



Formation and Implementation of Public-Private Partnership Projects in the Agricultural Sector

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Abstract

Existing mechanisms for integrating state and public resources with opportunities and business resources to achieve critical social goals need significant changes. This fully applies to the goals, functions, and mechanism of public-private partnership projects, the advantage of which is the involvement in traditional public sectors of the economy of private business practices, as well as the desire to eliminate the shortcomings of both methods of management through optimal allocation of resources, responsibilities, and risks. The article analyzed the current state of public-private partnerships in terms of periods, geography, and industries in the article. The recent positive changes related to PPP have been identified and analyzed. The authors proposed methodological bases for assessing the feasibility of PPP projects and proposed a system of indicators of the effectiveness of PPP projects and conceptual principles for creating a favorable environment for implementing public-private partnership projects in the agricultural sector in Ukraine.

Keywords: Concession; Conditions of change; Development strategy; Project management; Public administration; Public-private partnership (PPP); Sustainable development goals (SDG).

1. Introduction

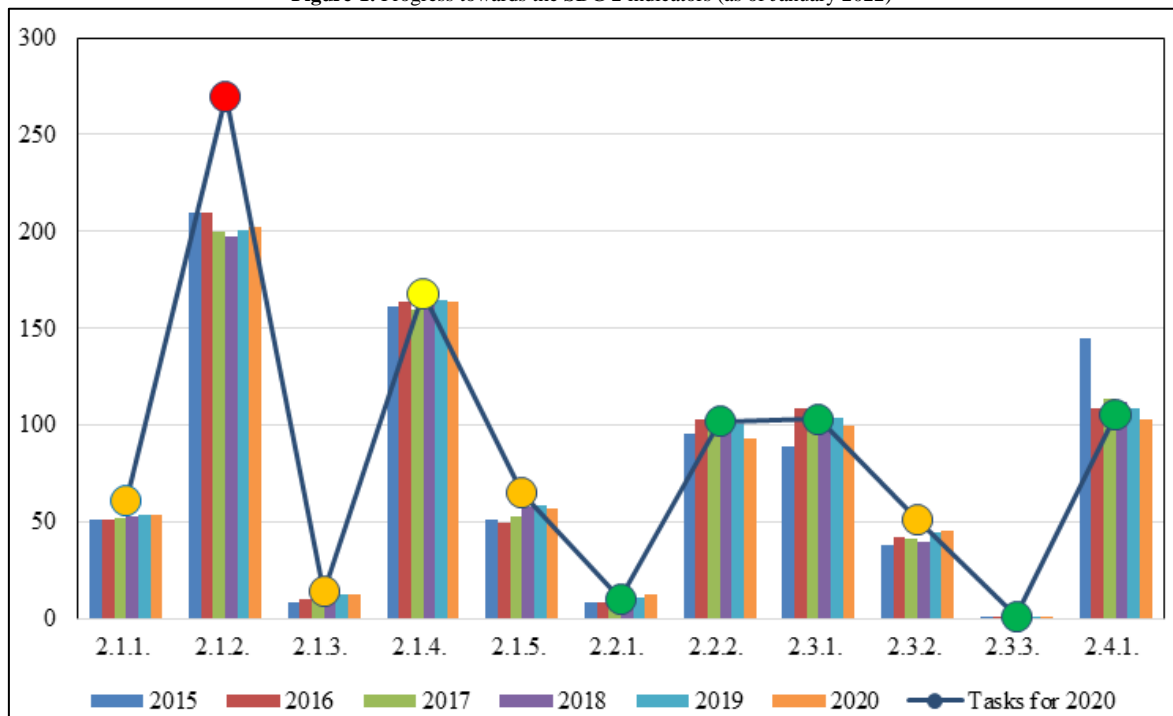
The agricultural sector of the economy plays a crucial role in expanding food, strengthening the position in foreign markets and ensuring national security. The agricultural sector of Ukraine accounts for 15% of employment, and exporters of aggregated products account for about 40 per cent of Ukraine's exports (OECD Publishing, 2020b). Forecasts show that Ukraine will continue to increase its share in world trade and reach 12% of world exports in 2029 (OECD Publishing, 2020a). Ukraine is expected to increase productivity by 1.5% per year through increased crop rotation, advanced farming practices, and unproductive land abandonment. Due to the increase in agricultural productivity over the past ten years, the share of food products in Ukrainian exports has doubled to 47% in 9 months of 2020 (21% in 2010) [1]. An essential characteristic of the agricultural sector is increasing the sustainability of agricultural exports in the economic crisis, which reflects the low elasticity of demand for food by income (with declining revenues, demand for food decreases more moderately than other goods). Thus, in the structure of Ukrainian exports, the high share of food products mitigated the situation during the economic crisis in 2020.

Among the Sustainable Development Goals in Ukraine, Goal 2 is “Overcoming hunger and agricultural development”, the indicators of which are the performance indicators of the agricultural sector (Table 1).

Table-1. Indicators of SDG № 2. Overcoming hunger, agricultural development

Task	Indicator	Unit
2.1. Ensure the availability of a balanced diet at the level of scientifically sound standards for all segments of the population	2.1.1. Meat consumption per person	kg/year
	2.1.2. Milk consumption per capita	kg/year
	2.1.3. Fish consumption per capita	kg/year
	2.1.4. Consumption of vegetables per capita	kg/year
	2.1.5. Fruit consumption per capita	kg/year
2.2. Double the productivity of agriculture, primarily through the use of innovative technologies	2.2.1. Labor productivity in agriculture	thousands of US dollars per employee
	2.2.2. Index of agricultural products	%
2.3. Ensure the creation of sustainable food production systems that contribute to the preservation of ecosystems and gradually improve the quality of land and soil, primarily through the use of innovative technologies	2.3.1. Food production index	%
	2.3.2. Share of food industry products and processing of agricultural raw materials in exports of groups 1-24 UCT ZED	%
	2.3.3. The share of agricultural land under organic production in the total area of agricultural land	%
2.4. Reduce food price volatility	2.4.1. Consumer price index for food	%

According to the [State Statistics Service of Ukraine \[1\]](#), the dynamics of achieving the planned values of indicators will be presented in [Fig. 3](#).

Figure-1. Progress towards the SDG 2 indicators (as of January 2022)

*symbols of markers: green - if the planned value of the indicator is reached, yellow - if the lag from the plan does not exceed 10%, orange - lag within 11-20%, red - lag from the plan more than 20%.

Source: developed according to the [State Statistics Service of Ukraine \[1\]](#).

If we analyze in general, only two indicators have reached the planned value of the indicator. According to indicators 2.2.2, 2.3.1 and 2.4.1, the planned value was reached in 2019, but this indicator could not be maintained.

Based on the above, it should be noted that the agricultural sector plays a significant role in the development of Ukraine. Still, in this format, it does not meet the needs of society and the economy.

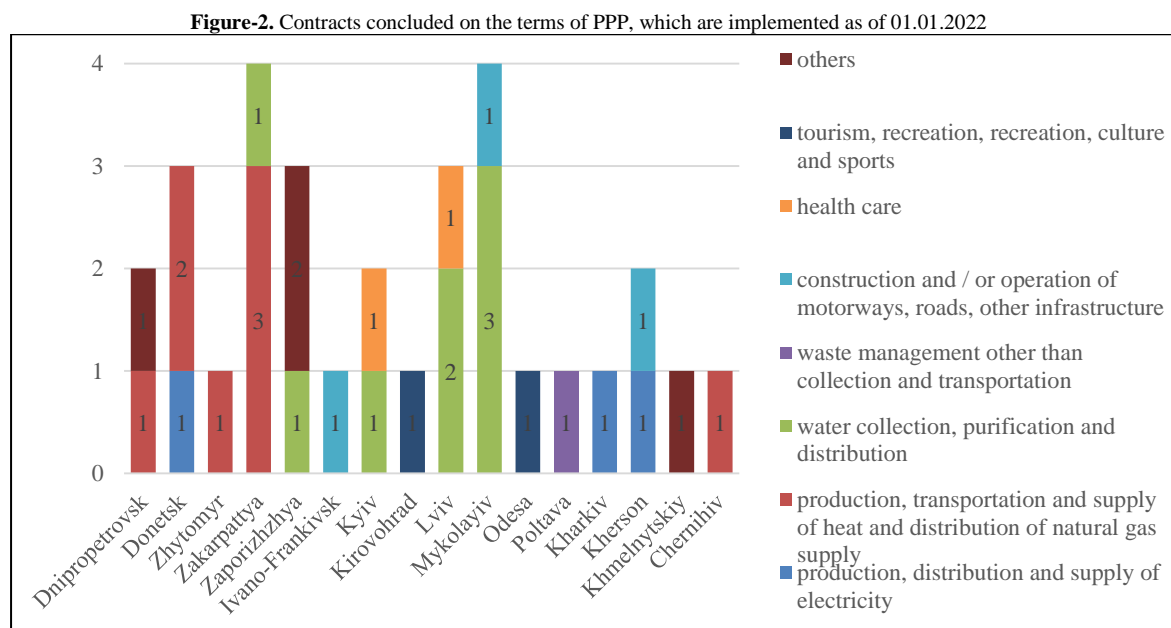
To improve the existing potential of the agricultural sector, a high level of investment in agricultural profitability is required. Such assets include research and technology that will increase productivity and develop human resources and infrastructure for transporting, storing, processing, and selling aggregated goods [2].

One way to improve the agricultural sector's position in Ukraine is to provide additional resources and innovative approaches to industrial development, which may be a widespread model of public-private sector interaction - public-private partnership. The emergence of PPPs in the agricultural sector of the economy is increasing the need for public goods, such as food security and environmental protection, increasing the viability of rural areas.

2. Material and Method

2.1. Status of Public-Private Partnership Implementation in Ukraine and Regulatory Framework

According to the data of central and local executive bodies in Ukraine, as of January 1, 2022, 193 agreements were concluded on the terms of PPP, of which 31 agreements are being implemented (22 – concession agreements, 5 – joint venture agreements, 4 – other agreements), 162 deals are not implemented (119 – not executed, 43 – terminated/expired) [3].



Source: developed according to the Ministry of Economy of Ukraine [3]

Thus, we see deficient PPP performance: more than 60% of PPP projects are not implemented, of which 22.2% are hopeless.

A PPP can only be successful if the working arrangement between the public and private sectors is harmonious. PPP project managers play an essential role in building good relations between the two parties, demonstrating an approach to power-sharing, trust and willingness to negotiate.

Legislation on Public-Private Partnership (PPP) of Ukraine (which includes the Law of Ukraine "On Public-Private Partnership" and the Law of Ukraine "On Concession") provides a legal and institutional basis for improving the provision of socially significant infrastructure services through the private sector participation principles of publicity, transparency, proportionality, fairness and non-discrimination.

Regulatory framework:

- Economic Code of Ukraine;
- The Civil Code of Ukraine;
- Law of Ukraine "On Public-Private Partnership" of 01.07.2010 № 2404-VI;
- Law of Ukraine "On Concession" of October 3, 2019, № 155-IX;

Bylaws governing the implementation of PPP:

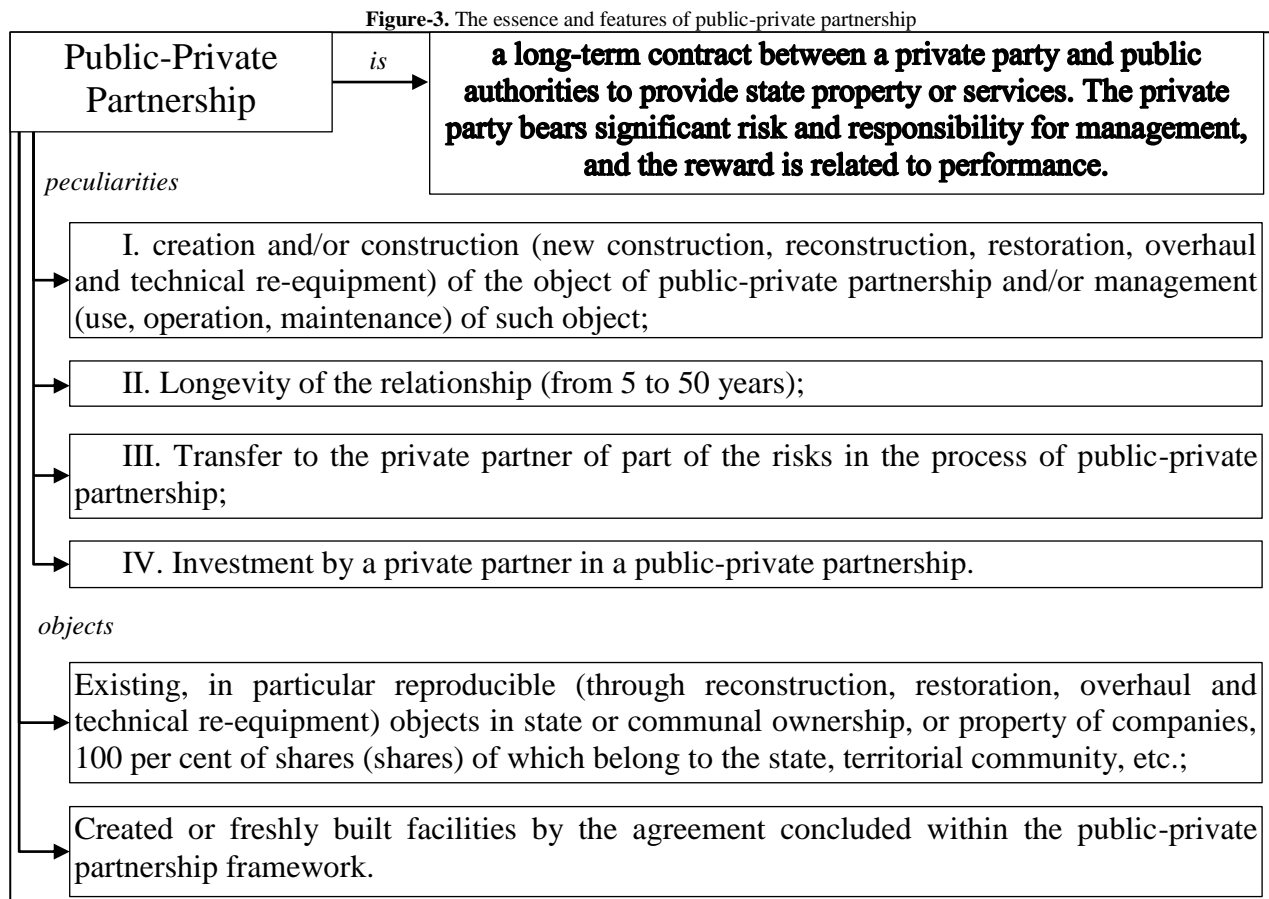
- Resolution of the Cabinet of Ministers of Ukraine of April 11, 2011, № 384 "Some issues of the organization of public-private partnership";
- Resolution of the Cabinet of Ministers of Ukraine of 01.07.2020 № 541 "On approval of the Procedure for replacement of a private partner (concessionaire) under an agreement concluded within the framework of a public-private partnership (concession agreement)";
- Resolution of the Cabinet of Ministers of Ukraine dated 22.07.2020 № 621 "On approval of the Procedure for returning the concession object to the concessionaire after the termination of the concession agreement";
- Resolution of the Cabinet of Ministers of Ukraine of 12.08.2020 № 706 "On approval of the Methodology for calculating concession payments";
- Resolution of the Cabinet of Ministers of Ukraine of 09.10.2020 № 950 "On approval of the Procedure for attracting advisers for the preparation of the project, which is carried out on the terms of the concession";
- Resolution of the Cabinet of Ministers of Ukraine of 09.12.2020 № 1210 "Some issues of using the electronic trading system for concession tenders";
- Resolution of the Cabinet of Ministers of Ukraine of 16.02.2011 № 232 "On approval of the Methodology for identifying risks of public-private partnerships, their assessment and determining the form of their management";
- Order of the Ministry of Economic Development, Trade and Agriculture of Ukraine dated 26.05.2020 № 986 "On approval of the Procedure for submission by public partners (concessionaires) of the annual report

- on the implementation of the contract concluded in the public-private partnership, including concession agreement" registered with the Ministry of Justice of Ukraine dated 06.07.2020 № 628/34911;
- Order of the Ministry of Development of Economy, Trade and Agriculture of Ukraine dated 22.12.2020 № 2721 "On approval of the Procedure for competitive selection of independent experts", registered in the Ministry of Justice of Ukraine 15.02.2021 № 191/35813;
 - Order of the Ministry of Economic Development and Trade of Ukraine dated 27.02.2012 № 255 "Some issues of analysis of the effectiveness of public-private partnership", registered in the Ministry of Justice of Ukraine 15.03.2012 № 399/20712;
 - Order of the Ministry of Economic Development and Trade of Ukraine dated 07.06.2016 № 944 "On approval of Guidelines for applying the Methodology for identifying risks of public-private partnerships, their assessment and determining the form of management."

Additional:

- "Concept of development of public-private partnership in Ukraine for 2013-2018" aimed to intensify the implementation of projects through PPP.

The main characteristics of PPP (Fig. 3).



Source: developed according to Law of Ukraine "On Public-Private Partnership" (Law of Ukraine [4] "On Public-Private Partnership")

PPP agreements provide for cooperation and the division of responsibilities, and the main goal is to accumulate resources for infrastructure construction.

2.2. PPP Projects in the Agricultural Sector

PPP in the agricultural sector is a formalized partnership between the state and business entities aimed at achieving sustainable agricultural development, which provides benefits to the state from the project, distribution between investment participants and risks at all stages of the project [5, 6]. PPP in the agricultural sector is seen as an institutional and organizational alliance of public and private businesses to implement national and local priority projects, carried out on the principles of mutual benefit and consolidation of joint efforts [7-9].

The scientific literature [2, 5, 10, 11] considers the following general types of PPP projects in the agricultural sector:

- Partnerships aimed at developing value-added value retail chains in aggregation to provide access to foreign and foreign markets (VCD);
- a partnership for collaborative research in agriculture, innovation and technology transfer, established to commercialize innovative technologies for increased productivity and market access (ITT);
- partnerships for the construction and modernization of market infrastructure, aimed at the development of shopping centres, warehouses, logistics systems (MI);

- Partnership for the provision of trade development services to farmers and small agricultural enterprises, including the development of market information systems and subsidies for business development services (BDS).

Joint public-private partnership projects in the agro-industrial complex are:

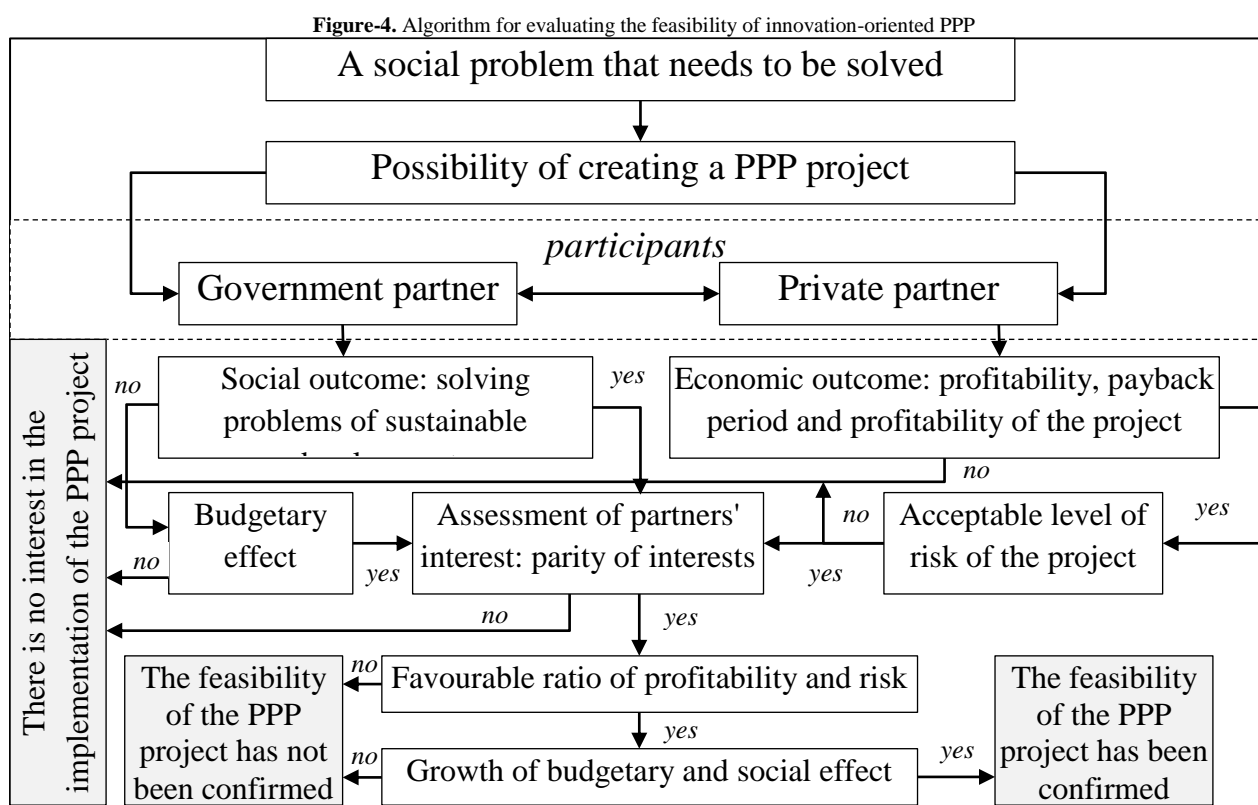
- introduction of innovations (research in the agricultural sector, introduction of innovative products that increase the efficiency and productivity of agricultural production and access to the market of technological innovations);
- Renovation of production and social infrastructure facilities in the agricultural sector (processing and storage of products, rural social facilities, reclamation systems), etc.

The primary forms of public-private partnership are the development and implementation of targeted programs and national priority projects, concession agreements, the creation of special economic zones, technology parks and technopolises, the formation of integrated structures, clusters and investment funds [12-15]. The group of agreements that mediate the registration of cooperation between the state and agrarian business includes contractual forms of agro-investment activities, for example, the formation of the authorized capital of agricultural enterprises (founding agreement, joint venture agreements, etc.); implementation of agro-investment activities based on agro-investment understanding [16-19]. Prospects are seen in the use of public-private partnership mechanisms to assist agricultural producers in organizing the rational use and protection of agricultural land in soil surveys, agrochemical passports, crop rotation projects, creation of protective forest belts and more.

3. Results

The analysis showed that in Ukraine, there are both positive and negative changes in the development of PPP.

The central negative aspect is the failure to bring PPP projects to a logical conclusion: implementation of results. As mentioned above, more than 60% of projects are not implemented, and these are financial and human resources that were spent at all stages of project preparation and conclusion of contracts; it is possible to reject those projects that could be implemented. To reduce the share of unrealized projects, we propose an algorithm (Fig. 4), which will be able to assess the feasibility of the PPP project at a preliminary stage.



Source: authors

The proposed algorithm for assessing the feasibility of implementing a PPP project is based on the existence or emergence of a particular social problem, the solution of which is possible through the PPP mechanism.

This algorithm takes into account the interests of the main participants of the PPP: the state (through the level of solving the problem as a whole: social or budgetary effect, risk and parity of interests) and private participants (through profitability, payback period and profitability and risk and parity of goods).

Stage 1: Development and evaluation of the concept note. The first stage concerns the identification and preliminary assessment of the project, its suitability for implementation in the PPP format and the level of readiness to move to Stage 2. The result of Stage 1 is the preliminary approval of the project candidate for implementation on PPP terms. At this stage, the project is approved for the first time by the procedure established by law, where all relevant aspects of the project are pre-evaluated on a large scale as far as the available information allows. If the

project is worthy of further consideration, the initiator of the concept note may proceed to Stage 2. Stage 1 applies only to invited proposals (this means that the state initiates the implementation of the project on the terms of PPP). According to the Law on PPP, the private initiator of the proposal is not obliged to submit a concept note; instead, he can immediately start preparing and submitting a proposal for PPP on the project, which consists of a feasibility study, to the relevant authority, subject to all other conditions provided by the Law on PPP.

Stage 2: Assessment of feasibility study. After approval of the concept note developed in Stage 1, the project proceeds to Stage 2, where the initiator of the PPP prepares a proposal for the implementation of the PPP, which consists of a feasibility study, and submits it to the body authorized to analyze the effectiveness of the PPP (implemented our proposed mechanism). Based on the efficiency analysis results, the authorized body prepares a conclusion on the feasibility or inexpediency of PPP and submits it together with the feasibility study to the Ministry of Economic Development, Trade and Agriculture (Ministry of Economic Development) for approval. During the approval process, the Ministry of Economic Development sends the received documents to the Ministry of Finance (Ministry of Finance) to assess the financial consequences that may arise during the PPP and the feasibility and possibility of state support and other relevant institutions to obtain their conclusions and recommendations. The body responsible for deciding on the implementation of the PPP may take such a decision only if it agrees on the feasibility of the PPP of the Ministry of Economic Development. The state partner can start the process of preparation for the tender only after the approval of the decision on implementing the PPP. In the case of unsolicited proposals, initiating a PPP project begins with the preparation and submission by the private initiator of a PPP proposal, consisting of a feasibility study, to the body authorized to conduct the analysis. Such a body is the body authorized to conduct performance analysis. The decision-making body for PPPs on the state-owned property is usually the relevant ministry that manages the facility or the Cabinet of Ministers, for example, in the case of concessions for the construction of public roads of state importance and the case of objects of communal property - the executive body of local self-government. Based on the results of this analysis, a conclusion is made about the feasibility or inexpediency of PPP concerning the proposed project. The body responsible for deciding on the implementation of the PPP may take such a decision only if the Ministry of Economic Development agrees with a positive conclusion based on the results of the analysis of the effectiveness of the implementation of the PPP. The state partner can start the process of preparation for the tender only after the approval of the decision on implementing the PPP. All projects, regardless of the method of initiation (private initiator or state party), in all areas of infrastructure must undergo the same preparation and evaluation process and have a single structure. All public-private partnership projects should be subject to feasibility and appropriate evaluations, such as technical assessment, socio-economic and environmental impact assessment, value for money, and financial impact/affordability assessment.

Stage 3: Preparation for the tender and procurement. At this stage, the project goes through all the detailed processes of formation of its structure and development is completed. The state partner creates a tender commission, which selects the appropriate tender methodology, including the development of tender rules, specifications, draft contract, and the system of evaluation of proposals and criteria for awarding the contract. The tender commission carries out the tender process for the project by the procedure established by the Law "On Concession" - for projects implemented under concession, or Resolution of the Cabinet of Ministers of Ukraine № 384 - on non-concession PPP projects. Based on the consideration of the participants' bids, the tender commission prepares a report. The report is reviewed and approved by the state partner. In case of approval of the information, the PPP / concession agreement is awarded. The state partner negotiates the provisions of the final contract with the party to whom the contract was awarded and agreed on the final text of the contract, which is then signed by the head of the state partner. The next stage takes place after signing the relevant agreement. The public partner must send the PPP agreement/concession agreement to the Ministry of Economic Development and some basic data from the register.

Stage 4: Support and implementation of PPP agreements. The project is undergoing implementation at this stage: construction, commissioning, operation, and transfer. The public partner/concessionaire manages the contract through its project management unit and monitors the performance of the private partner (concessionaire). The purpose of PPP / concession contract management activities is to obtain the services specified in the specifications of these contracts and to ensure continued affordability, price-quality ratio and proper management of distributed risks. PPP/concession contract management activities allow the public partner/concessionaire to exercise its rights and fulfil its obligations to ensure the fulfilment of the objectives set out in the PPP / concession agreement.

Another improvement in the formation and implementation of public-private partnership projects is the division of institutions' responsibilities in all stages (Table 2).

Table-2. Distribution of areas of responsibility of institutions at the stages of PPP

Project development stage	Key stakeholders					
	Evaluation authority	Authority that performs performance analysis	Decision-making authority	Government partner	Ministry of Economic Development	Ministry of Finance
Stage 1: Development and evaluation of a concept note (CON)	- Ensures the priority of proposals at the stage pre-selection; - Evaluates the CON; - Makes decisions on the preparation of the feasibility study.	Part of the evaluation body (participation in the evaluation process)	Maybe an evaluation body or part of an evaluation authority	Maybe the initiator of the PPP proposal or part of the evaluation authority	Part of the evaluation body (participation in the evaluation process)	
Stage 2: Assessment of feasibility study	Does not participate	- Analyzes the effectiveness of PPP - Prepares a conclusion based on the results of performance analysis.	- Decides on the appropriateness or inexpediency of PPP; - Publishes the opinion on its official website.	In most cases, it is a performance review body and/or a decision-making authority	- Agrees (disagrees) the conclusion on the results of the performance analysis - Publishes the opinion on its official website.	Assess the fiscal implications of PPPs and the feasibility and feasibility of state support.
Stage 3: Preparation for the tender and procurement		Can be a state partner	- Organization of preparation and holding of a competition for selection of a private partner/ concessionaire - Negotiating the future terms of the contract - Signing a PPP / concession agreement.	- Participates in the tender commission - Controls the process of the competition - Registers PPP agreements.	Participates in the tender commission	
Stage 4: Support and implementation of PPP agreements	Does not participate			- Monitors the implementation of the contract; - Reports to the Ministry of Economic Development on an annual basis.	- Monitors the implementation of the contract, including the assessment of financial risks; - Reports to the Ministry of Finance on an annual basis - Publishes the results of events.	Monitors the implementation of the agreement in terms of assessing fiscal risks

4. Discussion

It should be noted that the formation of PPP projects is characterized by both incentives and motivators and their risks for a wide range of possible participants.

For the state:

a) The primary motivation is a new effect (social, innovative, economical, etc.)

b) The main incentives - the possibility of attracting innovative content, inventions and private objects of intellectual property, both in a specific field to which the state entity belongs and in the field of professional management; The growth of financial and economic indicators due to the results of the use of state assets, an increase in income to the state budget as a tax return from the achievement of positive socio-economic and other results.

Major risks include:

a) The risk of corruption as a result of the opaque selection structure of the private PPP partner;

b) Industrially significant risk due to the failure of a private partner's innovative strategy to realize the potential of a particular government asset and not achieving the planned financial indicators;

c) Reputational risk as a result of damaging the public and international reputation of a particular party of the PPP;

d) The information risk resulting from the loss of the integrity of the closed data circle in government registers when a private partner is allowed to work with them.

For a private PPP partner, the most important incentives are:

a) The possibility of innovative content using its intellectual property objects;

b) The creation of a new structure for income and revenue generation;

c) Formation of the state and public interest.

The main risk for him is the absence of a state strategy at the legislative level, which should ensure that access to data contained in state registers is restricted if processing this data is necessary for implementing the DPP project. This is extremely important for projects under construction based on digital innovations and profound innovation in the processing of personal data. Intelligent, transparent rules and preferential support conditions for PPP projects guarantee the immutability of the primary requirements for implementing the PPP agreement throughout the entire duration of the PPP agreement. This will eliminate corruption factors that could affect the transparency of the choice of a potential PPP partner.

For society, a significant risk is to ignore the public environment and other aspects important to the life of the individual regional communities in which a PPP project is implemented in favour of profit-making main objectives.

For forms of state and private ownership in education and science, there is a risk of infringement of intellectual property rights due to unauthorized use of innovative scientific developments and inventions, given its absence due to the relationship and structure that guarantees fair payment for the use of the results of scientific activity in the real sector of the economy (extremely important for the knowledge economy).

5. Conclusions

Public-private partnerships in the agricultural sector can provide:

- PPP risk allocation function, which can help structure projects to address a range of industry risks (production, market, etc.);
- benefits related to increased efficiency and market access through the use of innovative technologies and high management and marketing skills of the private sector;
- results of food security and stimulating the development of value chains, including small farmers and small and medium-sized agricultural enterprises as critical suppliers of raw materials for agribusiness enterprises.

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