European Bank
for Reconstruction and Development

EBRD PPP regulatory guidelines collection
Volume II

Chapter 7.
Risk allocation matrix

1. Risk matrix preparation methodology

1.1 Common definition of the risk matrix

The risk matrix is a table (systematic list) that classifies and distributes identified risks among the main project participants. For this purpose, risk can be understood as the probability of a harm occurring (for instance, less revenue being generated than expected) multiplied by the severity of that harm (the extent of its impact on the project). The risk matrix may also contain a description of risks, ways to minimise these risks and the ranking of risks according to the likelihood of occurrence and impact.

The risks related to the implementation of a public-private partnership (PPP) project must be taken into account during its preparation.

Risk management:

cmakes it possible to achieve the optimal "price-quality" ratio for the public partner during implementation of a PPP project (for example, the transfer of a number of risks to the private partner makes the project more attractive to the public partner)

• reduces the likelihood of occurrence and impact of negative risk events on the project during the implementation of the project (as risk accounting is a part of the risk management process).

The detailed composition and contents of the risk matrix may vary across different PPP practices. In these recommendations, the designations and descriptions of risk are represented in the risk register. Risk categorisation, allocation and management are recognised directly in the risk matrix. The risk ranking process (the relative significance of risks in comparison with each other) is not included in this document and is performed if the risks can be reliably measured. Broadly speaking, the preparation of the risk matrix and its role in the development of the PPP project will involve preparing both the register and the risk matrix.

This methodological approach to separation of the risk register and risk matrix is based on the following:

• The risk identification stage ends with the preparation of a particular report, the role of which may be represented by the risk register. Therefore, disclosing the information in the risk register eliminates the need to provide the same information directly in the matrix.

• In practical terms, the description of the risks may contain a large amount of textual information. The inclusion of this information in the risk matrix may make the risk matrix cumbersome and inconvenient for the end user.

• The risk matrix may include risks that are similar in nature, but arise during different project stages (for example, exchange risk and approval risk).

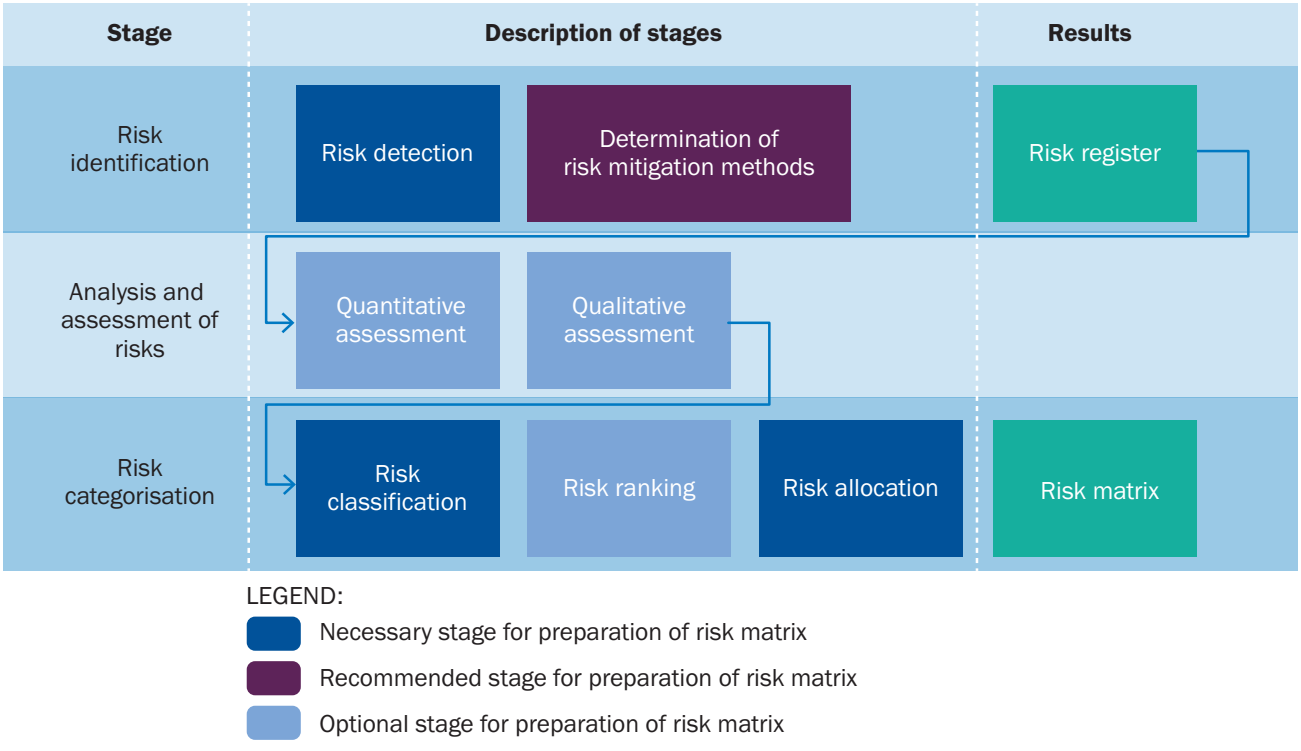

Chart 1. Stages of the formation of the risk matrix of a PPP project

The role of the risk matrix associated with the PPP project is to serve as a useful check against the draft PPP agreement to make sure that resources are efficiently allocated and appropriate risk management mechanisms are in place to reduce the likelihood and/or impact of the identified risks.

In the initial stages of a project, the potential private partners may be given a brief version of the risk matrix (not detailed, developed by the public partner for internal purposes). This enables prospective parties to understand the main risks of the PPP project from the earliest stages. It also provides a basis for future risk-sharing negotiations, helping to streamline a sometimes lengthy negotiation process.

Specific and basic project risks can be discussed in detail by the public and private partners during the negotiation process within the framework of commercial close.

1.2 Description of the procedures required for the compilation of the risk matrix

Identification of risks and determination of risk mitigation methods

Risk identification (detection) is a preliminary stage during the preparation of the register and the risk matrix. Risk identification methodology includes the following procedures:

- determination of the type of input data used to identify risks
- description of risk identification tools and methods
- description of the type of output data during the identification of risks.

The following may be used as input data for the identification of risks:

- existing documentation for the PPP project
- laws and regulations applicable to the project
- macroeconomic information (such as exchange rate dynamics and interest rate dynamics)
- information on the indicators of the expected volume of the provided services that are specific to the project (for instance, traffic density for highways, the number of visits to hospitals, appointments in an outpatient department)
- information on the risks identified during the implementation of similar projects.

The main tool used to identify risks is expert assessment, which can be obtained through group meetings, interviews with experts and detailed reports.

Risk mitigation methods are determined within the framework of the four main risk management strategies:

- risk avoidance (establishment of requirements of the private partner, revision of project tasks)
- risk reduction (for example, implementation of risk management actions, provisioning)
- assumption of risks (control over the level of assumed risk)
- risk transfer (insurance, hedging).

An assessment of risk mitigation tools is not required to draw up the risk matrix, but is advisable to increase the effectiveness of the project risk management process. See section 3 for an example of a standard risk matrix, including risk management recommendations.

The risk list or risk register may be used as output data in the risk identification process. It is advisable to use the risk register as the final document because it includes not only the set of risks themselves, but also a description of these risks.

Analysis and risk assessment – general approach

This stage is not always used in the development of the risk matrix. It is required if risks need to be ranked (determination of the likelihood of the occurrence of the risk event in a ranking and the extent of their impact on the PPP project). The risk analysis and assessment is performed using two main methods: qualitative and quantitative.

Qualitative methods consist of the expert evaluation method, whereby risk events and risk impact extents are divided into several groups depending on the likelihood of occurrence and impact (from low to very high).

Quantitative methods involve the measurement of risks in monetary terms and are represented by sensitivity analysis, scenario analysis and the Monte Carlo method. It should be noted that at the current stage of PPP market development in Commonwealth of Independent States (CIS) countries, there is no extensive base of historical data concerning the likelihood of risk occurrence and the impact of risks on implemented projects. Quantitative methods are used mainly in the context of value-for-money analysis. It is very rare (but not unheard of) that these are needed to determine the risk allocation in the PPP arrangement.

A detailed methodology of the risk assessment is given in the document PPP project appraisal guidelines.

Risk classification

The risk classification involves:

- categorisation by function (for example, technical, financial, legal or other risks)
- categorisation by main project stage (design, construction, operation).

1.3 Risk allocation approach

Risk allocation approach

The allocation of risks between project partners is a key aspect of a PPP project. This allocation has an impact on:

- the feasibility of implementation (for example, the allocation of a number of risks to the private partner may render it impossible to implement the project from a financial perspective – that is, the sponsoring entities will not be able to take on all the risks of the special-purpose vehicle and also to provide funding for the project)
- benefits from the implementation of the PPP project both for the public partner (based on the value-for-money model) and the private partner (the public partner may cover some of the risks)
- the required rate of return of the private partner (risk premium).

Project risks can be divided into three categories:

- transferred to the private partner ("transferred risks")
- retained by the public partner ("retained risks")
- joint risks ("shared risks").

It is important to maintain a balance of interests of both partners in the risk-allocation process. The main rule of risk allocation according to international practice is that the risk be assumed by the partner that can effectively manage it. If it is difficult to determine the partner that can effectively manage the risk, the risk can be shared between the partners.

This logic is confirmed by established practice: in PPP projects, construction and maintenance risks are in essence transferred to the private partner, as it is responsible for directly implementing this work. In this case, the transfer of risk to the private partner should incentivise private partners to apply innovative approaches in the PPP framework and also provide quality services, keeping costs under control.

The allocation of an insignificant volume of risk to the private partner may render the project of little use to the public partner. The allocation of excessive risks to the private partner (for example, risks that the public partner can effectively manage) may result in excessive risk premiums required by the private partner, thereby adversely affecting the "price-quality" ratio.

The public partner usually assumes the risks that arise due to circumstances under its (or the government's) direct (or indirect) control. These risks may include:

- risks related to the preparation of the preliminary design and tender documentation
- risks related to the acquisition of land
- risks related to the preparation of a construction site and the relocation of key utility networks
- risks related to future changes in the contractual terms caused by the public partner (variation orders)
- risks related to amendments to legislation.

Principles governing the compilation of the risk matrix

The principles governing the compilation of the risk matrix are given below:

- Different projects have different opportunities for risk allocation between the partners.

- Successful negotiations concerning the transfer of risks require a clear understanding by the public partner of the risks noted in the bid submissions, their key impact on the willingness of the private partner to provide services under the contract and on the cost of financing, and also the benefit of the money that is spent in connection with the allocation of the risks. That is why all risks must be identified and assessed.

- In sectors where the private partner has full rights of possession, control and sole responsibility, the private partner should be encouraged to assume all the risks it can manage more efficiently than the public partner. If the public partner wants to have responsibility for and control over the provision of services under the contract and at the same time try to reallocate a significant amount of risks to the private partner, the private partner will very likely demand more remuneration for its services.

- The optimal allocation of risks between the private and public partners incentivises the private partner to provide services on time and at a reasonable price, using more innovative decisions. Regarding the transfer of risks from the public partner to the private partner, where the private partner only provides services under the contract, the private partner will typically have better control over the outputs from such service provision than the public partner.

The risk allocation table ("risk matrix") should show each partner's share of the identified risk and how the aggregate risk is split. The share should be expressed in percentages. If percentage calculations are impossible, simple notes on the specific partner assuming the risk can be used.

2. Standard risk register

Basic and specific risks

As a rule, the risks considered in preparing the risk register and risk matrix may differ from project to project, depending on the economic sector and industry. A certain number of risks are common to all projects, however. These include:

- land purchase and site risk
- environmental and social risk
- design risk
- construction risk
- completion risk
- performance (quality)/price risk
- resource/input risk
- demand/utilisation risk
- maintenance risk
- force majeure
- exchange rate and interest rate risk
- insurance risk
- political risk
- regulatory risk/change in law risk
- inflation risk
- disruptive technology risk
- early termination risk.

Note, though, that the ways in which they are described, allocated and mitigated will differ from project to project. In addition to the basic risks, there are specific risks that require special attention during the preparation of the risk matrix, as shown in the examples below.

Projects in the health and education sectors:

- risk of ineffective cooperation with other hospitals (health sector)

- risk of ineffective interaction between the operator and the maintenance company (health sector)

- risk of failure to receive the required licence for the provision of services (health sector)

- risk of insufficient coordination on the use of another type of equipment in the event of a change in technology (health sector)

- risk of possible changes in the profile of the medical institution (health sector)

- risk of ineffective interaction with the providers of catering services, waste sterilisation (health sector)

- risk of a lack of long-term guarantees of service demand levels (health, education sectors)

- coordination risk involved in opportunities to provide additional (non-core) services (health, education sectors).

Risks in the energy sector (based on the example of the electricity sector):

- risk that the transmission grid is not ready and the required grid infrastructure is not available: the facilities required for the connection of the power station to the energy system may be not commissioned on time, rendering operation of the power station impossible, or such facilities may be calculated based on a low transmission volume, which may lead to a marked increase in tariffs

• risk associated with payment collection: failure to receive payments (undue receipt) from the buyers of the electricity

• risk of insufficient water levels, wind or solar activity for the operation of the power station on the basis of renewable energy

• risk of interruptions in the functioning of the facilities, taking into account the social importance of the sector.

Risks in the utility sector (based on the example of the recycling sector):

• coordination risk arising from possible failure to obtain recycling licences required for certain types of waste

• risk associated with organising an efficient waste-sorting process.

Risks in the transport sector (based on the example of roads):

• revenue risk: decrease in toll payments received

• risk of an increase in road maintenance costs due to higher-than-planned traffic density

• risk of road use by overloaded vehicles

• risk of the need to build bridges, tunnels or additional road junctions that are not specified in the design documentation near the facility.

Standard risk register

The following pages contain the standard risk register, which includes the risks that may occur during the preparation and implementation of the investment project.

Risk register		
Risk		**Description**
1.	**Design risks**	
1.1.	Risks of the coordination of project documentation, technical conditions	Risk the approval is denied, or the approval time of the design documentation and/or the technical conditions is increased due to the owners of the utility networks (utility lines) or the risk of changes in technical conditions caused by the owners of the utility networks (utility lines).
1.2.	Risk of an increase in the design time frame	The risk of changes to the project implementation time frame due to a delay in implementation of the design work.
1.3.	Risks related to engineering surveys	During the development of the working documentation and performance of an additional engineering survey, the discovery of mineral deposits, archaeological artefacts, utility networks and/or utility lines, contamination of the soil and/or the ground (groundwater), cemeteries (including burial of human remains) and/or military assets (including explosives and/or ammunition) in the ground (soil, groundwater), the mismatch of the relief with the design documentation data or other deviations from previously identified qualitative characteristics of the ground and other data previously conducted engineering surveys are possible. These mismatches may result the need for clarification of the adopted design and technological solutions. The introduction of the aforementioned changes associated with the additional time and financial costs for project partners and (depending on the detected deviations compared with the results of previously conducted engineering surveys) may render project implementation impossible.
1.4.	Risk of an increase in the cost of the construction of the asset according to the design results	The risk of changes in the cost of the project identified at the design stage.

Risk register		
Risk		**Description**
1.5.	Delay in the preparation of working documentation	The risk of delays in the preparation of the working documentation by the public partner and technical engineer.
1.6.	Changes in design and construction standards during construction	If the initial project documentation contained deficiencies, the private partner assumes the responsibility. If the changes were implemented on the public partner's instructions, the public partner covers the risk. The risk of any changes to laws affecting the design and construction of projects.
2.	**Land risks**	
2.1.	Delay in (impossibility of) obtaining the land required for the construction of the asset	Delays in obtaining or an inability to acquire the land needed to start building the asset. As a result, the private partner is entitled to demand compensation for additional costs and also an increase in the construction time frame within the framework established for exceptional circumstances.
2.2.	Inflated value of the acquired land necessary for the construction of the asset	The risk that the land required for the construction of the asset in accordance with the design documentation will be acquired at an inflated price.
2.3.	Errors in land-use documentation	The risk of a detection of errors, inaccuracies and/or mismatch of the results of the completed land and cadastral works with design documentation and/or area planning documentation, including the comments of the public authorities, which in turn may lead to an increase in the time frame for the provision of the land to the private partner.
2.4.	Delay in the receipt of permits or approvals that impact the project implementation time frame	Failure to obtain, or a delay in the receipt or repeal of permits/approvals that affect the project implementation time frame, including permits/approvals related to environmental and hygiene issues.
2.5.	Safety of the construction site	Risk of injury to contractors.
2.6	Third-party interference	The risk of the unauthorised intervention of third parties during preparation of the construction site.
2.7	Risks of preparing the land	Risks associated with preparation of the construction site, including the relocation of the utility lines, the provision of all the necessary infrastructure and change in the permitted purpose of land plot use. Risks related to the identification of hidden defects in the land plots and other extraordinary factors.
3.	**Construction risks**	
3.1.	Provision and control of the quality of construction works	The risk of poor performance in the construction work.
3.2.	Compliance with construction standards and specifications	The risk of non-compliance with the specification defined in the design documentation, and state standards and requirements on construction works in accordance with technical regulations, as well as applicable regulatory and technical acts.

Risk register		
Risk		**Description**
3.3.	Increase in expenditure and delays for reasons that differ from reasons under which compensation is paid in exceptional circumstances	The risk of an increase in expenses from the agreed level due to factors that do not imply any compensation for this increase (to the private partner at the expense of the public partner within the framework established for exceptional circumstances).
3.4.	Delays in the receipt of permits and approvals	Failure to obtain, delay in the receipt of, repeal of permits/ approvals that have an impact on the project implementation time frame.
3.5.	Delays due to changes caused by the public partner	The risk of non-compliance with the project implementation time frame due to changes in project specifications initiated by the public partner.
3.6.	Delay as a result of changes caused by the private partner	The risk of non-compliance of the implementation time frame of the project due to changes in the project specifications initiated by the private partner.
3.7.	Labour disputes	The risk of dissatisfaction among the public partner's employees, subcontractors and other project participants (where applicable), which might affect project implementation parameters due to the working conditions and level of wages and salaries.
3.8.	Availability of labour and material resources	The risk of the lack of the necessary project implementation resources.
3.9.	Project management risk, integration, delays	The risk of ineffective project management.
3.10.	Damage to the PPP asset	The risk of damage to the PPP asset during construction.
3.11.	Harm to a third party	The risk of the need to compensate a third party for damage caused during construction.
3.12.	Damage to utility lines	The risk of damage to the utility lines of third parties during construction.
3.13.	Sufficiency of insurance coverage	The risk that insurance coverage will not be sufficient to compensate for the damage to the property by third parties or damage during the construction and installation works.
3.14.	Bankruptcy of the subcontractor	The risk of the subcontractor's default due to bankruptcy.
3.15.	Latent defects in new infrastructure and declared defects in existing infrastructure	The risk of hidden defects in the infrastructure caused by the contractor (for example, due to violations of construction technology), which may occur during or at the end of the period of the agreement.
3.16.	Pollution of water, air and soil that was not known in advance	The risk of environmental pollution caused by the contractor in the construction and maintenance stages.
3.17.	Patent infringement	The risk of a violation of the owner's rights if patent-pending technology is used during construction.
3.18.	Material deficiencies	The risk of defective construction materials, products and structures used during construction.
3.19.	Occupational health and safety	The risk of industrial injuries and accidents during construction of the asset.

Risk register		
Risk		**Description**
3.20.	Construction safety	The risk of non-compliance with security standards during construction of the asset.
3.21.	Disputes between designers/ contractors/professional team	The risk of disputes among project participants that lead to inappropriate project implementation, delays in implementation and additional costs to the parties (among other things, in connection with the resolution of disputes between the parties).
4.	**Force majeure**	
4.1.	Force majeure	The impact of extraordinary circumstances that are beyond the control of the parties, such as weather events (for example, natural disasters, severe weather conditions, abnormal frost or showers), political events (for example, war, civil unrest, terrorist attacks, drastic changes in law) or health phenomena (pandemics, radioactive materials, chemical and bacteriological pollution).
5.	**Revenue Risk**	
5.1.	Collection risk (revenue receipt)	The risk of a decrease in revenue due to a decline in collections/ payments/rates and changes in demand regarding use of the asset compared with forecasts.
5.2.	Decrease in revenue due to the poor quality of the utility services provided	The risk of a decrease in revenue due to the poor quality of the services provided by utilities.
6.	**Operating risks**	
6.1.	Increase in maintenance costs due to the large volume of services provided (above the planned level)	Maintenance costs are above the predicted level because of unexpectedly high usage that could, for example, be the result of low rates charged to users, stimulating over-consumption.
6.2.	Incorrect forecasts and an increase in operating expenditure	Excessive project costs due to errors in forecasts made at the initial project implementation stage.
6.3.	Actual operating expenses exceed forecast expenses	The risk that the private partner underestimated maintenance costs at the time the tender offer was submitted (except for macroeconomic factors).
6.4.	Premature equipment wear	Depreciation of equipment before the end of its normal period of use.
6.5.	Availability of labour and material resources	The partner implementing the project has all the material and human resources required for successful implementation of the project.
6.6.	Relationship with subcontractors	Stable relationships with subcontractors that discharge all their obligations on time and to standard.
6.7.	Changes in the specifications of the services provided caused by the public partner	Changes in the developed design documentation by the public partner (design and technical solutions) resulting in additional financial and time costs for the project.
6.8.	Damage to a third party	Damage caused to a non-project third party during the project implementation process.

Risk register		
Risk		**Description**
6.9.	Damage to or destruction of the asset	The risk that a third party may cause severe or irreparable damage to the project, and also the risk of the loss of the asset. Such damage can result in an increase in both the time frame and project implementation costs or the loss of the asset.
6.10.	Pollution of water, air, soil	Environmental pollution caused by the contractor during the maintenance stage.
6.11.	Compliance with standards on the transfer of PPP assets	The risk that the private partner will transfer the facility in a condition that does not meet technical and economic indicators and that the public partner will be forced to carry out major repairs.
6.12.	Occupational health and safety	The risk of injuries.
6.13.	Receipt and maintenance of licences in accordance with legislation	Failure to obtain, a delay in the receipt of or the repeal of permits/approvals that have an impact on the project implementation time frame, including permits/approvals relating to environmental and hygiene issues.
6.14.	Labour disputes	The risk of dissatisfaction among the private partner`s employees, subcontractors and other project participants (where applicable) due to working conditions and level of wages and salaries.
6.15.	Vandalism	Acts of vandalism with respect to the asset or related infrastructure.
7.	**Financial, exchange rate and inflation risks**	
7.1.	Risk of changes in interest rates, other financing terms	The risk that a change in interest rates will affect the cost of borrowing and the overall financial viability of the project.
7.2.	Fundraising risk	The risk of the inability to attract the required amount of financing. Note: As part of the preparation of a detailed risk matrix, it is necessary to take into account all the financing methods used (equity/debt financing co-financing of construction by the public partner). Detailed risk allocation depends on the planned type of financing.
7.3.	Exchange risk	The risk of unfavourable changes in the exchange rate in the case of debt and revenue denominated in different currencies.
7.4.	Inflation affecting construction costs	The increase in the cost of the construction materials and works in nominal terms due to inflation.
7.5.	Inflation affecting operating costs	Increase in maintenance costs in nominal terms due to inflation.
7.6.	Risk of an extension in the time frame to attain financial close	The risk of extension of the negotiation period for the provision of necessary financing for a PPP project (financial close). Due to the increase in the time frame, some negative consequences may arise both for the private and public partners (such as postponement of the start of the construction, increase in the total cost of the project or increase in the cost of financing for the PPP project).

Risk register		
Risk		**Description**
8.	**Tax risks**	
8.1.	Amendments to current tax legislation and applicable tax rates and fees	A risk of amendments to legislation with respect to tax payments and fees, as well as changes to customs duties.
8.2.	Interpretation of tax legislation by the state authorities	Interpretation of the tax norms by the tax authorities that are unfavourable for the private partner (for example, restrictions on compensation or offset of value added tax on the expenses assumed by the private partner using the funds received as public funding under the PPP).
9.	**Legal risks**	
9.1.	General and discriminatory amendments to legislation, applicable standards	The risk that amendments to legislation may have a direct or indirect negative effect on the private partner and that these changes do not affect (affect slightly) other parties (including other private partners/parties implementing similar projects) or disproportionally affect the private partner compared with the private partners/parties implementing similar concession projects.
9.2.	Competition process risk	The risk of a challenge to the legitimacy of the results of the competitive process (which also challenges the legitimacy of the PPP project itself, postpones its implementation and can affect the nature of the competitive process).
9.3.	Amendments to the legal framework in urban planning	The risk that urban planning restrictions imposed after the date of the submission of the tender proposal by the private partner might prevent the private partner from implementing the project in accordance with the tender proposal if the occurrence of a risk causes a delay in the construction (reconstruction) or increases the costs of the private partner significantly.
10.	**Default risk**	
10.1.	PPP termination	The risk that the public or private partner will be unable to fulfil their obligations under the agreement.
11.	**Strategic risks**	
11.1	Changes in the shareholder structure of the private partner	Changes in the structure of shareholder participation or control with respect to the private partner that results in a weakening of its financial stability and/or qualification (experience). The conflict between the shareholders (participants) of the private partner due to the formation and activities of its management bodies.
11.2	Conflict of interest among the shareholders of the private partner	The risk of disputes between special-purpose vehicle shareholders regarding the adoption of decisions concerning implementation of the project at the maintenance stage.

3. Standard risk matrix

Risk allocation matrix				
Risk		Impact of the risk	Risk allocation	
			Public partner	Private partner
1.	**Design risks**			
1.1.	Risks of the coordination of project documentation, technical conditions	Increase in construction costs	Possible	Possible
1.2.	Risk of an increase in design period	Increase in construction costs	Possible	Possible
1.3.	Risks related to engineering surveys	Increase in construction costs	Possible	Possible
1.4.	Risk of an increase in the construction cost of the asset according to the design results	Increase in construction costs	Possible	Possible
1.5.	Delay in the preparation of the working documentation needed for construction	Increase in construction costs		Yes
1.6.	Changes in design and construction standards during construction	Increase in construction costs	Possible	Possible
2.	**Land risks**			
2.1.	Delay in (impossibility of) obtaining the land with rights of way that are necessary for the construction of the asset	Increase in construction costs	Yes	
2.2.	Inflated value of the land acquired for the construction of the asset	Increase in construction costs	Yes	
2.3.	Errors in legal land-use documentation (such as ownership and zoning)	Increase in construction costs and potential liabilities	Yes	

	Joint	Comments
		Risk allocation depends on the responsibility of the partners that design and carry out all the necessary engineering surveys. When the public partner has completed the design and all necessary engineering surveys and transferred the materials to the private partner according to the tender results, the private partner is responsible for some of these risks, but the public partner would typically retain some of the risks associated with any defects in the surveys and results.
		Risk allocation depends on the responsibility of the partners that design and carry out all the necessary engineering surveys. When the public partner has completed the design and all necessary engineering surveys and transferred the materials to the private partner according to the tender results, the private partner is responsible for some of these risks, but the public partner would typically retain some of the risks associated with any defects in the surveys and results.
		Risk allocation depends on the responsibility of the partners that design and carry out all the necessary engineering surveys. When the public partner has completed the design and all necessary engineering surveys and transferred the materials to the private partner according to the tender results, the private partner is responsible for some of these risks, but the public partner also typically retains some risks associated with any defects in the surveys and results.
		When the design is the private partner`s responsibility, the construction cost of the final asset must be agreed with the public partner.
		As a rule, it is the private partner`s risk. The private partner will be released from responsibility if construction is postponed due to an unreasonable delay in approval by the public partner.
	Possible	The private partner will be responsible if the initial design documentation has deficiencies and was its responsibility. If the changes occurred due to the demands of the public partner, the private partner will not assume the risk.
		If the right of way is necessary to implement the work, this risk is the public partner`s responsibility.
		As a rule, it is the public partner’s risk because the public partner is usually responsible for providing the land.
		As a rule, it is the public partner’s risk if the public partner is responsible for preparing this documentation.

Risk allocation matrix				
Risk		Impact of the risk	Risk allocation	
			Public partner	Private partner
2.4.	Delay in the receipt of permits or approvals that affect implementation of the project time frame	Increase in construction costs		
2.5.	Safety of the construction site	Higher construction costs and potential liabilities case sudy		Yes
2.6.	Land preparation risks	Higher construction costs	Possible (most common)	Possible
2.7.	Hidden defects in the site	Higher construction costs	Yes	Possible
3.	**Construction risks**			
3.1.	Ensuring and managing the quality of the construction work	Higher construction costs/increase in the construction time frame		Yes
3.2.	Compliance with the construction standards and specifications	Higher construction costs/increase in the construction time frame		Yes
3.3.	Cost overruns and delays for reasons that do not entitle the private partner to the payment of compensation	Higher construction costs/increase in the construction time frame		Yes
3.4.	Delay in obtaining permits and approvals	Higher construction costs/increase in the construction time frame	Possible	Yes
3.5.	Delays due to changes caused by the public partner	Higher construction and operating costs and increase in the construction time frame	Yes	
3.6.	Delay as a result of changes caused by the private partner	Higher construction and operating costs/increase in the construction time frame		Yes
3.7.	Labour disputes	Higher construction costs/increase in the construction time frame		Yes
3.8.	Availability of labour and material resources	Higher construction costs/increase in the construction time frame		Yes
3.9.	Project management risk, integration, delays	Higher construction costs/increase in the construction time frame		Yes
3.10.	Damage to the PPP asset	Higher construction costs/increase in the construction time frame		Yes

	Joint	Comments
	Yes	Both public and private partners must usually make reasonable efforts to obtain permits, and the public partner must typically provide reasonable assistance. A situation when the public authorities perform wrongful acts or fail to act may be considered separately.
		Responsibility of the private partner.
		This risk depends on who is responsible for the land preparation under the agreement and also the specifics of particular work, taking into account the risk that other facilities not identified as part of the project have been discovered. The principle of materiality can also be applied. For example, the private partner may cover immaterial costs.
		As a rule, this is the public partner's risk. The principle of materiality can also be applied, for example, and the private partner may cover immaterial costs.
		Private partner's responsibility.
		Note: - standards – requirements of the public authorities - specifications – project requirements
		Private partner's responsibility.
		This depends on the reasons for the delay. As a rule, it is the private partner's responsibility to make timely applications. The private partner and public partner must make reasonable efforts to obtain permits, and the public partner must provide reasonable assistance. The private partner may not be considered responsible if the public authorities perform wrongful acts or fail to act.
		The private partner should be compensated for the additional cost and time involved. It usually also has a right of veto if safety and design guarantees may be compromised by the change. The public partner may also have to cover the additional capital cost required (co-financing of construction by the public partner).
		The public partner is usually entitled to the right of veto in case of any non-fulfilment of its requirements or inconsistency with the PPP agreement.
		Private partner's risk if the disputes did not arise in the political sphere.
		Private partner's risk if there was no government intervention. Risk of import, customs clearance and monopoly supply should be taken into account.
		It is assumed that project management is the private partner's responsibility. The risk may be shared if the construction of the project assets depends on work performed by the public partner.
		Can be insured. The private partner may also seek compensation from third parties. The state assumes responsibility if the damage is caused by the state during the performance of its PPP duties. The state reimburses losses over and above the insured amount.

Risk allocation matrix				
Risk		Impact of the risk	Risk allocation	
			Public partner	Private partner
3.11.	Damage to third-party property	Higher construction costs/increase in the construction time frame		Yes
3.12.	Damage to utility supplies	Higher construction costs/increase in the construction time frame		Yes
3.13.	Sufficiency of insurance coverage	Higher construction costs/increase in the construction time frame		Yes
3.14.	Bankruptcy of subcontractor	Higher construction costs/increase in the construction time frame		Yes
3.15.	Latent defects in new infrastructure and known defects in existing infrastructure	Higher construction and operating costs if there is an increase in the construction time frame		Yes
3.16.	Pollution of water, air, soil that was not known in advance	Higher construction costs/increase in the construction time frame		Yes
3.17.	Patent infringement	Higher construction costs/increase in the construction time frame		Yes
3.18.	Material deficiencies	Higher construction costs/increase in the construction time frame		Yes
3.19.	Occupational health and safety	Higher construction costs/increase in the construction time frame		Yes
3.20.	Construction safety	Higher construction costs/increase in the construction time frame		Yes
3.22.	Disputes between designers/ contractors/the professional team	Higher construction costs/ increase in the construction time frame		Yes
4.	**Force majeure**			
4.1.	Force majeure	Higher construction costs/increase in the construction time frame	Possible	Yes
5.	**Operating risks**			
5.1.	Increase in maintenance costs due to higher-than-expected volume of services provided	Increase in operating costs	Possible	Possible
5.2.	Incorrect private partner forecasts and resulting increase in operating costs	Increase in operating costs		Yes
5.3.	Actual operating costs exceed forecast costs	Increase in operating costs		Yes
5.4.	Early wear and tear of equipment	Increase in operating costs	Possible	Yes
5.5.	Availability of labour and material resources	Increase in operating costs		Yes
5.6.	Relationship with subcontractors	Increase in operating costs		Yes

	Joint	Comments
		Can be insured. Private partner's risk if there was no intervention by the public partner.
		In some jurisdictions, the public partner signs agreements with utility providers for the use of their supply and passes the benefits of this agreement on to the private partner. In other jurisdictions, only the utility provider has the right to work with its utility supply.
	Possible	International practice shows that the public partner assumes the risk that insurance may not be available at commercial rates or that certain risks may not be insured.
		Private partner's responsibility.
		The private partner must rectify defects. If hidden defects are not detected within a few years of maintenance, there is a risk that the defects may not be rectified under the contract with the construction subcontractor.
		Hazardous waste must be discharged under the supervision of the relevant authorities.
		If the public partner does not have a patent or licence for the construction technology being used, then it is the private partner's risk
		Private partner's responsibility.
		Private partner's responsibility.
		It is the private partner's responsibility to provide guarantees to subcontractors.
		A 'turnkey' construction contract is often used, not least to meet lenders' typical expectations. Other approaches are possible, but this risk would remain the private partner's.
		Depends to some extent on whether the risk can be insured. On some projects, such risks are partly assumed by the public partner.
	Possible	The risk is shared in the case of an access-fee mechanism for consumers that provides partial protection from the risk.
		The private partner is responsible for accurately costing its own operating resource needs with realistic budget forecasts.
		If inflation is higher than expected, payment availability/rates will usually be indexed. In other cases, the private partner assumes the risk.
		The private partner is typically responsible for this risk.
		As a rule, this is the private partner's risk.
		As a rule, this is the private partner's risk.

Risk allocation matrix				
Risk		Impact of the risk	Risk allocation	
			Public partner	Private partner
5.7.	Changes in the specifications of the provided services introduced by the public partner	Increase in operating costs	Yes	
5.8.	Damage to third-party property	Increase in operating costs		Yes
5.9.	Damage to or destruction of the asset	Increase in operating costs		Yes
5.10.	Pollution of water, air, soil	Increase in operating costs		Yes
5.11.	Compliance with the standards governing the transfer of PPP assets to the public partner	Cost of rectification/ increase in the costs of the operating cycle		Yes
5.12.	Occupational health and safety	Increase in operating costs		Yes
5.13.	Receipt and maintenance of licences and permits in accordance with legislation	Increase in operating costs	Possible	Yes
5.14.	Labour disputes	Increase in operating costs		Yes
5.15.	Vandalism	Increase in operating costs		Yes
6.	**Financial, exchange rate and inflation risks**			
6.1.	Risk of changes in interest rates	Increase in the costs of the operating cycle		Yes
6.2.	Fundraising risk	Inability to fund (or delay in funding) the project/ increase in the costs of the operating cycle (on a re-financing)		Yes
6.3.	Exchange rate risk	Higher construction costs and increase in the costs of the operating cycle		Possible
6.4.	Inflation affecting construction costs	Increase in construction costs		Yes
6.5.	Inflation affecting operating costs	Increase in operating costs		Yes

	Joint	Comments
		The public partner must reimburse the decrease in income or increase in costs.
		Can be insured. As a rule, this is the private partner's risk if the damage is not attributable to the public partner.
		As a rule, this is the private partner`s risk if the fault is not attributable to the public partner. Can be insured against, as can third-party damage.
		The private partner's risk if it is responsible for the damage. If the event is beyond the private partner's control, then the insurance cover of the third party that caused the damage should apply.
		The conditions governing the transfer of the asset at the end of the PPP agreement must be specified in the agreement. A provision requiring a deposit or bank guarantee at the time of transfer of the PPP asset may be included in the PPP.
		Private partner's responsibility.
	Possible	Depends on the reason for any refusal to issue or update a licence or permit. Private partner's risk if it fails to comply with any applicable conditions. Public partner's risk if there is no justifiable reason for withholding it.
		As a rule, this is the private partner's risk.
		As a rule, this is the private partner's risk.
	Possible	As a rule, the private partner assumes the interest rate change risk. The risk can be shared if a variable interest rate is used. This can be mitigated against by using a fixed rate.
	Possible	As a rule, the private partner is responsible for raising private funds. The public partner may be responsible for public funding if it is provided.
	Possible	The risk of unfavourable changes in the exchange rate where debt or other costs and revenue are denominated in different currencies. The risk of an increase in the cost of imported equipment, for example. As a rule, this is the responsibility of the private partner, which will arrange funding in the appropriate currency. In certain cases, the public partner may assume the exchange rate risk, in whole or part.
	Possible	The increase in the cost of construction materials and work in nominal terms due to inflation. As a rule, the risk is assigned to the private partner. Depending on the construction period and the size of the risk, the risk can be shared (that is, it may be treated as an exceptional event).
	Possible	The increase in the maintenance cost in nominal terms due to inflation. As a rule, within the framework of the agreed payment mechanism in the form of availability payments, the public partner assumes the risk to the extent of the increase in Consumer Price Index (CPI) while the private partner assumes the risk above CPI inflation.

Risk allocation matrix				
Risk		Impact of the risk	Risk allocation	
			Public partner	Private partner
6.6.	Risk of an extension of the time frame for the attainment of financial close	Higher construction costs, increase in the cost of financing, project timeline shift		Possible
7.	**Tax risks**			
7.1.	Amendments to current tax legislation and applicable tax rates and fees	Increase in operating costs	Yes	Possible
7.2.	Interpretation of tax legislation by the state authorities	Increase in operating costs	Yes	Possible
8.	**Tax risks**			
8.1.	General and discriminatory amendments to legislation, applicable standards	Increase in operating costs	Yes	Yes
8.2.	Risks of the competitive process (lengthy negotiations, inefficiencies and ineffectiveness in the process and so on)	Project timeline shift, higher construction costs, increase in the cost of financing		
8.3.	Risk of amendments to urban planning legislation	Higher construction costs/increase in the construction time frame	Yes	
9.	**Default risk**			
9.1.	PPP termination	State budget/lenders and investors returns	Yes	Yes
10.	**Default risk**			
10.1.	Changes in the shareholder structure of the private partner			Yes
10.2.	Conflict of interest among the shareholders of the private partner			Yes

Notice:

Possible – Risk allocation among the partners depends on the cause of the risks and also the commercial agreements of the partners (risk-sharing).
Yes – One of the partner assumes responsibility for the risk occurrence.

	Joint	Comments
	Possible	On the one hand, the private partner assumes responsibility for achieving financial close within the time frame stipulated in the PPP agreement/tender documents. On the other hand, violation of the time frame for financial close can be caused by factors beyond the control of the private partner (such as macroeconomic tightening and limited access to the financial markets). In the latter case, both the private and public partners can assume the risk.
	Possible	In some circumstances, private partners can expect appropriate compensation as they do not control this factor. Private companies generally bear the risk of changes to a country's tax regime.
	Possible	In some circumstances, private partners can expect appropriate compensation as they do not control this factor. Private companies generally bear the risk of changes to a country's tax regime. Qualitative and detailed analysis of the project's tax environment must be performed during design preparation.
	Possible	The private partner may seek to share the risk with the public partner in the event of certain general amendments to legislation. In case of discriminatory changes, the public partner assumes the full risk and must pay compensation. It is possible for the risks of amendments to legislation to be regulated by PPP law.
	Possible	Risk allocation depends on the reason for contesting the legitimacy of the tendering process.
		In case of amendments to urban planning legislation, which were unknown at the date of the submission of the bids, the public partner will reimburse the private partner for additional costs (or extend the life of the PPP agreement, within the framework of exceptional events).
	Yes	It is necessary to consider instances of the termination of the PPP caused by the public partner, private partner and force majeure circumstances. In mature market conditions, the private partner will receive compensation after the resale of the project to another private partner. In an unstable market situation, it is unclear how creditors will receive the repayment of senior debt or what amount.
		The need to obtain the approval of the public partner for a change in the shareholder structure before the end of construction should be considered. Restrictions on the specialisations of any new investor might be established.
		Pre-tender and tender documents must contain provisions on the management structure of the private partner.

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