzbekistan, the Kyrgyz Republic, the Republic of Tajikistan, and Turkmenistan.

Fig. 1. Map of Central Asian countries [2]

Therefore, studies on PPP projects in the countries of Central Asia in order to identify prospects for the development of the economies of neighboring countries should be considered relevant.

2. Literature review and problem statement

Geographically, the most dynamic regions implementing PPP projects are Europe and the Middle East. In the Asia-Pacific region, the most progressive countries in the above area were Australia and South Korea. However, it should be noted that project financing in developing countries is significantly concentrated in the energy sector, natural resource extraction, and the telecommunications industry, and developed countries are characterized by project financing of PPPs as part of the creation of infrastructure.

A lot of work in building PPP ties was done by such countries as the USA, Canada, and Australia. An analysis of 125 countries in 12 Latin American countries showed that the implementation of PPP programs provides unique advantages. Such as reducing the costs and risks associated with research; improving the quality and relevance of results through synergies between partners. It provides wider adoption by users, improve the accumulation of additional abilities, skills, and resources. It makes it possible to develop higher competitiveness and better positioning in the market, as well as contributes to poverty reduction, providing small farmers with access to knowledge and technology [5]. Equipped with modern knowledge and innovative technologies, small-scale family farms will be able to increase productivity and thereby increase incomes, which is a direct path to progress.

The question of studying the functioning of public-private partnership mechanisms in such an intensively developing economy as the People's Republic of China (PRC) is not simple. It is necessary to take into account the significant impact of the political regime on the legal regulation of economic relations on the direct implementation of PPP in the economy. However, the global trend towards increasing cooperation between private business and the state has also affected the Chinese economy. The Chinese government supports entrepreneurial co-financing to promote digitalization in rural China [8]. This covers the public need to transform agriculture towards sustainable development by attracting entrepreneurial innovation and digital technologies.

The experience of the South Asian region has shown the importance of public-private partnerships in increasing agricultural productivity. According to the President of the South Asian Biotechnology Center (SABC) [9], public-private partnership (PPP) is an important mechanism for using scientific knowledge, skills, resources, and technological innovations. PPPs can be used in the system of agricultural production, both in the upward and downward directions of the value chain in agriculture.

For example, work [10] notes the influence of information technology on the economic growth of countries by the method of multivariate cluster analysis. Study [10] found that the key factor in the sustainable development of the country is economic growth. It has been substantiated that information and telecommunication technologies have a direct impact on the target indicators of economic development of countries, in particular on GDP. In many life cycles of the global economy, ICTs have a significant impact and contribute to an increase in production volumes, reduce costs, and optimize business processes. According to [10], key indicators of economic development include the volume of gross

domestic product; gross national income per capita, etc. The key advantage of this study is the justified role of innovation and information and telecommunication technologies (ICT) in the economic growth of any country. However, study [10] has its limitations, which do not give a global assessment of all the factors affecting the economic growth of countries. Thus, the authors give prerequisites for substantiating new models of economic development under modern conditions.

Paper [11] points to the need for future research in the study of sustainable approaches to the establishment of mutually beneficial cooperation between producers of different sizes and agricultural industries. With such cooperation, both parties become partners that meet the needs of the stakeholders involved. With the right approach, according to work [11], public-private partnerships help producers reduce the cost of resources and services and increase productivity while increasing local production. Increasing local production strengthens the position of entrepreneurship in the country, bringing benefits in the economic and social spheres.

Diversification of public-private partnership programs can act as a tool to address food insecurity in cities with intensive urbanization, as well as planning and empowering women [12]. The cited study indicates that the same approach without taking into account the characteristics of the region can lead to harmful consequences. Thus, intensive urbanization in Africa has led to food insecurity in cities. Therefore, any programs, including PPP programs, should always be adapted to the specific conditions of the region.

Paper [13] presents an integrated approach developed to assess the impact of innovative development on the level of financial security of households. The SWOT analysis showed among the strengths – the high economic potential of the country, the process of reforming state systems, the transition to full digitalization (digitization) and the availability of highly educated specialists. The negative factors include a low level of investment attractiveness, a corruption component, the impact of the global economic crisis, and the high level of shadow economy. The econometric model showed the expediency of stimulating innovative development in Ukraine in order to strengthen the financial security of households and the state as a whole. A 1 % increase in the cost of research and total spending in the areas of innovation of industrial enterprises increases GDP per capita by 1.75 %. The disadvantage of this study is the lack of consideration of the proposed approach in different groups of countries. Thus, the activation of innovative development of the state is possible through state measures to support research and development in the field of agriculture and industry.

In addition, although agricultural-public private partnerships (APPPs) are increasingly promoted as a systematic institutional innovation to overcome resource constraints, they often prevent the public sector from realizing the potential of agriculture to reduce poverty and ensure food and nutrition security in developing countries [14]. Thus, the effectiveness of the introduction of public-private partnerships needs to be adapted to the specific conditions of the region under consideration.

The authors of [15] consider the problem of state financial protectionism of the agricultural sector in the context of regionalization. Based on statistical data on the indicators of the investment attractiveness of the region and the value of the agricultural sector in the region, regions for financing were identified. The results of the calculations showed that resources with the available amount of public finances S=1 allocated for support is carried out proportionally. In addition, the regions with the greatest value in the agricultural sector were identified. The main limitation of this study is that the methodology does not take into account the risk indicator, which differs for each region or country due to its geographical location. Thus, it becomes possible to improve the typical technological process for determining the rate of state financial protectionism of the agricultural sector, both in the regions and the state as a whole.

There is little information on the impact of PPPs on the economy and quality of life in Central Asian countries. The reason for this is the small number of studies conducted in the context of the countries of this region. However, the countries of Central Asia can be promising in terms of developing public-private partnerships, taking into account the agrarian orientation, the presence of huge amounts of natural resources, and infrastructure gaps. There is a study in which an analysis of the mechanism for the development of public-private partnership in agriculture was carried out on the example of the Republic of Uzbekistan [16]. It studied theoretical approaches and substantiation of empirical recommendations aimed at improving the mechanism of public-private partnership in agriculture of Uzbekistan. The authors concluded that research in this area is important and relevant. The mechanism of public-private partnership in agriculture allows the state and the private sector to increase the resource base on mutually beneficial terms. This makes it possible to direct unused resources to the stable development of the agricultural sector.

All this suggests that it is advisable to conduct a study to investigate and analyze the impact of public-private partnerships to improve well-being in the countries of Central Asia.

Our review of the above works [8–16] revealed the following unresolved problems in projects based on public-private partnership:

– first, the studied works give a general idea of the profiles of PPP projects and the shares in them of various sectors of the economy;

– secondly, the above studies reveal the dependence of countries with a raw material economy on the state regulation of the agrarian sphere and ensuring the effective operation of the grain product subcomplex.

3. The aim and objectives of the study

The purpose of this study is to determine the features and current state of public-private partnership in the countries of Central Asia. This will make it possible to submit proposals to improve the efficiency of PPP development of projects in the field of agriculture and increase the level of profitability of private enterprises joint ventures with the state.

To accomplish the aim, the following tasks have been set:

– to analyze the profiles of PPP projects in the countries of Central Asia and identify the prevailing areas;

– to analyze existing PPP projects in the Republic of Kazakhstan;

– to assess the growth of economic indicators and the investment potential of countries.

4. The study materials and methods

The object of our study was the profiles of projects based on public-private partnership of the countries of Central Asia.

The hypothesis of the study assumes that the share of agriculture, in particular the grain product subcomplex, in the profiles of PPP projects in the countries of Central Asia constitutes a small part.

Analysis of quantitative and qualitative indicators was necessary to determine the dynamics of the experience of public-private partnership in the countries of Central Asia, in particular, to consider the structure of PPP projects in the Republic of Kazakhstan. The methodology of the study used the method of forecasting the indicators of economic growth of countries and the analysis of statistical indicators of investment potential.

The information base was the materials presented by official sources of the Kazakhstan Center for Public-Private Partnership of the Republic of Kazakhstan. The materials of the Agency for the Development of Public-Private Partnership under the Ministry of Finance of the Republic of Uzbekistan were analyzed. The materials of the State Institution "Center for the Implementation of Public-Private Partnership Projects" of the Republic of Tajikistan were used. The materials of the Center for Public-Private Partnership of the Kyrgyz Republic were studied. Publications of state statistical agencies, reviews, analytical reports, publications in periodicals were used. Scientific works in the field of development of public-private partnership and agriculture were also analyzed.

5. Results of the study of projects based on public-private partnership in the countries of Central Asia

5. 1. Analysis of project profiles based on public-private partnership (experience of Central Asian countries)

According to the statistics of the Kazakhstan Center for Public-Private Partnership, as of September 2022, a total of 1357 projects at different stages were registered in Kazakhstan. Of these, 72 contracts are being implemented, 59 are at the tender stage, 72 are terminated contracts, the total volume of attracted and planned investments is USD 2.863 billion [17].

According to the Center for Public-Private Partnership of the Kyrgyz Republic, three projects are currently under implementation, as shown in Fig. 2.

According to the Center for the Implementation of Public-Private Partnership Projects, 32 projects based on public-private partnership have been registered in the country [18].

According to the Agency for the Development of Public-Private Partnership under the Ministry of Finance of the Republic of Uzbekistan, in 2022, 135 projects, one terminated contract [19], were registered, and are at various stages of execution, as shown in Fig. 3.

Construction of a fish farm on the basis of a land plot located in the village of Novopokrovka, aimed at building a demonstration fish farm for growing various types of fish, as well as growing medicinal plants for the production of preventive mixed feed for fish, combined with utility and amenity premises, which will later be used for training seminars for graduates of educational institutions and beginner fish farmers (implementation period – 30 years, project cost USD 331,980)

Development of fish farming at the Ala-Archa bulk reservoir, which provides for the use and development of tourism potential through the creation of a recreation area, as well as the organization and development of the fishing industry in the Kyrgyz Republic for breeding various fish species (25 years, 724,320)

Creation of a scientific and industrial fruit and berry nursery in the Issyk-Kul region, which provides for testing new modern varieties, the creation of an agro-technological park and a training center, the creation of a fruit and berry nursery (apples, pears, cherries, plums, currants) and the organization of a fruit and berry garden on 20 hectares of land (306,387)

Fig. 2. Cost and naming of projects based on public-private partnership in the Kyrgyz Republic

Note: Compiled by Authors based on [18]

Creation of a medical diagnostic center on the territory of the Akalta district medical association of the Syrdarya region (USD 191,558, 10 years)

Management of cluster services for the collection, removal, sorting and processing of municipal solid waste (MSW) in the Tashkent region (670,320, 10 years)

Construction project of a non-state entity, Navoi region (530,483, 30 years)

Modernization and management of the heat supply system in Tashkent (USD 1,511 million, 30 years)

Construction of the building of the cultural center of the Republic of Karakalpakstan (175,871.18 years)

Organization of a modern park of culture and recreation through the reconstruction and arrangement of the Eshlik park in the Samarkand region (851,570, 20 years)

Reconstruction and equipping of the cultural center "Ormonbek" in Andijan region (137,685, 16 years old)

Organization of a modern park of culture and recreation through the reconstruction and equipping of the park "Madaniyatvasan'at" in the Bukhara region (764,262, 20 years)

Organization of the rehabilitation center "Chartak children's sanatorium"

Management of cluster services for the collection, removal, sorting and processing of municipal solid waste in the Fergana region (5,024,265, 10 years)

Creation of a non-state educational organization located in the Fergana region (144,946, 30 years)

Reconstruction and equipping of the cultural center "Temirxo'ja" in the Samarkand region (166,011, 15 years)

Use of irrigation and melioration facilities in the Tashkent region

Reconstruction and equipping of the cultural center No. 4, in the Samarkand region (53,783.15 years)

Reconstruction and equipping of the cultural center "A.Kadiriy" in the Surkhandarya region (117,875, 20 years)

Management of cluster services for the collection, removal, sorting and processing of municipal solid waste in Andijan region (21,341,342.10 years)

Reconstruction and equipping of the Maslakhat cultural center in the Andijan region (62,747, 16 years old), etc.

Fig. 3. Cost and naming of projects on the basis of public-private partnership in the Republic of Uzbekistan

Note: Compiled by Authors based on [19]

Projects on the basis of public-private partnership in the Republic of Tajikistan are shown in Fig. 4.

Providing drinking water to the population of Jamoat Isfisori, Bobojon Gafurov district (project cost USD 190,000)
Establishment of a medical and social service center in Istaravshan (1,500,000)
Construction of the railway line "Railway station "Spitamen" – FEZ "Sughd" (46,000,000)
Construction of primary infrastructure of FEZ "Sughd" (16,000,000)
Creation of a "Transport and Logistics Center" on the territory of the FEZ "Sughd" (50,000,000)
Construction of a plant for the processing of solid household and sewer waste on the territory of the FEZ "Sughd" (18,000,000)
Construction of a logistics center in Nizhny Pyanj (9,000,000)
Reconstruction of Kindergarten No. 7 in the city of Gisar (160,000)
Construction of a terminal complex in the city of Tursunzade (11,000,000)
Construction of a drinking water line to the FEZ Dangara (5,000,000)
Construction of the internal road line of the FEZ Dangara (8,000,000)
Laying a sewerage line and a treatment plant FEZ Dangara (25,000,000)
Reconstruction of small HPP "Pitovkul" in Lyakhsh district (500,000)
Department of Solid Domestic Waste Management in Kulyab (5,000,000)
Construction of a plant for the processing of consumer waste in a district in the city of Dushanbe (250,000,000)
Construction of a new railway line Kolkhozabad - Dusti - Pyanji Poyon (81,818,000)
Construction of a railway line FEZ Dangara (5,000,000), etc.

Fig. 4. Public-Private Partnership Projects in the Republic of Tajikistan

Note: Compiled by Authors based on [20]

A significant part of PPP-based projects in the Republic of Tajikistan was made up of two areas "Energy and Housing and Communal Services" – 15 projects, "Transport and Infrastructure" – 9, the vast minority accounted for "Education" and "Health and Social Services".

In 2019, the President of Turkmenistan initiated the implementation of two PPP projects: the construction of a high-speed highway Ashgabat-Turkmenabat and an enterprise for the production of potash fertilizers in Lebap velayat. The state allocated USD 2.4 billion and USD 600 million for the implementation of these projects [21].

5. 2. Analysis of existing projects on the basis of public-private partnership in the Republic of Kazakhstan in the context of regions

In the context of regions, the situation for projects based on public-private partnership is as follows: in terms of the number of projects, Turkestan (26 %), Almaty (11 %), East Kazakhstan (9 %), Akmola (9 %) and Karaganda (8 %) regions are leading, in terms of investment: Turkestan (30 %), Atyrau (18 %), Almaty (16 %), Aktobe (5 %), and East Kazakhstan (5 %) regions [22].

Fig. 5 shows the number of projects based on public-private partnership by regions of the Republic of Kazakhstan; the total amount of investments is USD 604 133 400.

The structure of sectors involved in PPP-based projects is shown in Fig. 6.

Fig. 3 shows that the main share of PPP projects falls on the education sector – more than half of the presented ones. «Health and Social Services» occupy the second position. «Energy and housing and communal services» – more than 10 %,» for sector «Culture and Sport» – 7 %. «Transport and Infrastructure», «Manufacturing Industry», «Agriculture», and «Information and Communications» occupy from 3 % to 1 % of the total number of PPP projects [17].

Focusing on PPP projects in the field of agriculture, forestry, and fisheries, we can say that 18 projects are at different stages of implementation.

As shown in Fig. 7, PPP projects include 7 wholesale distribution centers (WDCs): 4 WDCs for the storage of potatoes and carrots in Pavlodar, Almaty regions, and for receiving onions in the Zhambyl region. 3 WDCs for distribution in Astana, Almaty, and Shymkent – for the supply of products to local retail chains, online stores, and other wholesale buyers overhaul, 7 service and procurement centers for a total amount of USD 2,631,282 [17].

In addition, there are projects in varying degrees of implementation: the transfer to trust management and operation of the dam in the village of Sepe, Atbasar district of Akmola region; services for the maintenance and care of stray dogs and cats in the city of Uralsk; service maintenance for mechanized cleaning of riverbeds and canals of the city of Shymkent [17].

WDCs are divided into three types: storage, trade, and distribution. For example, WDC «Storage» includes warehouses equipped with specialized equipment for storing fruit and vegetable products, mainly located near the places of production of these products (Fig. 8) [22].

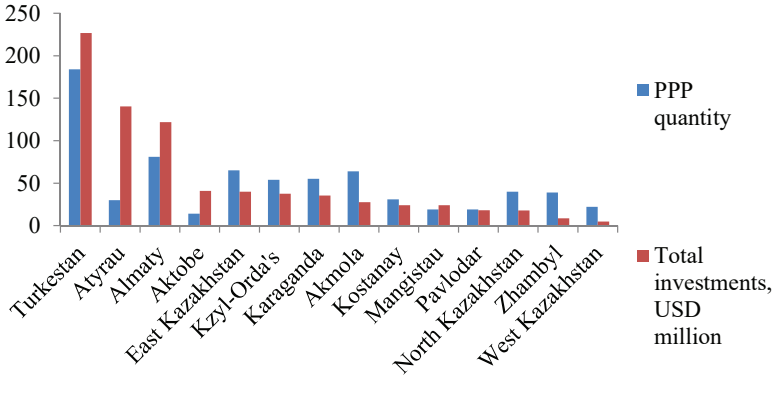

Fig. 5. Projects on the basis of public-private partnership by regions of the Republic of Kazakhstan

According to the Ministry of National Economy, it is planned that the national commodity distribution system will be regulated by introducing an information system, connecting to it the existing private WDCs (9 units), agri-

cultural cooperatives (20), and vegetable stores (1171). As a result of the implementation of this project, it is expected to increase the volume of transshipment of agricultural products from 2.2 million to 28.8 million tons per year and increase storage capacity from 160 thousand to 1,753 thousand tons per year. This will ensure the prompt resolution of issues of internal flows of agricultural products between the regions of the Republic of Kazakhstan, the elimination of excess goods in some and deficits in other areas [23].

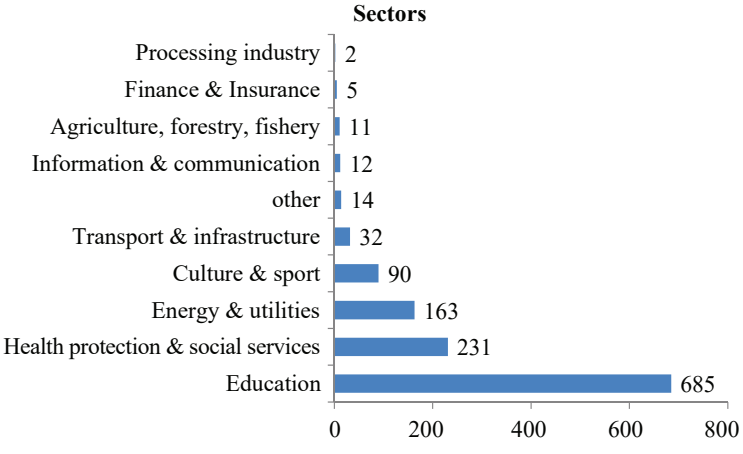

Fig. 6. Structure of project areas on the basis of public-private partnership
Note: Compiled by Authors based on [17]

Construction, transmission and operation of an integrated network of 7 ORC wholesale distribution centers (project cost USD 302,385)

LLP "Creation of the service procurement center" Karatal Kurish "in the Karatal district (USD 236,046)

LLP "Creation of the service procurement center" Amir Aisha "in the Sarkan region (411,071)

LLP "Creation of the service procurement center" Karatal Agro "in the Karatal district (440,985)

LLP "Creation of the service procurement center" Togan "in the Koksu region (314,972)

LLP "Creation of the service procurement center "Pidzhim" in the Panfilov district (462,888)

LLP "Creation of the service procurement center" Syrymbet "in Eskelda district (298,570)

LLP "Creation of a service procurement center" Baiterek "in Aksu district (466,746)

Fig. 7. Projects based on public-private partnership in the field of agriculture
Note: Compiled by Authors based on [17]

Fig. 8. Wholesale distribution center for storage, Aksu

In addition, 3 PPP projects in the grain subcomplex are at the stage of public discussion. The name and purpose of the projects are indicated in Fig. 9.

"Construction of a granary for oilseeds in the city of Karaganda. The complex is designed for storage, cleaning and drying of oilseeds, consists of: 9 silos with a cone bottom. Grain dryer 30 t/h, grain cleaning 100 t/h; handling equipment (bucket elevators and conveyors) – 100 t/h. The oilseeds storage complex consists of several types of equipment designed for transportation, processing or storage.

"Expansion of the existing granary from 17,530 tons to 34,200 tons" in North Kazakhstan region. Construction of a granary with equipment that provides the following operations with grain: acceptance, processing, cleaning, processing, storage, internal movement and shipment.

The project "Construction of a grain dryer and a gas pipeline" in Kostanay. The construction of a granary is intended for grain storage. Warehouse production capacity – 500 tons

Fig. 9. Projects under consideration on the basis of public-private partnership in the Republic of Kazakhstan (grain product subcomplex)
Note: Compiled by Authors based on [17]

Thus, projects on the basis of public-private partnership in the grain product subcomplex make up only a small part in the general context of existing projects.

5. 3. Analysis of the prospects for the development of the economies of Central Asian countries

As can be seen from Table 1, according to the global macro models Trading Economics and analysts' expectations, the annual growth rate of gross domestic product (GDP) in the Republic of Kazakhstan this year shows a positive trend and in 2023 will be 5 %; GDP from agriculture will increase by 8.7 %; GDP from the manufacturing industry – 8.7 %.

As can be seen from Table 2, according to the global macro models Trading Economics and analysts' expectations, the annual growth rate of gross domestic product (GDP) in the Republic of Uzbekistan this year shows a positive trend, but in 2023 it will be 5.5 %; GDP from agriculture will increase by 166 %; GDP from construction – 96.3 %.

As can be seen from Table 3, according to the global macro models Trading Economics and analysts' expectations, the annual growth rate of gross domestic product (GDP) in the Kyrgyz Republic this year shows a positive trend, but in 2023 it will be 5 %; gross fixed capital formation – USD 2 183 209 128.

As shown in Table 4, according to the global macro models Trading Economics and analysts' expectations, the annual growth rate of gross domestic product (GDP) in the Republic of Tajikistan this year shows stability, but in 2023 it will be 6.5 %; GDP from agriculture will increase by 14 %, as well as GDP from the manufacturing industry – 14 %.

As shown in Table 5, according to the global macro models Trading Economics and analysts' expectations, the annual growth rate of gross domestic product (GDP) in Turkmenistan this year is stable and in 2023 will be 5.5 %; gross fixed capital formation will amount to USD 23.4 billion.

Table 1

Forecast of economic growth indicators of the Republic of Kazakhstan

GDP	Actual	Q4, 2021	Q1, 2021	Q2, 2021	Q3, 2021	2023
Annual GDP Growth Rate (%)	3.40	3.6	4.5	3.8	5.2	5
GDP (billion US dollars)	190.81	180	186	186	186	186
GDP At constant prices (billion US dollars)	84.06	115.79	184.55	43.67	87.25	193.78
Gross fixed capital formation (billion US dollars)	6.89	26.60	42.37	7.20	7.16	44.49
GDP per capita (USD)	11,264.91	11,800	12,500	12,500	12,500	12,500
GDP per capita PPP (USD)	26,033.24	26,400	27,400	27,400	27,400	27,400
Annual GDP growth (%)	4.00	2.5	3.5	3.8	3.8	3.9
GDP from agriculture (million dollars)	8.9	5.7	9.2	9.3	9.25	9.7
GDP from construction (million dollars)	10.15	6.66	10.5	10.6	10.5	11.04
GDP from manufacturing industry (million dollars)	24.2	15.4	25.1	25.3	25.1	26.35
GDP from mining (million dollars)	24.26	16.4	25.14	25.36	25.19	26.39
GDP from government (million dollars)	3.32	2.25	3.44	3.47	3.45	3.61
GDP from services (million dollars)	22.51	23.16	23.3	23.52	23.37	24.49
GDP from transport (million dollars)	11.45	6.9	11.87	11.97	11.89	12.46
GDP From Utilities (USD million)	0.91	0.99	0.94	0.95	0.94	0.99
Gross national product (million dollars)	150.05	154.4	155.45	156.80	155.75	163.23

Note: Based on source [24]

Table 2

Forecast of economic growth indicators of the Republic of Uzbekistan

GDP	Actual	Q4, 2021	Q1, 2021	Q2, 2021	Q3, 2021	2023
Annual GDP Growth Rate (%)	5.80	4.5	4.7	5.6	5.6	5.5
GDP (billion US dollars)	69.24	62	62	62	62	62
Gross fixed capital formation (billion US dollars)	10.91	15.3	22.94	4.69	11.53	24.2
GDP per capita (USD)	3,327.78	2,500	2,500	2,500	2,500	2,500
GDP per capita PPP (USD)	7,734.83	6,900	6,900	6,900	6,477	6,696
Annual GDP growth (%)	7.40	3.5	5.5	5.5	5.5	5.5
GDP At constant prices (billion US dollars)	34.92	48.6	68.8	15.27	36.88	72.59
GDP from agriculture (billion US dollars)	11.8	20.77	29.76	3.14	12.46	31.4
GDP from construction (billion US dollars)	5.4	7.18	10.06	2.25	5.71	10.61
GDP from services (billion US dollars)	14.39	18.81	26.53	6.92	15.19	27.99

Note: Based on source [24]

Table 3

Forecast of economic growth indicators of the Kyrgyz Republic

GDP	Actual	Q4, 2021	Q1, 2021	Q2, 2021	Q3, 2021	2023
Annual GDP Growth Rate (%)	6.34	4.5	3.6	4	4.6	5
GDP (billion US dollars)	8.54	8.43	8.43	8.43	8.43	8.43
GDP At constant prices (million dollars)	8729.5	7 656.6	9 122.4	9 043.8	9 078.7	9578
Gross fixed capital formation (million dollars)	251.59	1 197.3	2079.24	260.65	261.66	2183.2
GDP per capita (USD)	1122.97	1106	1106	1106	1106	1106
GDP per capita PPP (USD)	4813.23	5300	5300	5300	5300	5300
Annual GDP growth (%)	3.60	– 5.5	3.5	3.5	3.5	3.5

Note: Based on source [24]

Thus, the growth of economic indicators in the Republic of Kazakhstan, Uzbekistan, and the Kyrgyz Republic show a positive trend, while the economic indicators of the Republic of Tajikistan and Turkmenistan show stability or a slight decrease.

According to Table 6, the volume of foreign direct investment in the countries of Central Asia has increased significantly over the past 20 years. The volume of direct investments for the Republic of Kazakhstan over the past two decades has increased 15 times, for Turkmenistan – 40 times, for the Republic of Uzbekistan – more than 15 times, for the Republic of Tajikistan – 23 times, for the Republic of Kyrgyzstan – 9 times.

Thus, the investment potential of the Central Asian countries remains attractive to investors, maintaining the growing trend of foreign direct investment inflows and slowly increasing the growth in the volume of outward foreign direct investment.

Table 4

Forecast of economic growth indicators of the Republic of Tajikistan

GDP	Actual	Q4, 2021	Q1, 2021	Q2, 2021	Q3, 2021	2023
Annual GDP Growth Rate (%)	9.20	7	7	7	7	6.5
GDP (billion US dollars)	8.75	8.6	8.6	8.6	8.6	8.6
GDP at constant prices (million somoni)	3 905.67	5 519	2 673	1 819	4 179	2860
GDP per capita (USD)	1279.67	1100	1100	1100	1100	1100
GDP per capita PPP (USD)	3903.50	3182	3182	3182	3182	3182
Annual GDP growth (%)	9.20	–2	3	3	3	3
GDP from agriculture (million dollars)	3 893	3 906	3 899	4 165	4 165	4 436
GDP from construction (million dollars)	784.02	928.4	926.6	838.9	838.9	893.4
GDP from manufacturing industry (million dollars)	1758.54	2 043.7	2 039.9	1 881	1 881	2 004
GDP from services (million dollars)	1 684	1 356	1 354	1 802	1 802	1 920
GDP from transport (million dollars)	781	556	555	836	836	890

Note: Based on source [24]

Table 5

Forecast of economic growth indicators of Turkmenistan

GDP	Actual	Q4, 2021	Q1, 2021	Q2, 2021	Q3, 2021	2023
Annual GDP Growth Rate (%)	6.20	5.5	5.5	5.5	5.5	5.5
GDP (billion US dollars)	45.23	42.2	42.2	42.2	42.2	42.2
GDP At constant prices (billion US dollars)	31.20	32.92	32.92	32.76	32.92	34.73
GDP per capita (USD)	7,692.58	8,977	8,977	8,977	8,977	8,977
GDP per capita PPP (USD)	15,538.42	17,700	17,700	17,700	17,533	18227
Gross fixed capital formation (US$ billion)	17.23	23.4	23.4	23.4	23.4	23.4

Note: Based on source [24]

Table 6

Foreign direct investment (FDI) by country (USD million)

Country	Inflow of foreign direct investment in the country (FDI inward stock)			Volume of outward foreign direct investment (FDI outward stock)		
	2000	2010	2021	2000	2010	2021
Kazakhstan	10,078	82,648	151,953	16	16,212	15,666
Kyrgyzstan	432	1,698	4,233	33	2	610
Tajikistan	136	1,226	3198b	–	–	271b
Turkmenistan	949b	13,442b	40,775b	–	–	–
Uzbekistan	698b	2,564a	11,278a	–	152a	198a
Central Asia	12,293	101,577	211,438	49	16,365	16,745

Note: a – Asset/liability basis; b – Estimates; Compiled by Authors based on [25]

6. Discussion of results of the study of projects based on public-private partnership in the countries of Central Asia

According to the results obtained, the largest number of projects on the basis of public-private partnership is implemented in the Republic of Kazakhstan – more than 1300 projects in various fields (Fig. 5–7). The second place is occupied by the Republic of Uzbekistan – 135 (Fig. 3), the third place – the Republic of Tajikistan (32 projects) (Fig. 4). The Kyrgyz Republic (Fig. 2) and Turkmenistan occupy the weakest positions. Taking into account the raw material orientation of the countries of Central Asia, it is worth strengthening the implementation of projects aimed at innovative development and production in the field of agriculture.

According to the results of a study by world scientists dealing with the problems of PPP projects in the field of agriculture, it is assumed that the grain product subcomplex of the agro-industrial complex is a promising area of development. In the countries of Central Asia, it is necessary to increase research and development of PPP projects in agriculture. On the example of world mega projects based on public-private partnerships to increase the yield of various crops and improve the methods of processing agricultural land.

A comparative analysis of the economic potential of the countries of Central Asia showed a positive trend. To obtain data on the possible prospects for the economic development of the countries of Central Asia, information on the current and forecast economic indicators of the countries was collected and analyzed (Tables 1–6).

In particular, in the analyzed period (Table 1), the annual growth rate of gross domestic product (GDP) in the Republic of Kazakhstan showed a positive trend and in 2023 will be 5 %; GDP from agriculture will increase by 8.7 %; GDP from the manufacturing industry – 8.7 %. It should also be noted that in the Republic of Uzbekistan, the Kyrgyz

Republic, the annual growth rate of gross domestic product (GDP) in the analyzed year shows a positive trend (Tables 2, 3). At the same time, the annual growth rate of gross domestic product (GDP) in Turkmenistan and Tajikistan is stable, or shows a slight decrease (Tables 4, 5).

The use of forecast analysis of economic indicators is supposed to be for the practical implementation of investments in the economies of the countries of Central Asia. The investment potential of the Central Asian countries has maintained the growing trend of inflow of foreign direct investment and is slowly increasing the growth in the volume of outward foreign direct investment (Table 6).

In general, it can be concluded that projects based on public-private partnerships in the countries of Central Asia help to implement projects with reduced risks and costs. They also increase the qualitative component of the importance of the socio-economic life of countries, affecting various spheres of the economy (from health and energy to culture and sports).

According to the expert opinions presented in work [26], in the developing countries of Asia, the volume of foreign direct investment is growing annually. International investment trends indicate interest in research and development of energy-efficient industries, environmentally friendly minerals, and materials necessary for the production of batteries or clean energy technologies, as well as other projects for sustainable development. The attractiveness of categories of investment for the private sector depends on the existence of a clear income-generating model and on the risks at the project and country levels. Investment activity in the sustainable development sector includes infrastructure, food, agriculture, and health. Most projects in developing countries require some form of public sector involvement. Central Asian governments need to attract investment through private financing. Stimulation of favorable financing conditions, infrastructure development will arouse interest from investors of the financial market, both domestic and foreign, to participate in PPP projects [26].

The PPP mechanism can be used to stimulate market relations in the Central Asian states, which will encourage the participation of the private sector in agribusiness. It should be noted that for private businesses, this type of partnership is a springboard for obtaining competitive advantages. For example, PPP projects can reduce the commercial risk of the private sector entering a new market by offering tax incentives (tax breaks) and institutional measures (e.g., grouping farmers to reduce costs and securing exclusive rights to purchase the raw materials produced) [27]. Thus, public-private partnership can act as a mechanism for the development of profitable enterprises.

It is necessary to revise the system for evaluating PPP projects, which will combine the consideration of profits and costs with realities. This will help to respond quickly to changes and build an effective system of state support and investment of private entrepreneurship. Thereby stimulating the development of the country's agro-industrial complex, as a guarantee of food security. At the same time, it should be noted that in order to create competitive conditions for the economy in the future, it is optimal to move away from such a partnership and move towards market business.

Unlike previous studies, the current study is of interest to all those interested in the field of innovative development and investment partnership in the field of PPP in the context of central Asian countries.

Specific methods of studying the economic potential of countries require consideration of various factors affecting the overall picture.

The process of data collection has been complicated by insufficient access to information from some sources. A deeper and more detailed approach to the development of a system for measuring economic indicators from PPP projects is needed. Due to limited access to quantitative data, it is difficult to make a full analysis of the current situation in the field of effective use of investments in the field of PPP.

Further studies need to take into account additional factors for more detailed analysis, in order to understand the development of public-private partnerships in the countries of Central Asia.

7. Conclusions

1. According to statistics from the Kazakhstan Center for Public-Private Partnership, the Republic of Kazakhstan is ahead of other Central Asian countries in implementing projects based on public-private partnerships. Thus, 1357 projects were registered in Kazakhstan: 72 ongoing projects, 59 at the tender stage, 72 terminated contracts, with a total value of USD 2.863 billion. According to the Agency for the Development of Public-Private Partnership under the Ministry of Finance of the Republic of Uzbekistan, in 2022, 135 projects and one terminated contract were registered and are at various stages of execution. PPP projects in the field of housing and communal services for cluster services for the collection, removal, sorting and processing of solid household waste and in the field of culture and sports dominate. According to the Center for Public-Private Partnership of the Kyrgyz Republic, three projects in the field of agriculture are currently under implementation. According to the Center for the Implementation of Public-Private Partnership Projects of the Republic of Tajikistan, 32 projects based on public-private partnerships are involved in the country. Turkmenistan is implementing two PPP projects related to transport infrastructure and the manufacturing industry: the construction of the Ashgabat-Turkmenabat high-speed highway and an enterprise for the production of potash fertilizers in Lebap velayat.

2. In the Republic of Kazakhstan, the main share of PPP projects falls on the sector of education. "Energy and Housing and Communal Services" occupies the second position. Strategically important areas such as "Transport and Infrastructure", "Manufacturing Industry", "Agriculture", and "Information and Communications" occupy no more than 3 % of the total number of PPP projects.

3. The trend of foreign direct investment inflows is increasing, the inflow of outward foreign direct investment is slowly gaining momentum, so the investment potential of the Central Asian countries remains. Experienced researchers focus on the importance of state support measures in the field of agriculture to ensure food security. It is necessary to strengthen work in the preparation of public-private partnership projects in the field of agriculture with the creation of attractive conditions for the participation of the private sector and minimization of risks. Of particular interest is the grain subcomplex associated with both crop production and processing. The implementation of joint public and private investments in the grain product subcomplex will allow countries with raw material economies to strengthen

food security by strengthening the profitability of private enterprises.

Conflicts of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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Data availability

All data are available in the main text of the manuscript.

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