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ANALYSIS OF DIGITAL TRANSFORMATION PROCESSES AND MANAGEMENT TRENDS IN PUBLIC-PRIVATE PARTNERSHIP PROJECTS IN FOREIGN COUNTRIES

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ABOUT ARTICLE

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Abstract: The article focuses on the analysis of the implementation and management of projects based on public-private partnership that is based on the results of the methods of statistical observation of existing trends.

INTRODUCTION

According to the data of the World Bank, even after the "effect" of the world's COVID-19, gross production in low- and middle-income countries recorded growth indicators at the end of 2022. For the same reason, this year, some progress was made in fulfilling investment commitments by the private sector to improve and develop infrastructure networks.

In modern science and practice, public-private partnership is the interaction of the public and private sectors: in a broader sense, any cooperation in various spheres of public life, supporting society with entrepreneurship and strengthening its social role. The intensification of the process of public-private partnership development is due to the steady growth of demand for public services and increased attention of a wide range of people to optimise their provision. Today, public-private partnership has become an important tool for attracting investment to create a modern public service infrastructure.[3]

RESULTS

In particular, investments totaling 91.7 billion US dollars were made on the basis of 263 projects through public-private partnership projects in the development of infrastructure networks after the pandemic and their restoration. The total cost of these projects is below the average GDP of low- and middle-income countries contained 0.25 percent.

Also, due to the negative impacts predicted as a result of global climate change, the flow of financial resources for investments, including public-private partnership projects, is in doubt in the near term.

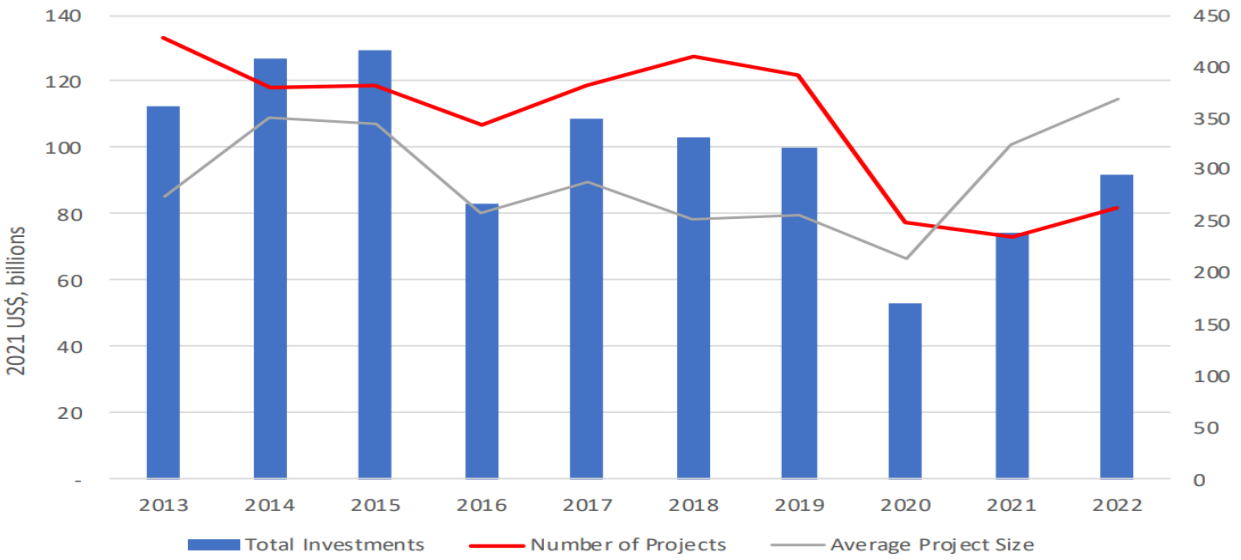

Fig.1. Projects implemented on the basis of public-private partnerships in low- and middle-income countries [1]

A total of 235 public-private partnership projects were implemented in low- and middle-income countries in 2021, and the total cost of these projects was 74.5 billion US dollars. This analysis shows that the recovery to pre-coronavirus pandemic levels is continuing. Also, in 2022, this indicator increased by 4 percent from the average indicator (2017-2021). However, we see that the total number of public-private partnership projects has decreased to 263 compared to 380 projects before COVID-19. From the above picture and data, we can see that in 2022, the number of countries with investment obligations for public-private partnership projects has increased to 56.

This figure is 48 in the year 2021, up from an average of 51 over the previous five years (2017-2021) is high. This means that it is reasonable to conclude that there has been a significant increase in the number of countries that have made investment commitments for public-private partnership projects to the level before the coronavirus pandemic. It is noteworthy that Benin, Lesotho, Maldives, Palau and Tajikistan for the first time in more than a decade have implemented investment operations on public-private partnership projects.

However, it can be said that the progress achieved has been overshadowed by the "slowing" trends of long-term economic growth. In this, one of the most important aspects is the restoration of the flow of investments involved in public-private partnership projects observed in the period before the coronavirus pandemic in East Asia and the Pacific Ocean, Latin America, as well as the Caribbean, South Asia. However, due to the observation of the war in Ukraine, the energy crisis in the countries of the region, and the implementation of public-private partnership projects in Europe and Central Asia, a significant decrease in investments in these projects was also observed.

1 – table
Trends in public-private partnership projects by world region in 2022

Continent name	**Public-private partnership projects and economic development indicators**		
	Total cost of public-private partnership	The volume of GDP of the countries of the	Share of regional countries in GDP, %

	projects (billion US dollars)	region (billion US dollars)	
East Asia and Pacific ocean	43,374	20 751,7	0,21
Europe and Central Asia	3,321	3 517,3	0,09
Latin America and the Caribbean	24,328	4 585,1	0,53
Middle East and North Africa	1,969	1 490,4	0,13
South Asia	13,869	4 088,7	0,34
Sub-Saharan Africa	4,864	1 919,4	0,25

It can be seen from the data of the above table that in almost all regions, except for Europe and Central Asia, Sub-Saharan Africa, significant positive changes can be seen in public-private partnership projects compared to last year. It is significant that investments in projects based on public-private partnerships in East Asia and the Pacific, Latin America and the Caribbean have reached pre-coronavirus pandemic levels in 2022. In addition, in the Middle East and North Africa, the volume of investment in projects based on public-private partnerships has increased significantly in 2022 compared to the previous year. However, the sub-Saharan Africa region reached the level of investment in public-private partnership projects in 2022 compared to 2021, and the number of countries implementing public-private partnership projects for the first time reached 19.

Germany reached its highest transaction volume in the public-private partnership market since EPEC began its records, exceeding the past maximum volume of €3.6 billion from 2020 by 12% with a volume of €4 billion, closing 11 projects in 2023. This was strongly driven by the S-Bahn Munich Public Transport Trains Financing PPP, with a volume of €2.8 billion.

France's transactional volumes in the public-private partnership market halved in 2023 compared to 2022 (with €2.1 billion reaching close in 2023 compared to €4.2 billion in 2022), including the Grand Est Rolling Stock Fleet Upgrade PPP of €1.3 billion.

Greece has developed a strong pipeline in recent years that is now reaching financial close on some projects. It is also building on past successes, closing three further availability-based road public-private partnerships in 2023 after closing its first project of this kind in 2022. Thessaloniki Ring Road PPP (€300 million) reached financial close in 2022, followed by the Kalamata-Pylos-Methoni Motorway PPP, the Northern Road Heraklion-St Nicholas Motorway PPP and the Northern Road Axis of Crete PPP in 2023.

The United Kingdom continues to develop electrical vehicle charging networks via forms of public-private partnership — this time in the form of a residential charging network for the city of Coventry (€24 million).

Bristol (United Kingdom) is setting an example on private market and public sector cooperation for green urban transformation with their multi-faceted City Leap Energy Partnership spanning projects from heat and power plants to battery storage projects for the City Hall, together with on-street electric vehicle charging stations, energy efficiency projects for homes and businesses and rooftop photovoltaic installations. [4]

Latin American and Caribbean countries had the highest percentage of implemented public-private partnership projects in regional GDP, that is, the total volume of public-private partnership

projects implemented in the countries of this region was 0.53 percent of regional GDP. Also, this indicator is 0.34 percent in the countries of South Asia, 0.25 percent in the countries of Sub-Saharan Africa, and 0.21 percent in the countries of East Asia and the Pacific. at a relatively low level.

As a continuation of the above analysis, it can be said that China, Brazil, India, Indonesia, and Vietnam are the most successful countries in terms of investments in public-private partnership projects in 2022.

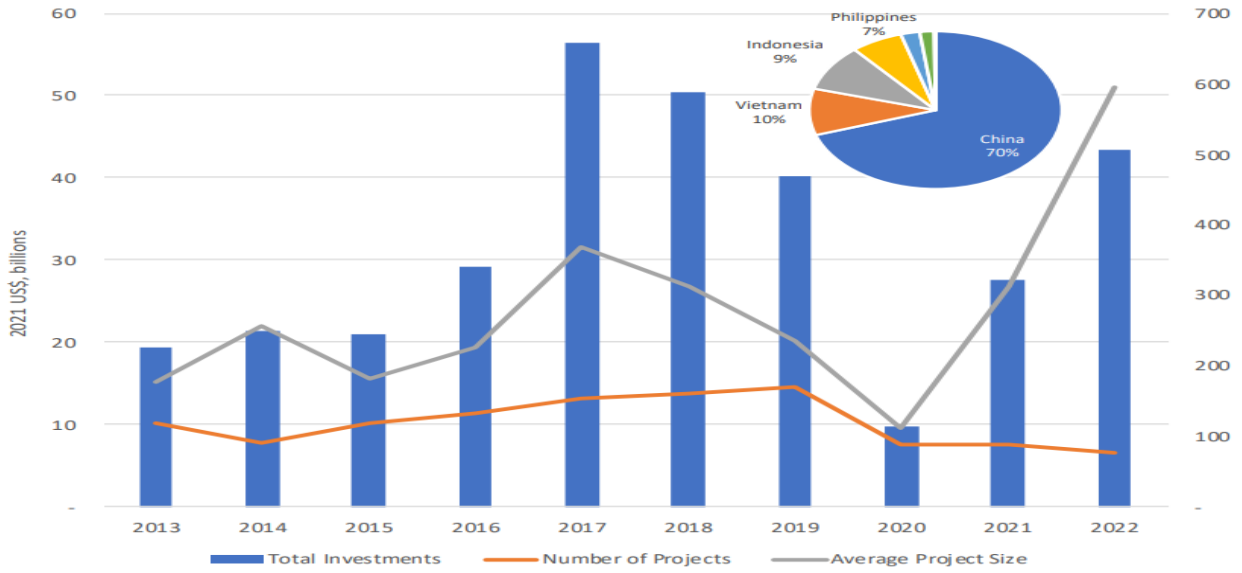

Fig.2. Trends in the implementation of infrastructure projects based on public-private partnerships in low- and middle-income countries of East Asia and the Pacific region

These five countries mentioned above jointly implemented public-private partnership projects in 2022 with a total value of 68.3 billion US dollars. These financial resources involved for the implementation of these projects accounted for 75 percent of the global investments made for public-private partnership projects this year. Also, in the year of analysis, in the East Asia and Pacific region, the five countries that were able to attract investments for public-private partnership projects at the highest level in relation to GDP are: Palau (GDP 10.1 percent was directed to public-private partnership projects), Lao People's Democratic Republic (5.6 percent); Senegal (4.6 percent).

We can conduct these analyzes in the cross-section of low- and middle-income countries of the region. As mentioned above, the main characteristics of public-private partnership projects are the implementation of infrastructure projects.

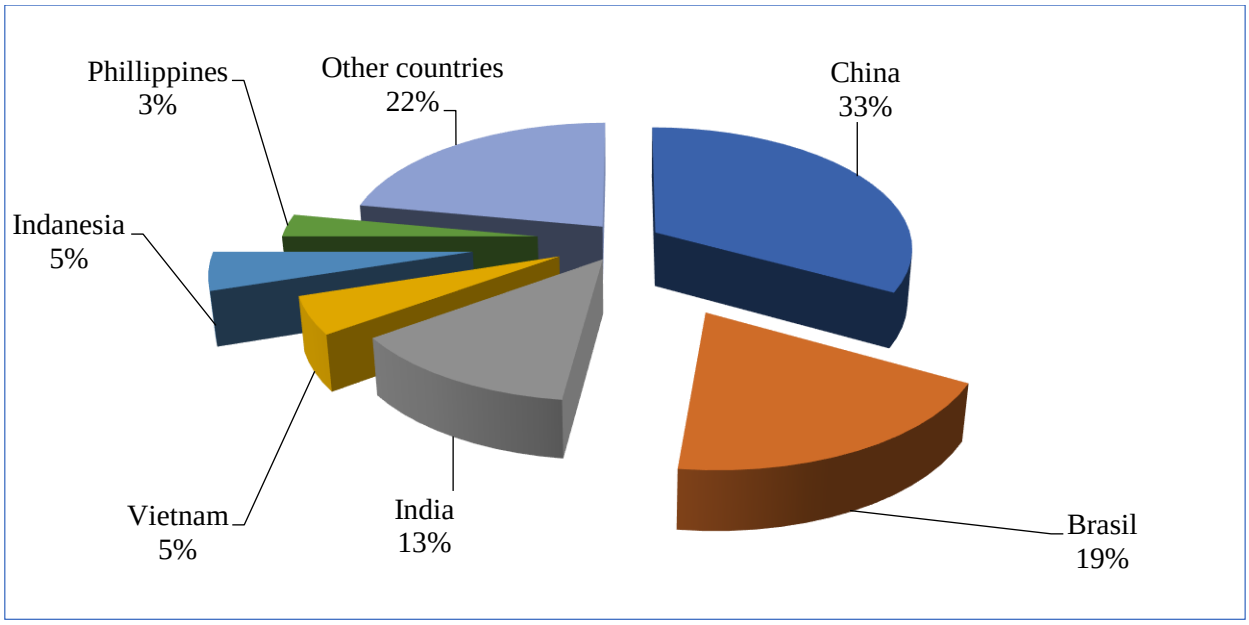

Fig.3. Public-private partnership projects aimed at infrastructure development in low- and middle-income countries [2]

In 2022, the total cost of 78 projects implemented on the basis of public-private partnerships for the East Asia and Pacific region

Investments in the amount of 43.4 billion US dollars were attracted. In this case, the highest figure, i.e. more than 30% of the investments attracted by infrastructure projects based on public-private partnerships implemented in the region, was accounted for by China. Projects based on public-private partnerships in this country mainly corresponded to the highway sector of infrastructure networks.

In China, there are models of project implementation and effective management based on public-private partnerships:

2 - table

Models of project implementation and effective management based on public-private partnerships in China

Project category name	The name of the project management model	Brief description of models of implementation and effective management of projects based on public-private partnerships	Benefits that a private partner can receive
New projects	BOT[1] model	The private partner is responsible for: - for construction according to the project with own funds; - a private partner for operation, maintenance and customer service. The private company returns the property rights to the state at the time agreed in the contract.	A private partner receives these benefits: -operating income; -transfers

	BOO[2] model	The private partner is responsible for: -for construction according to the project with own funds; -a private partner for operation, maintenance and customer service. There is no need for the private partner to transfer the project to the government, the government may impose some restrictions on the operation in view of the public interest	A private partner receives this benefit: -operating income
	BLT[3] model	The private partner is responsible for: - for construction according to the project with own funds; - lease the building to the state on the basis of a private partner lease after the construction of the project is completed. The private company returns the property rights to the state at the time agreed in the contract.	
	BOOST[4] model	This model is similar to the BOT model. The main difference is that under the BOOST model, the private partner also receives subsidies from the government due to the high risk of the project.	A private partner receives these benefits: -operating income; -government subsidy; -transfers
Current projects	[5] MC model	On the state side, the government subcontracts project operation, technical and customer service work to a private company and makes subcontract payments.	A private partner receives these benefits: -payment for subcontracting
	[6] O&M model	On the state side, the government subcontracts the operation and maintenance of the project to a private company and pays the subcontractor fees.	A private partner receives these benefits: -payment for subcontracting
	[7] TOT model	On the state side, the government transfers its ownership of an existing project to a private partner. The private partner will be responsible for project operation, technical and customer service. The private partner will return ownership of the project buildings to the government at an agreed time as per the terms of the contract.	A private partner receives these benefits: -operating income; -transfers

Projects aimed at expanding existing projects	[8] ROT model	The private partner is responsible for: - a partner on behalf of the state - the government to transfer the ownership right to the existing project to the private partner, and the private partner, in turn, for the repair work before the project is put into operation; - a private partner for operation, maintenance and customer service. The private company returns the property rights to the state at the time agreed in the contract.	A private partner receives these benefits: -operating income; -transfers
	[9] LOT model	Partner on behalf of the state - the government is responsible for investing in state assets and retains ownership of them. The government leases existing projects and new projects to the private sector, and the private partner is responsible for building operations, maintenance and customer service.	A private partner receives these benefits: -operating income;

Note: 1 BOT - built-operate-transfer; 2 BOO -Build-own- operate; 3 BLT - Build-lease- transfer); 4 BOOST - Build- own-operation- subsidies-transfer; 5 MC - Management contract; 6 O&M - Operations & maintenance; 7 TOT - Transfer- operate-transfer; 8 ROT - Renovate- operate-transfer; 9 LOT - Lease-operate-transfer.

3 main types of payment mechanisms are widely used for public-private partnership projects under the above models. This refers to the ways in which the main partner for the project - a private investor - receives income from the mechanism:

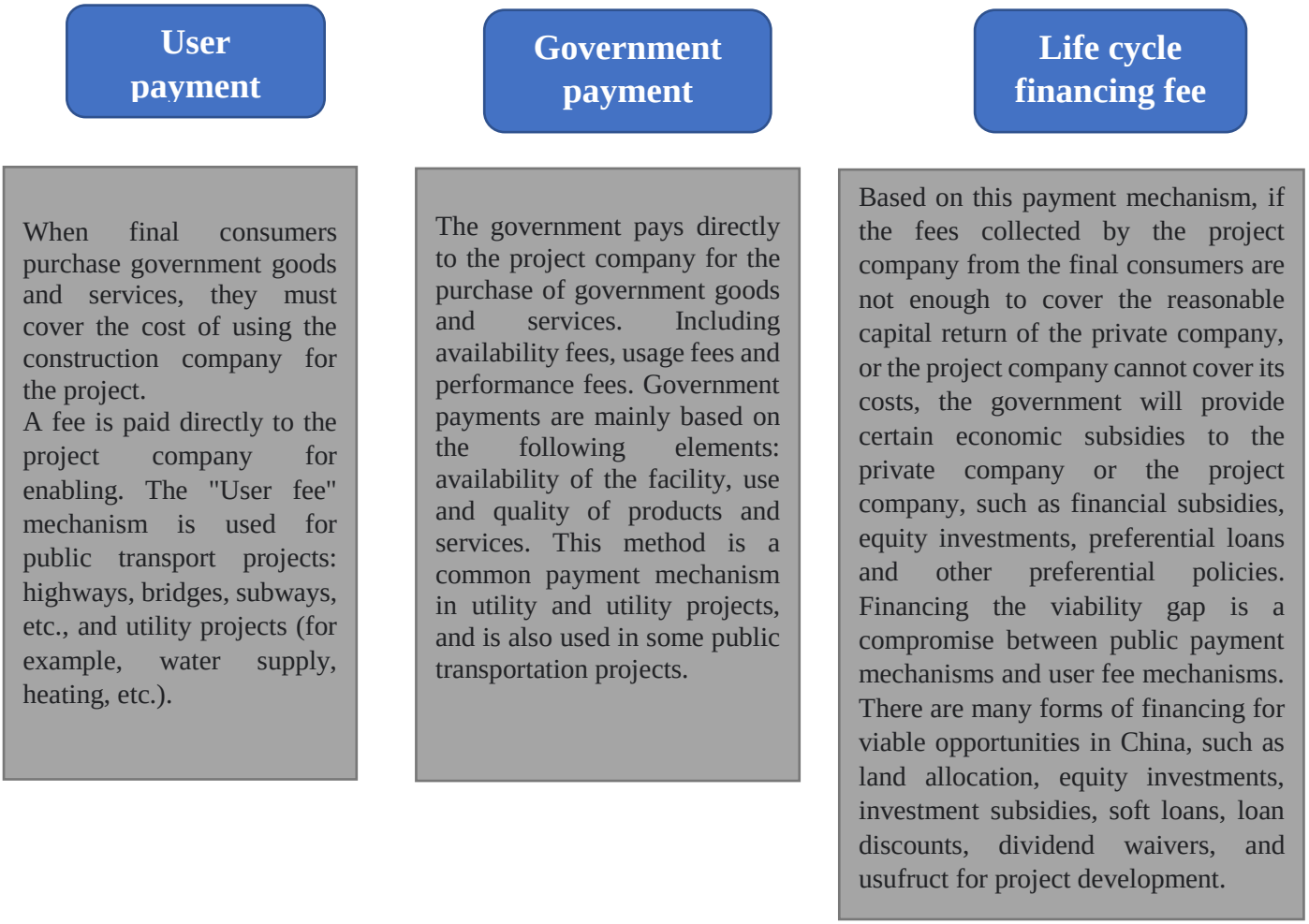

Fig.4. Types of Payment Mechanisms for Public-Private Partnership Projects in China

Based on the above results, it can be said that there is a complete life cycle of projects in the implementation and management of public-private partnership projects in these countries. It can be said that this process includes 6 major steps in relation to the project:
Stage 1: the stage of organization;
Stage 2: financing stage;
Stage 3: stage of development of project "designs";
Phase 4: Construction/Commissioning Phase of Existing Facilities”
Stage 5: management stage;
Step 6: Output step.
In order to continue the research analysis, trends in the implementation of public-private partnership projects in the countries of Europe and Central Asia were studied. According to him,
In 2022, the total cost of implementation of public-private partnership projects in the countries of Europe and Central Asia
It was able to attract investments in the amount of 3.3 billion US dollars. This indicator is the lowest indicator in the last 10 years in terms of the investment volume of the states of this region under the public-private partnership mechanism and the number of projects in it.

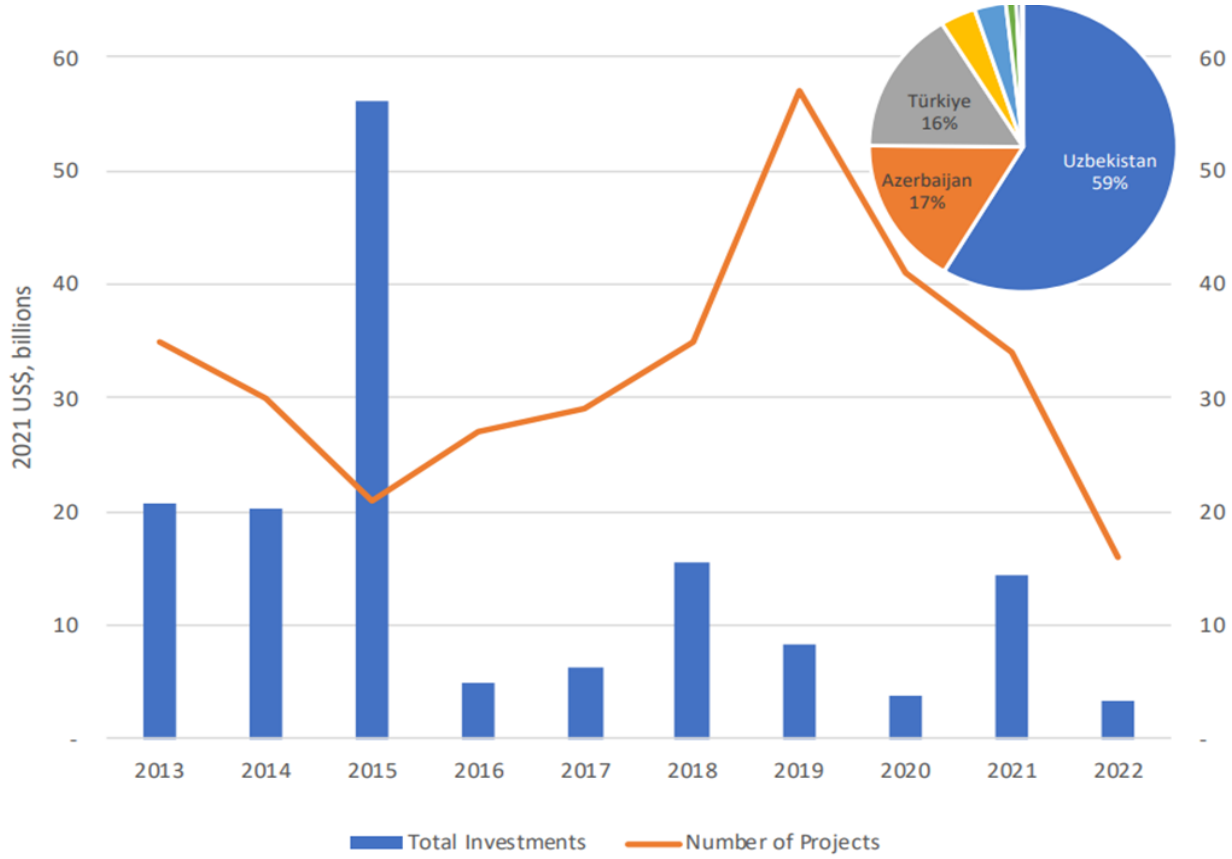

Fig.4. Trends in implementation of public-private partnership projects in European and Central Asian countries

That is, this indicator in 2021 will be 14.4 billion US dollars, or a significant decrease from the five-year average (2017-2021) of 9.7 billion US dollars.

According to the World Bank, the reason for this downward trend is primarily due to increasing geopolitical tensions in the region: Russia and Ukraine did not report any public-private partnership projects for the first time in five years. According to the calculations of the World Bank, "in 2022, the largest part of the public-private partnership projects implemented in this region - 59 percent - was contributed by Uzbekistan."

Based on the above, it can be said that in the implementation of public-private partnership projects, the state attracts the financial resources of the private sector representatives to the priority areas of population welfare and social sector

development. The specific mechanisms and methods of implementing and managing these projects will depend on the conditions of economic development of each country and the development of agreements with private partners.

CONCLUSIONS

The results of the conducted studies show that projects based on public-private partnership are considered a long-term contract or deal and have their own characteristics:

Feature 1: The level of risk associated with the project, the financial losses behind it, and the financial resources are assumed by the partner side - the "private sector";

Feature 2: Financial resources for the project will be included in areas where there is a state demand: areas aimed at the development of infrastructure networks, such as airports, roads (roads and railways), medicine and education, energy, etc.;

Feature 3: Projects on the basis of public-private partnership, usually their duration is from 3 to 49 years. Projects of this category will be complex. The reason is that over time the main factors: price, consumer, demography of the country change, it's a natural situation. For this reason, projects in this direction require careful calculations;
Feature 4: In the preparation of public-private partnership projects, it takes a long time, for example, up to 18 months, from the "idea" to the signing of the finished "contracts". It is urgent to introduce modern methods in the management system of the public-private partnership mechanism.
Feature 5: Public-private partnership projects are mainly social in nature

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