

RISK MATRIX

of the Public-Private Partnership Project on Biometric Passport and Identity Cards Issuance Infrastructure in the Republic of Armenia

No	Risk	Risk Description	Risk Allocation		Probability	Impact	Impact description	Total Risk Value, USD	Risk Management Actions
			Public	Private					
Tender-specific risks									
1.	Failed or challenged tender	Insufficient number of bids, incomplete bids, legal actions, risk of fraud in tenders, etc.	100%	0%	0%-15%	Moderate	May delay project start date (and eventually timely realization of benefits) due to the potential court cases in case of challenged tender, need to restructure tender and announce it again in case of failed tender. This will also cause increased effort and government spending on tender preparation.	-	Market consultation / sounding process and early engagement of potential bidders.
2.	Selection of un reputable bidders / or change of the ownership of the selected reputable bidder	Selection of bidders or change in ownership rights of the selected bidders that may pose national security concerns.	100%	0%	15-40 %	High	Selection of un reputable bidders or change of ownership rights of selected bidders may pose national security threats.	-	<ol style="list-style-type: none"> 1. NSS clearance for eligibility of bidders. 2. MFA and Defence Ministry clearance for foreign and for foreign-owned bidders. 3. Qualification / eligibility criteria limits participation of state-owned enterprises where the state has significant control through full, majority, or significant minority ownership. 4. No change in direct or indirect ownership of the Private Partner during the contract without

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									written consent by the GoA.
3.	Selection of underqualified bidders	Can be caused due to improper selection method or other causes	100%	0%	0%-15%	High	May impact quality of project results and ability to realize expected benefits.	-	<ol style="list-style-type: none"> 1. Independent third party (consultants) to provide technical evaluation of tenders, support in shortlisting procedures. 2. Selection methods should be based on total economic value: quality of the proposal shall be scored higher than price.
4.	Overpayment	High prices or margins set by the Private Partner	100%	0%	0%-15%	Moderate	Setting a high price or margin results in overutilization of budgetary funds, as well as increases social and political risks.	-	<ol style="list-style-type: none"> 1. Competitive selection of the private partner (bidding procedure). 2. Communication to engage more bidders. 3. Preliminary research by the public partner on costs of digitalized passports in other countries (part of the pre-feasibility study).
Regulatory and legal risks									
5.	General legal and regulatory risks	Changing the regulatory framework for ID card and passport issuance / requirements. Changing the normative base in the field of regulation of operational activities (tariffs, taxation etc.). The Public partner primarily bears the risk of unexpected changes in law which were not in the public domain before a specified cut-off date in the bid phase and which cause the Private Partner's performance of its contractual obligations to be	100%	0%	50%-70%	High	Minimum requirements for vendor may not consider expected changes, thus vendor may request change and increase price.	-	<ol style="list-style-type: none"> 1. The Public partner's risk can be mitigated by ensuring that the contract clearly defines what constitutes a change, the relevant cut-off date and what constitutes being in the public domain. This will vary according to the nature of the project and jurisdiction concerned. 2. Legal changes closely monitored by the

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		wholly or partly impossible, delayed or more expensive than anticipated (or impact its investors)							contract monitoring committee. 3. Communication links established with the private partner to discuss impact on their operations / to negotiate. 4. Minimum requirements for vendor include requirements that services must meet the latest versions of specific international standards, so that private partner is obliged to keep services up to date – so if changes reflect only change in international standard, it is not considered a change. 5. Regulatory framework for the identification system recommended to be updated before the tender.
6.	Specific legal risks associated with a PPP contract	Legal risks related to the contract and other contractual relationships within the project (failure of the parties to fulfil obligations, early termination of the contract, untimely transfer of property, Lack or insufficient level of contractual settlement of certain issues, etc.	50%	50%	25%-40%	High	Extent of impact may differ depending on specific legal risk – e.g., in some cases it may result in delay of project start, in other cases – it may result of failed project and interrupted operations.	-	1. Independent third party (consultants) to provide technical support to draft PPP contract. 2. Draft contract consulted with market participants. 3. Relevant GoA bodies (according to PPP regulation) to delegate competent government specialists to cooperate and participate in

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									contract drafting and review,
Project design and construction									
7.	Inadequate design of the project	The design of the project might be inadequate in terms of facilities, assets, equipment, operations, technology selection, etc. The Public partner usually aims to set a broad output driven specification in the tender documents, requiring the Private Partner to design and build the project in a way which satisfies the performance specifications and ensures compliance with applicable legal requirements, good industry practice standards and, where applicable, minimum quality standards. This allows for private sector innovation and efficiency gains in the design. With this approach, the Private Partner will have principal responsibility for adequacy of the design of the system and its compliance with the output / performance specification.	25%	75%	25%-40%	High	Inadequate design may lead to increased costs (e.g., inefficient processes, technology selected, design of geographical network), failures to meet SLAs (resulting in reduction of revenues). The Public partner should bear the risk of technical information provided by it proving inaccurate to the extent the Private Partner was allowed to rely on it for design purposes. If such risk is realized, it may result in compensation event.	1,640,000 (calculated based on CAPEX increase probability – several consequences options for cost overruns are considered)	1. Technical requirements will be provided for the market consultation with potential bidders. 2. Bidders will be requested to provide preliminary designs during the tender process.
8.	Technical obsolescence risk	Certain technical infrastructure becoming inadequate for the purpose of the service — or the service becoming poorer in comparison with more recent services being provided in the course of the project.	0 %	100 %	0%-15%	Moderate	This may impact efficiency of operations of the Private Partner and thus reduce NPV. At the hand over stage, technically obsolete infrastructure would impact efficiency of future	-	1. Requirements for hand over included in the Contract to oblige that infrastructure hand over to the Government is in a good shape (specific requirement to define a good shape to be included).

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							operations of the government,		2. Contract provide clauses to negotiate introduction of new requirements for additional fees.
9.	Innovation risk	<p>Innovation risk refers to the potential financial and operational consequences of pursuing new ideas, technologies, or business models. It is the risk associated with the uncertainty and unpredictability of the outcome of innovation efforts.</p> <p>Innovation involves developing new products, services, or processes that are not currently in the market or improving existing ones. When companies pursue innovation, they must invest time, resources, and money in research and development, which can be costly and time-consuming. Additionally, there is no guarantee that the innovations will be successful, leading to a potential loss of resources and investment</p>	0 %	100 %	0%-15%	Moderate	This may impact efficiency of operations of the Private Partner and thus reduce NPV.	-	<p>1. Technical requirements formulated to consider the technologies and other improvements in the operations that are mature and tested in the market.</p> <p>2. Market sounding with potential bidders to make sure technical requirements meet the global market standard and practices.</p>
10.	Inappropriate Project performance specifications	The performance of the Project might be projected unrealistically (i.e., impossible to reach)	25%	75%	0%-15%	Moderate	<p>Inappropriate Project performance specifications may result in Private Partner difficulty to meet defined SLA / contractual obligation, thus may result in reduced fees (revenues) for the Private Partner.</p> <p>Also, inappropriate Project performance specifications</p>	-	Market consultation with potential bidders.

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							<p>(e.g., too high SLA requirements) may result in higher bid prices and increase cost of project for the Public Partner.</p> <p>In some cases, performance of Private Party may result in inputs provided by the Public partner. In such cases, reduction of fees for not meeting SLAs shall not be applied.</p>		
11.	Delay in Project completion	<p>The risks of design and construction are closely linked to the risk of commissioning the planned facilities on time and within the budget. Delays in delivering the project by the relevant works completion date as at financial close can have a variety of causes, such as unavailability of construction materials and equipment, delays in shipping, variations, and mistakes in programme scheduling, as well as weather events, civil unrest or industrial action and actions of the Public partner or government. The Private Partner typically assumes the risk of delays to the extent they are not caused by the Public Partner's failure to meet commitments necessary to complete the Project.</p>	25%	75%	25%-40%	Moderate	<p>The consequences for the Private Partner of delays to the relevant works completion date are loss of expected revenue due to the rise of costs of prolonged ongoing construction and financing costs. This may result in reduced project NPV. Until the Project is implemented, the Gov can operate as business as usual, however, in extreme cases, delays in Project completion may limit GoA ability to continue uninterrupted operations (e.g., due to shortage of supplies).</p> <p>Public Partner assumes the risks in cases when delay in project completion is due to the failed</p>	<p>2,140,000 (calculated based on lost opportunity to receive revenues from the Project – several consequences options with given probabilities are considered)</p>	<p>Close monitoring of contract implementation by the Contract monitoring committee.</p>

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							commitments of the GoA (e.g., to transfer facilities on agreed schedule, to provide esthetical design specification for document blanks).		
12.	Over-utilization of funds (costs overrun)	<p>The risks of design and construction are closely linked to the risk of commissioning the planned facilities on time and within the budget. Over-utilization of funds (i.e., costs exceeding the construction costs assumed in the project's financial model as at financial close) can have a variety of causes, such as mistakes in construction cost estimates, increased cost of materials, actions of the Public partner or government, variations, as well as delays in - or mitigating potential delays in - the construction programme. The Private Partner typically assumes the risk of cost increases to the extent these are not caused by force majeure, compensation events (such as in relation to unsurveyed site conditions), and are not addressed through other bespoke provisions.</p>	25%	75%	25%-40%	Moderate	<p>This may result in reduced project NPV for the Private Partner.</p> <p>Public Partner assumes the risks in cases when cost-overrun is caused by the Public Partner failure to meet their commitments (e.g., delays in project due to the fault of the Public Partner).</p>	<p>2,190,000 (calculated based on CAPEX increase probability – several consequences options for cost overruns are considered)</p>	<ol style="list-style-type: none"> 1. Close monitoring of contract implementation by the Contract monitoring committee. 2. Fixed price contracts for supply of construction materials. 3. Contract provisions for contingencies. 4. In certain markets, risk is considered manageable by the Private Partner through robust pass-through obligations to credible and experienced sub-contractors and by allowing appropriate timetable and budget contingency and obtaining appropriate security to the risk of non-performance. 5. The Private Partner can mitigate the risk of sub-contractor non-performance by obtaining appropriate security from the sub-contractors (for example, parent company guarantees and/or performance bonds). 6. The Public partner may sometimes seek

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									additional security itself to ensure such costs can be met.
13.	Availability and terms of use of assets	Risks related to the transfer to the Private Partner of the rights to manage / use the assets and / or land plots	0%	100%	0%-15%	High	This may result in delay of project		Detailed analysis and preparation of transfer conditions in the stage of the PPP design.
Operational									
14.	Increased operating costs	Incorrect assessment of future costs that might arise during the life cycle of the project. Increased costs and delays in the operating phase can have a variety of causes, ranging from mistakes in maintenance cost estimates or variations to extreme weather events. Aside from adjustments for inflation, the Private Partner broadly assumes the risk of events which inhibit performance and/or give rise to cost increases beyond modelled costs (investor estimate at the time of the bid) , to the extent these are not relief, force majeure, compensation, and are not addressed through other bespoke provisions	0%	100%	25%-40%	Moderate	This may result in reduced project NPV.	7,640,000 (calculated based on probability of increase in OPEX for the Project period – several consequences options for cost overruns are considered)	Market consultation regarding project costs in the stage of pre-feasibility.
15.	Vendor lock-in	Risks related to the dependency on proprietary software, hardware, and systems – from both sides	0%	100%	25%-40%	Low	This may result in increased operational costs for specific technological solutions – due to vendor lock in, lack of competition may drive up maintenance or license costs.	-	Consultations with potential bidders when designing technical requirements to prevent requirements that may be implying only specific technological solutions
16.	Security breach	Including physical and informational, such as: Cybersecurity attacks, privacy breaches, leading to security breaches	0%	100%	25%-40%	High	This may result in contractual penalties, or in some cases to additional costs to restore interrupted operations.	To the extent of the penalties foreseen in the contract.	1. Private Partner liability to cover direct and indirect costs foreseen in the contract.

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									<p>2. Requirements for insurance foreseen in the contract.</p> <p>3. Requirements for security (incl. cyber security) certification by third-parties, confirming compliance included in the technical requirements, technical audits foreseen.</p> <p>4. Qualification criteria to include track-record of non-performing contracts and litigations, incl. for the security breaches.</p>
17.	Incomplete / poor performance by the contractor	Including failure of operational indicators and lower quality of services compared to pre-agreed/ required by the contract, incl. capacity to produce and distribute defined volumes of travel and identity documents according to SLA.	0%	100%	0%-15%	Moderate	This may limit realization of benefits for the government and for private partner and shall result in penalties for not meeting SLAs.	To the extent of the penalties foreseen in the contract.	Potential penalties in the contract based on unfulfilled SLAs.
18.	Supply and input materials shortage	Risks of poor performance of sub-contractors due to improper control of the operational process by the Private Partner or any other factors	0%	100%	25%-40%	Low	This may limit ability of Private partner to meet SLAs and result in penalties / reduced fees.	To the extent of the penalties foreseen in the contract.	Potential penalties foreseen in the contract based on unfulfilled SLAs.
19.	Risk of discontinued operations (hand-back phase)	Risk of inability to establish a flawless process during hand-back phase or hand back of asset of unappropriated condition to continue operations (transferring to the Public Partner). Majority of risk is assumed by the Private Partner, but discontinued operations may happen due to the Public Partner failure to	25%	75%	25%-40%	Moderate	<p>For private partner it may result in penalties, should they be not able to meet hand over requirements.</p> <p>For GoA it may result in disrupted operations of passport and ID card issuance.</p>	To the extent of the penalties foreseen in the contract – for the private partner	<p>1. Detailed hand-over-procedure defined in the contract.</p> <p>2. Investment obligations defined to maintain asset quality.</p> <p>3. Penalties foreseen in case private partner cannot meet handover requirements.</p>

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		successfully take over operations (e.g., poor governance, etc.). to facilitate an effective handover, the Public Partner should prepare in advance, conduct technical audit before the hand-back, and cooperate with the Private Partner so that the operations continue.							4. Contract monitoring process established to understand early warning signs.
20.	Risk of discontinued operations (operational phase)	Inability to establish a flawless process during the operational phase. This also include the issue of the ownership change.	0%	100%	25%-40%	Low	<p>For private partner it may result in penalties, should they be not able to meet operational requirements.</p> <p>For GoA it may result in disrupted operations of passport and ID card issuance, failure to realize benefits.</p>	To the extent of the penalties foreseen in the contract for the private partner.	<ol style="list-style-type: none"> 1. Potential penalties foreseen in the contract in case on unfulfilled obligations, other than due to force majeure events. 2. Technical requirements include the obligation to prepare and maintain an adequate business continuity plan by the Private Partner. 3. Well prepared tender documents (RFQ, RFP and the PPP contract) will provide the requirements regarding the SPV to address this risk (incl. the rules re SPV's ownership structure prior to conclusion of the contract and during the contract period, the period during which no changes are allowed, the preliminary approval procedures for changes in ownership from the grantor etc.)

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21.	System failures	System or its' component failures leading to discontinued operations	0%	100%	0%-15%	Moderate	This may result in private partners ability to meet defined SLAs.	To the extent of the penalties foreseen in the contract.	1. To provide continuous maintenance and quality assurance as part of requirements in RFP. 2. Technical requirements include the obligation to prepare and maintain an adequate business continuity plan by the Private Partner.
22.	Talent acquisition	Risk of not be able to attract required high-profile specialists to develop and maintain new technology systems	0%	100%	0%-15%	Moderate	This may result in private partners ability to meet defined SLAs or increased costs of running operations (due to need to correct mistakes, etc.)	-	Risk is low due to the fact that high-profile specialists locally are required on limited scale, while international expertise and training is expected to be sourced from international team.
Commercial									
23.	Volume risk	The Private Partner is paid on per-service basis. At the same time, the Government should guarantee the certain minimum volume of services to ensure that project is viable for the Private Partner. Certain demand risks may be created where the Private Partner is permitted to run commercial activities (in addition to the core service under the contract), however this will typically form a smaller part of the project's expected revenues (up to 20 %).	75%	25%	25%-40%	Moderate	Without introducing the profit-sharing mechanism, the public partner will bear the risk, meaning that the public side would be required to make compensation payments to the Private Partner if the actual volumes are lower than pre-agreed ones. Alternatively, if commercial activity ceases to be possible due to regulatory reasons or other factors attributable to the Public Partner or government, the contract will provide for the consequences. This may	For the Volume risk assessment, two cases are considered: (i) with the mitigation mechanism introduced within a PPP contract and (ii) without them. On one hand, the first option implies the provision of the Volume Guarantee to the Private partner to ensure minimum inflow to cover at least their costs. On the other hand, the first option also includes the profit-	Volume guarantees foreseen in the contract, Profit sharing payment mechanism.

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							include amending certain provisions, including price.	sharing mechanism, which allows the Private partner to share benefits with the Public side Thus, the value of volume risk is estimated at 0 (zero – due to positive effect of profit-sharing mechanism) for the Project period. The second option implies no risk mitigation mechanisms. Based on preliminary estimations, the decrease of the volume guarantee from 1.6 million to 1 million passports (- 50% from the estimated volumes) may result in up to 37.9% increase of the price of services, which may cost an additional approx. USD 83,990,000 for the Government during the project period.	
Financial and Macroeconomic									
24.	Availability of financing	The financial efficiency of the Project depends significantly on the value of capital that needs to be attracted for its implementation, which includes both equity and	0%	100%	0%-15%	Low	The ability to raise financing impact on the cost of capital for the investor, thus the total cost of the project for the	-	Transparent selection procedure to attract international investors with good credibility, introduction of stable PPP contract,

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		debt financing. Another part of it is the ability of the Private Partner to attract such funding for a reasonable period					investor, the expected rate return, etc. For the Public Partner it may result in a delay of the Project start and thus generation of Project benefits.		existence of volume guarantee – all these measures increase the private partner’s capability to attract sufficient funding for a reasonable period. Potential mitigation mechanisms may be that one of the bidding criteria might be that the private partner has at least specific amount of equity financing disbursed up-front – thus allowing to avoid over-leveraged structures.
25.	Interest rate risk	In some markets (especially in less stable) the risk of interest rate fluctuations is possible due to interest rate volatility or lack of long-term hedging availability. The Private Partner will typically bear the risk of interest rate fluctuations over the life of the project, but this will depend on the specific project and its jurisdiction.	0%	100%	25%-40%	Moderate		An adverse change in interest rate due to significant period between prices submitted at bid stage and financial close, will lead to increase of overall cost of capital.	The possible mitigation measures may include hedging arrangements, to the extent possible or necessary in the relevant market. These should ensure the interest rate the Private Partner is required to pay is effectively fixed instead of fluctuating and protects it against adverse rate movements. The cost of such hedging will be part of the contract price bid.
26.	Inflation	The risk of construction and operational costs increasing due to inflation. The risk of construction costs increasing due to inflation may be borne by the Private Partner who will generally price in this risk in markets where such risk can be projected and quantified. Inflation risk in the	100%	0%	25%-40%	Moderate	Deviation of the inflation rate impacts the project costs and results in overutilization of budgetary funds, if the risk is borne by the public side	3,980,000 (Calculated based on changes of gap for the Public Partner between end-user flat tariff and the inflated bid price / actual price for services provided by the Gov - caused by inflation rate fluctuation. For both	Currency rate or inflation rate may be included as an index to the price. Typically, payment to the private partner may include both a fixed component (where debt has been hedged) and a variable component which includes an escalation factor

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		operating phase is typically borne by the Public partner.						procurement options: Scenario 1 - base, projected inflation, Scenario 2: + 10% increase of inflation, Scenario 3: + 20% increase of inflation.).	that accounts for rises in costs.
27.	Exchange rate fluctuation	Rate changes during project, i.e., operating costs in currency different to the currency of the PPP contract payments. Allocation of exchange rate fluctuation risk over the life of a project will depend on the relevant project jurisdiction and the nature of the project costs. In most PPPs, the Private Partner will bid and be paid by the Public partner in the domestic currency of that country. It may, however, incur costs in a foreign currency and such costs are translated into the bid price in the domestic currency on the basis of a particular exchange rate.	0%	100%	25%-40%	Moderate	Deviation of the exchange rate impacts the project costs and results in change of financial outcomes for the private partner (eventually, they will assume the risk and consider it in the price of the service) or overutilization of budgetary funds, if the risk is borne by the public side.	9,680,000 (Calculated based on changes of gap for the Public Partner between end-user flat tariff and the inflated bid / actual price for services provided by the Gov - caused by exchange rate fluctuation. For both procurement options: Scenario 1 - base, projected exchange rate, Scenario 2: + 10% increase to rate, Scenario 3: + 20% increase to rate.).	Currency rate or inflation rate may be included as an index to the price. Typically, payment to the private partner may include both a fixed component (where debt has been hedged) and a variable component which includes an escalation factor that accounts for rises in costs
Social & Political									
28.	Resistance from key stakeholders	Risk includes any external parties impacted by the proposed changes – incl. both. government stakeholders and citizens, The Government is in a better position to regulate these risks and develop an appropriate strategy to minimize them	100%	0%	0%-15%	Moderate	This may result in prolonged decisions, approvals that may impact design and construction phase or impact the volume of services (please see the “volume risk”).	-	1. Close cooperation in all government levels from early stage in the project. 2. Contact monitoring committee established to monitor and resolve any blocks.
29.	Reputational	Reputational risk for the Government during the tender and / or through the activities of the Private Partner	100%	0%	0%-15%	Moderate	Selection of underqualified bidder or inappropriate structure of transaction may result in service level that would not meet the expected	-	Independent consulting party engaged to support during the transaction structuring and tender process.

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							levels, thus would limit the realization of project benefits.		
Force majeure and other unforeseen events									
30.	Force Majeure	Circumstances beyond reasonable control	50%	50%	0%-15%	High	Extent of impact may differ depending on specific Force Majeure situation.	-	Such risks cannot be foreseen, although can be mitigated by: 1. preparing crisis management plans 2. insurance 3. adequate force majeure clauses in the contract, 4. adequate insurance and business continuity planning/disaster recovery planning by the private partner

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