



# PPP Risk Allocation Guidelines

TA-9467 PAK: Strengthening the Federal Public–Private Partnership Framework and Enabling Reforms for Infrastructure Financing Support

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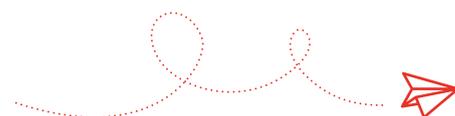
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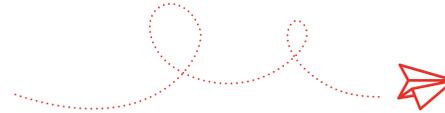


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## 1. Introduction

### 1.1 Context

The Federal Government has recognized the importance of Public Private Partnerships (PPPs) as one of the ways to leverage private investments and private expertise for the development of essential economic and social infrastructure in the country, to resolve the infrastructure service gaps and to improve the quality of public services.

The Parliament promulgated the Public Private Partnership Authority Act 2017 as an Act to create an enabling environment for private sector participation in development projects and in the provision of public infrastructure and related services in Pakistan through public private partnership projects. Parliament amended the 2017 Act in 2021 through the Public Private Partnership Authority (Amendment) Act 2021. Throughout this document, references to the Act refer to the P3 Act 2017, as amended.

The PPP Authority (P3A) refers to the Authority established by the Government of Pakistan in conformance with the Act for carrying out the purposes and objectives of the Act.

According to the Act, the P3A may take such measures and exercise such powers as may be necessary for promoting and facilitating realization of the concept and methods of public private partnership.

These Risk Allocation Guidelines are a tool for Implementing Agencies, interested private parties and the P3A to reference in the course of developing or reviewing proposals or feasibility studies for PPP projects.

### 1.2 Introduction

Risk is generally defined as the probability of incurring a loss or gain due to the occurrence of an event. As such, a party bearing the risk will be exposed to the probability of incurring a loss or gain. Risks vary from project to project and are therefore required to be assessed on a project by project basis.

In PPP projects, the overarching principle of efficient risk allocation is that the party better able to manage the risk should bear the risk. Efficient risk allocation is utilised to optimally mitigate project risks to maximize the financial and economic benefits of the project.

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The tables in this document provide an overview of the main risk categories of public infrastructure projects delivered through a PPP modality. While many risks apply broadly, sector-specific nuances do exist. In this document, risk allocation matrices are detailed for three priority sectors: roads, rail and healthcare. The tables indicate how each risk should be allocated between public and private parties (or shared) from the perspective of optimal risk allocation informed by international best practice. Possible mitigation measures are also indicated.

The risk matrix should be developed as part of a project's feasibility study to determine optimal risk allocation for a given PPP project and refined as a project advances through the PPP project cycle. The below risk allocation tables are not exhaustive, and risks vary from project to project.

## 2. Risk Allocation Tables

### 2.1 Overview

Risk is generally defined as the probability of incurring a loss or gain due to the occurrence of an event. As such, a party bearing the risk will be exposed to the probability of incurring a loss or gain. Risks vary from project to project and are therefore required to be assessed on a project by project basis.

In PPP projects, the overarching principle of efficient risk allocation is that the party better able to manage the risk should bear the risk. Efficient risk allocation is utilised to optimally mitigate project risks to maximize the financial and economic benefits of the project.

The tables in this document provide an overview of the main risk categories of public infrastructure projects delivered through a PPP modality. While many risks apply broadly, sector-specific nuances do exist. In this document, risk allocation matrices are detailed for three priority sectors: roads, rail and healthcare. The tables indicate how each risk should be allocated between public and private parties (or shared) from the perspective of optimal risk allocation informed by international best practice. Possible mitigation measures are also indicated.

The risk matrix should be developed as part of a project's feasibility study to determine optimal risk allocation for a given PPP project and refined as a project advances through the PPP project cycle. The below risk allocation tables are not exhaustive, and risks vary from project to project. For example, project size can influence how risk should be allocated: the private sector typically has difficulties in managing risks in "megaprojects"

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(projects exceeding USD 1 billion). The risk profile of megaprojects often requires governments to absorb more of the risks. Ultimately, the risk allocation should be evaluated whether the project still represents value-for-money as the result of the risk allocation.

## 2.2 Abbreviations

SPC = Special Purpose Company

IA = Implementing Agency

## 2.3 Risk Allocation Table for Toll Road Concessions

Key toll road sector-specific risks are site risks (e.g. land acquisition-related), revenue risks (e.g. traffic demand risk and tariff risk) and network risks (e.g. connectivity requirements, competing facilities).

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| TOLL ROAD CONCESSIONS                        |  |        |         |        |  |  |
|--|--|--------|---------|--------|--|--|
| Risk   | Description  | Public | Private | Shared | Possible mitigation measures   | Notes  |
| <b>1. SITE RISKS</b>                         |  |        |         |        |  |  |
| Land acquisition delay and costs overrun     | Delay and costs increase due to unclear and then prolonged land acquisition process              | x      |         |        | The Government clears project landsite before procurement process        | Land requirement is often large and influenced by the planned route  |
| Land acquisition can't be performed entirely | Unable to acquire project land site due to difficulty of land acquisition process                | x      |         |        | Clear land legal status and procedure in project land clearance          | Land legal status and use clearance may become an obstacle   |
| Complex resettlement process                 | Costs overrun and delay due to a complicated resettlement process                                | x      |         |        | Fair compensation for and good communication with those impacted         | Social impacts can be relatively large, especially in urban areas or when the land is still productive   |
| Land tenure risk                             | Multiple land ownership certificates were discovered after the project is started or implemented | x      |         |        | Implement validation of land tenure; Support of the relevant authorities |  |
| Unforeseen difficulties of site conditions   | Delay due to uncertainty of ground conditions  |        | x       |        | Land use historical data and land investigation                          | Geotechnical risk potentials may be significant as land work volume is relatively large. When significant, this risk may need to be shared with the public sector. |

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| <b>TOLL ROAD CONCESSIONS</b>                           |  |               |                |               |  |   |
|--|--|---------------|----------------|---------------|--|---|
| <b>Risk</b>  | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>                              | <b>Notes</b>  |
| Limitation of construction working space               | Related to the provision of land for working space during construction particularly for temporary sites that may be needed e.g. space for equipment, staging areas, construction office, parking for construction workers. |               | x              |               | Good construction methods;<br>Socialization by government        | If there is a public rejection, the Government can help.<br>Temporary sites are typically rented by the private partner |
| Damage of artifacts and antiquities in the site        |  |               | x              |               | Land use historical data and land investigation                  | Any discovered artifacts and antiquities need to be reported to the relevant authorities in order to limit this risk.   |
| Contamination or pollution of the site environment     |  |               | x              |               | Comply with good environment analysis study                      |   |
| <b>2. DESIGN, CONSTRUCTION AND COMMISSIONING RISKS</b> |  |               |                |               |  |   |
| Unclear output specifications                          | Time and cost overruns due to unclear output specifications  | x             |                |               | Clarification during the tender process; capacity of good design | Output specification should refer to best practice  |
| Failure to maintain site safety                        | High accident rates during the construction works  |               | x              |               | Implementation of good work safety procedure                     |   |
| Poor performance of subcontractors                     | Contractors/subcontractors cannot fulfil their contractual commitments   |               | x              |               | Credible subcontractor selection process                         |   |

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| <b>TOLL ROAD CONCESSIONS</b>           |   |               |                |               |  |   |
|--|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>                            | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Default by sub-contractors             | Failure of the contract completion by contractors/subcontractors due to internal & financial management factors   |               | x              |               | Credible subcontractor selection process   |   |
| Design faults                          | Technical commissioning leads to discovery of design faults   |               | x              |               | Good and experienced design consultant   | Usually identified at technical operational test      |
| Variation orders                       | Due to design fault (SPC) or change in technical requirements (IA)  | x             | x              |               | Clear output specifications from the start; experienced design consultant                          | Risk passed to the party that initiates the variation |
| Delay in completing construction works | May include delay in returning site access  |               | x              |               | Competent contractors and standard contract clauses  |   |
| Construction cost increase             |   |               | x              |               | Competent, financially robust contractors; potentially price escalation factor clauses in contract |   |
| Commissioning risk                     | Failure to meet the construction outcome as prescribed, and/or the project as constructed failing to meet the completion acceptance criteria, thereby causing a delay in earning revenue. |               | x              |               | Good coordination between construction contractor and operator                                     |   |
| <b>3. SPONSOR RISKS</b>                |   |               |                |               |  |   |

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|------------------------------------|--|---------------|----------------|---------------|--|---|
| <b>Risk</b>                        | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Default by the SPC                 | SPC's default leading to termination and/or step-in by financiers                                    |               | x              |               | Consortium is supported by credible and solid sponsors   |   |
| Default of project sponsor         | Sponsor (or a member of consortium)'s default  |               | x              |               | Prequalification process to select credible sponsors   |   |
| Default of project lender          | Default by financial institution due to changes in policy, relationship with SPC, or internal issues |               | x              |               | Robust selection process and criteria for lenders; SPC commitment to fulfil the contract   |   |
| <b>4. FINANCIAL RISKS</b>          |  |               |                |               |  |   |
| Failure to achieve financial close | Inability to achieve financial close due to market uncertainty                                       |               | x              |               | Good coordination with potential lenders   | May also occur because conditions precedent are not fulfilled                       |
| Financial structure risk           | Inefficiency due to suboptimal capital structure or prospective lenders that don't follow through    |               | x              |               | Consortium is supported by credible sponsors/lenders   |   |
| Refinancing risk                   | SPC is not able to refinance project debt or refinancing terms are less favourable than expected     |               | x              |               | Utilize long-term debt instruments that closely match the term of the PPP agreement; run downside sensitivities to ensure financial structure is robust to absorb a degree of refinancing risk | Only if initial debt tenor is substantially less than the term of the PPP agreement |

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| <b>TOLL ROAD CONCESSIONS</b> |   |               |                |               |   |  |
|------------------------------|---|---------------|----------------|---------------|---|--|
| <b>Risk</b>                  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>                                     | <b>Notes</b>   |
| Foreign exchange rate risk   | (Non-extreme) fluctuation of foreign exchange rate  |               | x              |               | Hedging instruments; financing in local currency                        | Risk of extreme fluctuations can be shared with the Government |
| Inflation rate risk          | Increase of inflation rate used for estimating life-cycle costs   |               | x              |               | Tariff indexation factor; tariff rebasing                               | Risk of extreme fluctuations can be shared with the Government |
| Interest rate risk           | (Non-extreme) fluctuation of loan interest rate   |               | x              |               | Interest rate hedging   | Risk of extreme fluctuations can be shared with the Government |
| Insurance risk               | Insurance cover for a certain risk is no longer available from reputable insurers in the market; or substantial increases in premiums |               | x              |               | Consult with insurance specialists/brokers                              | Especially for insurance covering force majeure conditions     |
| <b>5. OPERATING RISKS</b>    |   |               |                |               |   |  |
| Availability of facilities   | Due to lack of facilities project cannot be completed   |               | x              |               | Competent contractor  |  |
| Poor performance of services | Due to lack of facilities project cannot operate  |               | x              |               | Competent operator; clear output specifications                         |  |
| Variation orders             | Due to design fault (SPC) or change in technical requirements (IA)  | x             | x              |               | Clear output specifications; experienced design consultant and operator | Risk passed to the party that initiates the variation          |

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|-----------------------------------|---|--------|---------|--------|---|---|
| Risk                              | Description   | Public | Private | Shared | Possible mitigation measures  | Notes   |
| Industrial action                 | Industrial actions (strike, lockout, go slow, etc)  | x      | x       |        | Good human resources and industrial relation policies   | Depends on the nature of the strike (i.e. general or project-specific); may be by staff of operator, subcontractors or suppliers  |
| Social and cultural risk          | Risks arising from not considering the culture or social condition of local communities during the project implementation |        | x       |        | Implement people-oriented community engagement program; community empowerment   |   |
| Project management failure risk   | Failure or inability to manage operational aspects of the Project   |        | x       |        | Develop operations management plan; ensure a professional project manager   |   |
| Failure of control and monitoring | Irregularities were not detected due to failure of control and monitoring by the SPC or the IA                            | x      | x       |        | Develop control and monitoring plans and periodic evaluations of the effectiveness of the design and implementation of the control and monitoring | Public partner is responsible for developing adequate control & monitoring mechanisms on relevant construction and operational KPIs. Private partner cannot be held liable for failures in performance that have not been captured by inadequate mechanisms designed by the public partner. |
| O&M cost overrun risk             | Mis-estimation of O&M costs or an unexpected increase   |        | x       |        | Competent operator; contract escalation factor  |   |

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|---|---|---------------|----------------|---------------|---|---|
| <b>Risk</b>   | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>  |
| Estimation of life cycle expenditure is incorrect     |   |               | x              |               | Lock in a contract with suppliers as earliest as possible                         |   |
| Traffic accident or public safety concerns            |   |               | x              |               | Insurance for third party liabilities   |   |
| <b>6. REVENUE RISKS</b>                               |   |               |                |               |   |   |
| Actual toll revenue is less than projected by the SPC | Resulting in a deficit for the SPC  |               | x              |               | Accurate traffic survey; soft loans during initial period of operations           | If triggered by Government actions, guarantee request may be considered |
| Changes in traffic demand                             | Resulting in a decrease in revenue and a deficit for the SPC  |               | x              |               | Accurate traffic survey; soft loans during initial period of operations           | If triggered by Government actions, Government may bear the risk        |
| End users unable or unwilling to pay                  | Users' affordability and willingness to pay are less than the feasible tariff rate                    | x             |                |               | Feasibility support (e.g. VGF, minimum revenue guarantee); supportive regulations | Supportive regulations can be in form of regional regulation            |
| Toll collection company fails to collect tolls        | Due to failure/non-optimality of payment collection system  |               | x              |               | Quality collection system and good operational performance                        |   |
| Failure of proposed toll changes                      | Inability of SPC to request change of toll levels due to failure in achieving agreed level of service |               | x              |               | Good operational performance; supportive regulations                              | Supportive regulations can be in form of regional regulation            |
| Periodic tariff adjustment is delayed                 |   | x             |                |               | Good operational performance; supportive regulations                              | Supportive regulations can be in form of regional regulation            |

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|--|---|---------------|----------------|---------------|---|---|
| <b>Risk</b>  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>  |
| Level of the adjusted tariff is lower than initially projected |   | x             |                |               | Good operational performance; supportive regulations                                    | Supportive regulations can be in form of regional regulation  |
| <b>7. NETWORK CONNECTIVITY RISKS</b>                           |   |               |                |               |   |   |
| Network risk   | Breach of authority's obligation to build and maintain the required road network outside of the scope of the toll road  | x             |                |               | Good supervision and operation performance standards                                    |   |
| Connecting facilities risk                                     | Breach of authority's obligation to build connecting facilities beyond the road network (e.g. airport infrastructure in the case of an airport express toll road) | x             |                |               | Good contract understanding by public sector  | Can be part of revenue risk   |
| Competing facilities risk                                      | Breach of authority's obligation not to build competing road or other transportation facilities during the specified non-compete period                           | x             |                |               | Good contract understanding by public sector; sound long-term planning by public sector | Can be part of revenue risk. Road projects already part of the masterplan should be carved out from competing facilities. |
| <b>8. INTERFACE RISKS</b>                                      |   |               |                |               |   |   |
| Interface risk (1)   | Disparity of the quality of the works done by government and by SPC   | x             |                |               | Rework by those whose works quality is lower  | For brownfield projects, government is responsible for any quality claims on the existing asset.                          |

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| <b>TOLL ROAD CONCESSIONS</b>      |  |               |                |               |  |  |
|-----------------------------------|--|---------------|----------------|---------------|--|--|
| <b>Risk</b>                       | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>   |
| Interface risk (2)                | Substantial reworks due to different standards / method of delivery  |               | x              |               | Agreement on standards / method to be confirmed by the public and private parties as early as possible                       | Private partner is responsible for adjusting to any relevant design standards used in existing assets or infrastructure. |
| <b>9. POLITICAL RISKS</b>         |  |               |                |               |  |  |
| Appropriations risk               | Failure or delay by government to allocate budget or make contractual payments (e.g. VGF, availability payments, guarantees such as minimum revenue or FX) | x             |                |               | Establishment and maintenance of a financial support framework for PPPs (e.g. contingent liability fund, Viability Gap Fund) |  |
| Currency inconvertibility         | Unavailability and/or inconvertibility of local currency to the investor's home currency   | x             |                |               | Local financing; off-shore account; political risk insurance; central bank guarantee   |  |
| Currency non-transfer             | Inability to transfer funds in foreign currency to the investor's home country   | x             |                |               | Local financing; off-shore account; political risk insurance; central bank guarantee   |  |
| Expropriation risk                | Nationalization/expropriation without adequate compensation  | x             |                |               | Mediation; negotiation; political risk insurance; Government guarantee   |  |
| General change in law (incl. tax) | Can be considered as general business risk (cost of doing business)  |               | x              |               |  |  |

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| TOLL ROAD CONCESSIONS   |   |        |         |        |   |  |
|---|---|--------|---------|--------|---|--|
| Risk  | Description   | Public | Private | Shared | Possible mitigation measures  | Notes  |
| Discriminatory or project specific change in law (incl. tax)      | In form of tax policy by the relevant authority (central or regional) | x      |         |        | Mediation; negotiation; political risk insurance; Government guarantee  | In addition to having clear contractual provisions, including compensation   |
| Delay in achieving planning approval                              | Only if it caused by the public sector's unilateral/improper decision | x      |         |        | Where possible, planning approvals should ideally be in place prior to commercial or financial close. Clear contract provisions including resulting compensation. | Suitable risk allocation must be made between federal and provincial governments. In reality, not all necessary planning approvals can be made prior to commercial/financial close, and so government needs to assure the private partner that this will be taken care of. |
| Failure or delay in obtaining necessary consents (excl. planning) | Only if it caused by the public sector's unilateral/improper decision | x      |         |        | Clear contract provisions including resulting compensation  | Related to issues other than planning; suitable risk allocation must be made between federal and provincial governments  |

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|----------------------------------|---|---------------|----------------|---------------|--|--|
| <b>Risk</b>                      | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>   |
| <b>10. FORCE MAJEURE RISKS</b>   |   |               |                |               |  |  |
| Natural disasters                | Catastrophic 'act of God' events  |               |                | x             | Insurance, to the extent possible  |  |
| Political force majeure          | Events of war, riots, civil disturbance   |               |                | x             | Insurance, to the extent possible  |  |
| Extreme weather                  |   |               |                | x             | Insurance, to the extent possible  |  |
| Prolonged force majeure          | Beyond 6 to 12 months, it could cause economic hardship for the affected party (esp. if insurance is no longer available)       |               |                | x             | Either party should be able to terminate the PPP contract and trigger an early termination buyout of the project                           | Especially if insurance is not available for certain risks |
| <b>11. ASSET OWNERSHIP RISKS</b> |   |               |                |               |  |  |
| Asset damage / loss event risk   | Fire, explosion, etc  |               | x              |               | Insurance  | To the extent insurance is available and affordable        |
| Technical obsolescence           | Of tolling technology and equipment in particular   |               | x              |               | Initial use of state of the art technology; experienced operator   |  |
| Handback risk                    | The asset transfer process has been hampered because there is a difference in the mechanism of transfer or condition assessment |               | x              |               | Clear contract provisions governing transfer of assets; have the handback assessment carried out by mutually agreed independent appraisers |  |

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**2.4 Risk Allocation Table for Railway Concession**

Sector-specific risks for railway concessions have elements in common with toll road concessions, including land acquisition risks, demand and tariff risks, network connectivity risks and interface risk (e.g. on delivery standards and technology). In addition, railway concessions can (but do not always) include the provision and maintenance of rolling stock.

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| RAILWAY CONCESSIONS                          |  |        |         |        |  |  |
|--|--|--------|---------|--------|--|--|
| Risk   | Description  | Public | Private | Shared | Possible mitigation measures   | Notes  |
| <b>1. SITE RISKS</b>                         |  |        |         |        |  |  |
| Land acquisition delay and costs overrun     | Delay and costs increase due to unclear and then prolonged land acquisition process              | x      |         |        | The Government clears project landsite before procurement process        | Land requirement is often large and influenced by the planned route  |
| Land acquisition can't be performed entirely | Unable to acquire project land site due to difficulty of land acquisition process                | x      |         |        | Clear land legal status and procedure in project land clearance          | Land legal status and use clearance may become an obstacle   |
| Complex resettlement process                 | Costs overrun and delay due to a complicated resettlement process                                | x      |         |        | Fair compensation for and good communication with those impacted         | Social impacts can be relatively large, especially in urban areas or when the land is still productive   |
| Land tenure risk                             | Multiple land ownership certificates were discovered after the project is started or implemented | x      |         |        | Implement validation of land tenure; Support of the relevant authorities |  |
| Unforeseen difficulties of site conditions   | Delay due to uncertainty of ground conditions  |        | x       |        | Land use historical data and land investigation                          | Geotechnical risk potentials may be significant as land work volume is relatively large. When significant, this risk may need to be shared with the public sector. |

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| <b>RAILWAY CONCESSIONS</b>                             |   |               |                |               |  |   |
|--|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>                              | <b>Notes</b>  |
| Limitation of construction working space               | Related to the provision of land for working space during construction particularly for temporary sites that may be needed e.g. space for equipment, staging areas, construction office, parking for construction workers |               | x              |               | Good construction methods;<br>Socialization by government        | If there is a public rejection, the Government can help.<br>Temporary sites are typically rented by the private partner |
| Damage of artifacts and antiquities in the site        |   |               | x              |               | Land use historical data and land investigation                  | Any discovered artifacts and antiquities need to be reported to the relevant authorities in order to limit this risk.   |
| Contamination or pollution of the site environment     |   |               | x              |               | Comply with good environment analysis study                      |   |
| <b>2. DESIGN, CONSTRUCTION AND COMMISSIONING RISKS</b> |   |               |                |               |  |   |
| Unclear output specifications                          | Time and cost overruns due to unclear output specifications   | x             |                |               | Clarification during the tender process; capacity of good design | Output specification should refer to best practice  |
| Failure to maintain site safety                        | High accident rates during the construction works   |               | x              |               | Implementation of good work safety procedure                     |   |
| Poor performance of subcontractors                     | Contractors/subcontractors cannot fulfil their contractual commitments  |               | x              |               | Credible subcontractor selection process                         |   |

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| <b>RAILWAY CONCESSIONS</b>             |   |               |                |               |  |   |
|--|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>                            | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Default by sub-contractors             | Failure of the contract completion by contractors/subcontractors due to internal & financial management factors |               | x              |               | Credible subcontractor selection process   |   |
| Design faults                          | Technical commissioning leads to discovery of design faults   |               | x              |               | Good and experienced design consultant   | Usually identified at technical operational test      |
| Variation orders                       | Due to design fault (SPC) or change in technical requirements (IA)  | x             | x              |               | Clear output specifications from the start; experienced design consultant                          | Risk passed to the party that initiates the variation |
| Delay in completing construction works | May include delay in returning site access  |               | x              |               | Competent contractors and standard contract clauses  |   |
| Construction cost increase             |   |               | x              |               | Competent, financially robust contractors; potentially price escalation factor clauses in contract |   |
| Commissioning risk                     | Incorrect time/cost estimates of technical commissioning, including rolling stock                               |               | x              |               | Good coordination between construction contractor, operator and rolling stock provider             |   |
| <b>3. SPONSOR RISKS</b>                |   |               |                |               |  |   |
| Default by the SPC                     | SPC's default leading to termination and/or step-in by financiers   |               | x              |               | Consortium is supported by credible and solid sponsors   |   |

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| <b>RAILWAY CONCESSIONS</b>         |  |               |                |               |  |   |
|------------------------------------|--|---------------|----------------|---------------|--|---|
| <b>Risk</b>                        | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Default of project sponsor         | Sponsor (or a member of consortium)'s default  |               | x              |               | Prequalification process to select credible sponsors   |   |
| Default of project lender          | Default by financial institution due to changes in policy, relationship with SPC, or internal issues |               | x              |               | Robust selection process and criteria for lenders; SPC commitment to fulfil the contract   |   |
| <b>4. FINANCIAL RISKS</b>          |  |               |                |               |  |   |
| Failure to achieve financial close | Inability to achieve financial close due to market uncertainty                                       |               | x              |               | Good coordination with potential lenders   | May also occur because conditions precedent are not fulfilled                       |
| Financial structure risk           | Inefficiency due to suboptimal capital structure or prospective lenders that don't follow through    |               | x              |               | Consortium is supported by credible sponsors/lenders   |   |
| Refinancing risk                   | SPC is not able to refinance project debt or refinancing terms are less favourable than expected     |               | x              |               | Utilize long-term debt instruments that closely match the term of the PPP agreement; run downside sensitivities to ensure financial structure is robust to absorb a degree of refinancing risk | Only if initial debt tenor is substantially less than the term of the PPP agreement |
| Foreign exchange rate risk         | (Non-extreme) fluctuation of foreign exchange rate   |               | x              |               | Hedging instruments; financing in local currency   | Risk of extreme fluctuations can be shared with the Government                      |
| Inflation rate risk                | Increase of inflation rate used for estimating life-cycle costs                                      |               | x              |               | Tariff indexation factor; tariff rebasing  | Risk of extreme fluctuations can be shared with the Government                      |

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| <b>RAILWAY CONCESSIONS</b>   |   |               |                |               |   |  |
|------------------------------|---|---------------|----------------|---------------|---|--|
| <b>Risk</b>                  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>   |
| Interest rate risk           | (Non-extreme) fluctuation of loan interest rate   |               | x              |               | Interest rate hedging   | Risk of extreme fluctuations can be shared with the Government   |
| Insurance risk               | Insurance cover for a certain risk is no longer available from reputable insurers in the market; or substantial increases in premiums |               | x              |               | Consult with insurance specialists/brokers                                    | Especially for insurance covering force majeure conditions   |
| <b>5. OPERATING RISKS</b>    |   |               |                |               |   |  |
| Availability of facilities   | Due to lack of facilities project cannot be completed   |               | x              |               | Competent contractor  |  |
| Poor performance of services | Due to lack of facilities project cannot operate  |               | x              |               | Competent operator; clear output specifications                               |  |
| Variation orders             | Due to design fault (SPC) or change in technical requirements (IA)  | x             | x              |               | Clear output specifications; experienced design consultant and operator       | Risk passed to the party that initiates the variation  |
| Industrial action            | Industrial actions (strike, lockout, go slow, etc)  | x             | x              |               | Good human resources and industrial relation policies                         | Depends on the nature of the strike (i.e. general or project-specific); may be by staff of operator, subcontractors or suppliers |
| Social and cultural risk     | Risks arising from not considering the culture or social condition of local communities during the project implementation             |               | x              |               | Implement people-oriented community engagement program; community empowerment |  |

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| <b>RAILWAY CONCESSIONS</b>                        |  |               |                |               |   |   |
|---|--|---------------|----------------|---------------|---|---|
| <b>Risk</b>                                       | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>  |
| Project management failure risk                   | Failure or inability to manage operational aspects of the Project                              |               | x              |               | Develop operations management plan; ensure a professional project manager   |   |
| Failure of control and monitoring                 | Irregularities were not detected due to failure of control and monitoring by the SPC or the IA | x             | x              |               | Develop control and monitoring plans and periodic evaluations of the effectiveness of the design and implementation of the control and monitoring | Public partner is responsible for developing adequate control & monitoring mechanisms on relevant construction and operational KPIs. Private partner cannot be held liable for failures in performance that have not been captured by inadequate mechanisms designed by the public partner. |
| O&M cost overrun risk                             | Mis-estimation of O&M costs or an unexpected increase  |               | x              |               | Competent operator; contract escalation factor  |   |
| Estimation of life cycle expenditure is incorrect |  |               | x              |               | Lock in a contract with suppliers as earliest as possible   |   |
| Operational accident or public safety concerns    |  |               | x              |               | Insurance for third party liabilities   |   |
| Rolling stock compatibility                       | With existing track, technology, maintenance facilities  |               | x              |               | Clear output specifications; thorough investigation by IA of existing facilities  |   |

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| <b>RAILWAY CONCESSIONS</b>                                     |   |               |                |               |   |   |
|--|---|---------------|----------------|---------------|---|---|
| <b>Risk</b>  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>  |
| <b>6. REVENUE RISKS</b>  |   |               |                |               |   |   |
| Actual revenue is less than projected by the SPC               | Resulting in a deficit for the SPC  |               | x              |               | Accurate demand and willingness to pay studies; soft loans during initial period of operations; | If triggered by Government actions, guarantee request may be considered |
| Changes in traffic demand                                      | Resulting in a decrease in revenue and a deficit for the SPC  |               | x              |               | Accurate demand survey; soft loans during initial period of operations                          | If triggered by Government actions, Government may bear the risk        |
| End users unable or unwilling to pay                           | Users' affordability and willingness to pay are less than the feasible tariff rate                    | x             |                |               | Feasibility support (e.g. VGF, minimum revenue guarantee); supportive regulations               | Supportive regulations can be in form of regional regulation            |
| Ticketing company fails to collect fares                       | Due to failure/non-optimality of payment collection system  |               | x              |               | Quality collection system and good operational performance                                      |   |
| Failure of proposed tariff changes                             | Inability of SPC to request change of toll levels due to failure in achieving agreed level of service |               | x              |               | Good operational performance; supportive regulations  | Supportive regulations can be in form of regional regulation            |
| Periodic tariff adjustment is delayed                          |   | x             |                |               | Good operational performance; supportive regulations  | Supportive regulations can be in form of regional regulation            |
| Level of the adjusted tariff is lower than initially projected |   | x             |                |               | Good operational performance; supportive regulations  | Supportive regulations can be in form of regional regulation            |

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| <b>RAILWAY CONCESSIONS</b>           |   |               |                |               |  |   |
|--------------------------------------|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>                          | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| <b>7. NETWORK CONNECTIVITY RISKS</b> |   |               |                |               |  |   |
| Network risk                         | Breach of authority's obligation to build and maintain the required rail network outside of the scope of the rail project                                       | x             |                |               | Good supervision and operation performance standards   |   |
| Connecting facilities risk           | Breach of authority's obligation to build connecting facilities beyond the rail network (e.g. airport infrastructure in the case of an airport express railway) | x             |                |               | Good contract understanding by public sector   | Can be part of revenue risk   |
| Competing facilities risk            | Breach of authority's obligation not to build competing rail or other transportation facilities during the specified non-compete period                         | x             |                |               | Good contract understanding by public sector; sound long-term planning by public sector                | Can be part of revenue risk. Rail projects already part of the masterplan should be carved out from competing facilities. |
| <b>8. INTERFACE RISKS</b>            |   |               |                |               |  |   |
| Interface risk (1)                   | Disparity of the quality of the works done by government and by SPC   | x             |                |               | Rework by those whose works quality is lower   | For brownfield projects, government is responsible for any quality claims on the existing asset.                          |
| Interface risk (2)                   | Substantial reworks due to different standards / method of delivery   |               | x              |               | Agreement on standards / method to be confirmed by the public and private parties as early as possible | Private partner is responsible for adjusting to any relevant design standards used in existing assets or infrastructure.  |

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| <b>RAILWAY CONCESSIONS</b>                                   |  |               |                |               |  |  |
|--|--|---------------|----------------|---------------|--|--|
| <b>Risk</b>  | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>   |
| <b>9. POLITICAL RISKS</b>                                    |  |               |                |               |  |  |
| Appropriations risk  | Failure or delay by government to allocate budget or make contractual payments (e.g. VGF, availability payments, guarantees such as minimum revenue or FX) | x             |                |               | Establishment and maintenance of a financial support framework for PPPs (e.g. contingent liability fund, Viability Gap Fund) |  |
| Currency inconvertibility                                    | Unavailability and/or inconvertibility of local currency to the investor's home currency   | x             |                |               | Local financing; off-shore account; political risk insurance; central bank guarantee   |  |
| Currency non-transfer  | Inability to transfer funds in foreign currency to the investor's home country   | x             |                |               | Local financing; off-shore account; political risk insurance; central bank guarantee   |  |
| Expropriation risk   | Nationalization/expropriation without adequate compensation  | x             |                |               | Mediation; negotiation; political risk insurance; Government guarantee   |  |
| General change in law (incl. tax)                            | Can be considered as general business risk (cost of doing business)  |               | x              |               |  |  |
| Discriminatory or project specific change in law (incl. tax) | In form of tax policy by the relevant authority (central or regional)  | x             |                |               | Mediation; negotiation; political risk insurance; Government guarantee   | In addition to having clear contractual provisions, including compensation |

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| RAILWAY CONCESSIONS   |   |        |         |        |  |  |
|---|---|--------|---------|--------|--|--|
| Risk  | Description   | Public | Private | Shared | Possible mitigation measures   | Notes  |
| Delay in achieving planning approval                              | Only if it caused by the public sector's unilateral/improper decision | x      |         |        | Where possible, planning approvals should ideally be in place prior to commercial or financial close . Clear contract provisions including resulting compensation. | Suitable risk allocation must be made between federal and provincial governments. In reality, not all necessary planning approvals can be made prior to commercial/financial close, and so government needs to assure the private partner that this will be taken care of. |
| Failure or delay in obtaining necessary consents (excl. planning) | Only if it caused by the public sector's unilateral/improper decision | x      |         |        | Clear contract provisions including resulting compensation   | Related to issues other than planning; suitable risk allocation must be made between federal and provincial governments  |

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| <b>RAILWAY CONCESSIONS</b>             |   |               |                |               |  |   |
|--|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>                            | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| <b>10. FORCE MAJEURE RISKS</b>         |   |               |                |               |  |   |
| Natural disasters                      | Catastrophic 'act of God' events  |               |                | x             | Insurance, to the extent possible  |   |
| Political force majeure                | Events of war, riots, civil disturbance   |               |                | x             | Insurance, to the extent possible  |   |
| Extreme weather                        |   |               |                | x             | Insurance, to the extent possible  |   |
| Prolonged force majeure                | Beyond 6 to 12 months, it could cause economic hardship for the affected party (esp. if insurance is no longer available) |               |                | x             | Either party should be able to terminate the PPP contract and trigger an early termination buyout of the project | Especially if insurance is not available for certain risks  |
| <b>11. ASSET OWNERSHIP RISKS</b>       |   |               |                |               |  |   |
| Asset damage / loss event risk         | Fire, explosion, etc  |               | x              |               | Insurance  | To the extent insurance is available and affordable   |
| Technical obsolescence (rolling stock) | Such as obsolescence of non-CO <sub>2</sub> neutral assets such as diesel units   | x             | x              |               | Robust long-term planning by government (e.g. energy transition policy)  | Government could bear this risk if due to a change in specifications resulting from a change in public policy that was not known at the time of entering into the PPP agreement |
| Technical obsolescence (other)         | Of ticketing system technology and equipment in particular  |               | x              |               | Initial use of state of the art technology; experienced operator   |   |

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| RAILWAY CONCESSIONS |   |        |         |        |  |       |
|---------------------|---|--------|---------|--------|--|-------|
| Risk                | Description   | Public | Private | Shared | Possible mitigation measures   | Notes |
| Handback risk       | The asset transfer process has been hampered because there is a difference in the mechanism of transfer or condition assessment |        | x       |        | Clear contract provisions governing transfer of assets; have the handback assessment carried out by mutually agreed independent appraisers |       |

## 2.5 Risk Allocation Table for Health Sector Projects

Generally in a health sector (e.g. hospital) availability payment structure, specific risks are technology obsolescence risk, technology interface risk, medical treatment risk, medical waste management risk, and data leakage and management risk.

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b> |   |               |                |               |   |  |
|--|---|---------------|----------------|---------------|---|--|
| <b>Risk</b>  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>   |
| <b>1. SITE RISKS</b>                               |   |               |                |               |   |  |
| Land acquisition delay and costs overrun           | Delay and costs increase due to unclear and then prolonged land acquisition process                                       | x             |                |               | The Government clears project site before procurement process   |  |
| Land acquisition can't be performed entirely       | Unable to acquire project land site due to difficulty of land acquisition process   | x             |                |               | Clear land legal status and procedure in project land clearance   | Land legal status and use clearance may become an obstacle   |
| Complex resettlement process                       | Costs overrun and delay due to a complicated resettlement process   | x             |                |               | Fair compensation for and good communication with those impacted  |  |
| Land tenure risk                                   | Multiple land ownership certificates were discovered after the project is started or implemented                          | x             |                |               | Implement validation of land tenure; Support of the relevant authorities  |  |
| Unforeseen difficulties of site conditions         | Delay due to uncertainty of ground conditions, such as geotechnical conditions and uncertainty over underground utilities | x             | x              |               | Utility identification at planning stage supported by adequate data; land use historical data and land investigation; | Unknown conditions impossible to identify at planning stage will be borne by the Government. When significant, this risk may need to be shared with the public sector. |

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b>     |   |               |                |               |  |   |
|--|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Limitation of construction working space               | Related to the provision of land for working space during construction particularly for temporary sites that may be needed e.g. space for equipment, staging areas, construction office, parking for construction workers |               | x              |               | Good construction methods;<br>Socialization by government  | If there is a public rejection, the Government can help.<br>Temporary sites are typically rented by the private partner |
| Damage of artifacts and antiquities in the site        |   |               | x              |               | Land use historical data and land investigation  | Any discovered artifacts and antiquities need to be reported to the relevant authorities in order to limit this risk.   |
| Contamination or pollution of the site environment     |   |               | x              |               | Comply with good environmental analysis study  |   |
| Disruption to the community around the project area    | Project could cause the disruption of health and convenience, i.e. neighbouring buildings damaged due to construction activity; excessive noise outside of normal working hours   |               | x              |               | Conduct comprehensive impact analysis at planning stage; monitoring and managing of the project site |   |
| <b>2. DESIGN, CONSTRUCTION AND COMMISSIONING RISKS</b> |   |               |                |               |  |   |
| Unclear output specifications                          | Time and cost overruns due to unclear output specifications   | x             |                |               | Clarification during the tender process; capacity of good design                                     | Output specification should refer to best practice  |

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| HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS |   |        |         |        |  |   |
|---|---|--------|---------|--------|--|---|
| Risk  | Description   | Public | Private | Shared | Possible mitigation measures   | Notes   |
| Failure to maintain site safety             | High accident rates during the construction works   |        | x       |        | Implementation of good work safety procedure   |   |
| Poor performance of subcontractors          | Contractors/subcontractors cannot fulfil their contractual commitments  |        | x       |        | Credible subcontractor selection process   |   |
| Default by sub-contractors                  | Failure of the contract completion by contractors/subcontractors due to internal & financial management factors |        | x       |        | Credible subcontractor selection process   |   |
| Design faults                               | Technical commissioning leads to discovery of design faults   |        | x       |        | Good and experienced design consultant   | Usually identified at technical operational test      |
| Variation orders                            | Due to design fault (SPC) or change in technical requirements (IA)  | x      | x       |        | Clear output specifications from the start; experienced design consultant                          | Risk passed to the party that initiates the variation |
| Delay in completing construction works      | May include delay in returning site access  |        | x       |        | Competent contractors and standard contract clauses  |   |
| Construction cost increase                  |   |        | x       |        | Competent, financially robust contractors; potentially price escalation factor clauses in contract |   |
| Commissioning risk                          | Incorrect time/cost estimates of technical commissioning  |        | x       |        | Good coordination between construction contractor and operator                                     |   |

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b> |  |               |                |               |   |   |
|--|--|---------------|----------------|---------------|---|---|
| <b>Risk</b>  | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>  |
| Disruption in existing services (brownfield)       | An existing service disrupted due to the construction  |               | x              |               | Good communication and coordination between contractor, consultant testers, and the right operators |   |
| <b>3. SPONSOR RISKS</b>                            |  |               |                |               |   |   |
| Default by the SPC                                 | SPC's default leading to termination and/or step-in by financiers                                    |               | x              |               | Consortium is supported by credible and solid sponsors  |   |
| Default of project sponsor                         | Sponsor (or a member of consortium)'s default  |               | x              |               | Prequalification process to select credible sponsors  |   |
| Default of project lender                          | Default by financial institution due to changes in policy, relationship with SPC, or internal issues |               | x              |               | Robust selection process and criteria for lenders; SPC commitment to fulfil the contract            |   |
| <b>4. FINANCIAL RISKS</b>                          |  |               |                |               |   |   |
| Failure to achieve financial close                 | Inability to achieve financial close due to market uncertainty                                       |               | x              |               | Good coordination with potential lenders  | May also occur because conditions precedent are not fulfilled |
| Financial structure risk                           | Inefficiency due to suboptimal capital structure or prospective lenders that don't follow through    |               | x              |               | Consortium is supported by credible sponsors/lenders  |   |

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b> |   |               |                |               |  |   |
|--|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Refinancing risk                                   | SPC is not able to refinance project debt or refinancing terms are less favourable than expected                                      |               | x              |               | Utilize long-term debt instruments that closely match the term of the PPP agreement; run downside sensitivities to ensure financial structure is robust to absorb a degree of refinancing risk | Only if initial debt tenor is substantially less than the term of the PPP agreement |
| Foreign exchange rate risk                         | (Non-extreme) fluctuation of foreign exchange rate  |               | x              |               | Hedging instruments; financing in local currency   | Risk of extreme fluctuations can be shared with the Government                      |
| Inflation rate risk                                | Increase of inflation rate used for estimating life-cycle costs   |               | x              |               | Tariff indexation factor; tariff rebasing  | Risk of extreme fluctuations can be shared with the Government                      |
| Interest rate risk                                 | (Non-extreme) fluctuation of loan interest rate   |               | x              |               | Interest rate hedging  | Risk of extreme fluctuations can be shared with the Government                      |
| Insurance risk                                     | Insurance cover for a certain risk is no longer available from reputable insurers in the market; or substantial increases in premiums |               | x              |               | Consult with insurance specialists/brokers   | Especially for insurance covering force majeure conditions                          |
| <b>5. OPERATING RISKS</b>                          |   |               |                |               |  |   |
| Availability of facilities                         | Due to lack of facilities project cannot be completed   |               | x              |               | Competent contractor   |   |
| Poor performance of services                       | Due to lack of facilities project cannot operate  |               | x              |               | Competent operator; clear output specifications  |   |

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b> |   |               |                |               |   |   |
|--|---|---------------|----------------|---------------|---|---|
| <b>Risk</b>  | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>   | <b>Notes</b>  |
| Variation orders                                   | Due to design fault (SPC) or change in technical requirements (IA)  | x             | x              |               | Clear output specifications; experienced design consultant and operator   | Risk passed to the party that initiates the variation   |
| Industrial action                                  | Industrial actions (strike, lockout, go slow, etc)  | x             | x              |               | Good human resources and industrial relation policies   | Depends on the nature of the strike (i.e. general or project-specific); may be by staff of operator, subcontractors or suppliers  |
| Social and cultural risk                           | Risks arising from not considering the culture or social condition of local communities during the project implementation |               | x              |               | Implement people-oriented community engagement program; community empowerment   |   |
| Project management failure risk                    | Failure or inability to manage operational aspects of the Project   |               | x              |               | Develop operations management plan; ensure a professional project manager   |   |
| Failure of control and monitoring                  | Irregularities were not detected due to failure of control and monitoring by the SPC or the IA                            | x             | x              |               | Develop control and monitoring plans and periodic evaluations of the effectiveness of the design and implementation of the control and monitoring | Public partner is responsible for developing adequate control & monitoring mechanisms on relevant construction and operational KPIs. Private partner cannot be held liable for failures in performance that have not been captured by inadequate mechanisms designed by the public partner. |

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| HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS       |  |        |         |        |  |   |
|---|--|--------|---------|--------|--|---|
| Risk  | Description  | Public | Private | Shared | Possible mitigation measures   | Notes   |
| O&M cost overrun risk                             | Mis-estimation of O&M costs or an unexpected increase                    |        | x       |        | Competent operator; contract escalation factor                                   |   |
| Estimation of life cycle expenditure is incorrect |  |        | x       |        | Lock in a contract with suppliers as earliest as possible                        |   |
| Energy efficiency                                 | Increases in energy costs due to inefficiency of operational performance |        | x       |        | Clear unit specifications and quality  |   |
| Irregular availability of required utilities      | Availability of utilities, such as irregular electricity and internet    |        | x       |        | Anticipation measures: back-up facilities for electricity and other utilities    | This should be anticipated as early as possible |
| Inadequate technology and information systems     | The technology used is unreliable or not compatible                      |        | x       |        | Choose the appropriate technology and the right vendor                           |   |
| Delay on tools delivery and medical needs         | Risk of delay in delivery that becomes SPC's responsibility              |        | x       |        | Integrated planning or communication system, logistic system, and control system |   |
| Data leakage and management risk                  | Patient medical data is not well secured and is leaked                   |        | x       |        | Integrated planning and thorough testing of data security systems                |   |
| Technological obsolescence                        |  |        | x       |        | Verify that technology used fulfils current and known future standards           |   |

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b>          |   |               |                |               |  |   |
|---|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>   | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Medical treatment risk                                      | Accident during medical treatment   | x             | x              |               | Implement medical treatment procedures according to standard operating procedures; ensure the competency of technology /systems in advance | Depends on the project scope  |
| Pollution of medical waste that is hazardous/toxic material | Environmental pollution from medical waste produced   |               | x              |               | Conduct comprehensive impact study at planning stage; ensure the medical waste disposal facility fulfils regulatory standards              | Medical waste management could be done by a certified third party from an authorized agency     |
| <b>6. REVENUE AND DEMAND RISKS</b>                          |   |               |                |               |  |   |
| Decrease in demand volume projections (patient)             | Resulting in a decrease in revenue and a deficit for the Government                                   | x             |                |               | Accurate demand assessment and project sizing at planning stage  |   |
| Increase in demand volume projections (patient)             | Patient visits exceed expectations, which affects the operating performance including increased costs | x             | x              |               | Good contract understanding by IA; open communications between SPC and IA  | Non-extreme increase typically borne by SPC; Government bears extreme risk above an upper limit |
| Failure to make availability payments in a timely manner    | Government does not make a payment in timely manner   | x             |                |               | Budget availability and robust appropriations process; potentially an escrow or reserve account  |   |

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b> |  |               |                |               |  |              |
|--|--|---------------|----------------|---------------|--|--------------|
| <b>Risk</b>  | <b>Description</b>   | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b> |
| <b>7. NETWORK CONNECTIVITY RISKS</b>               |  |               |                |               |  |              |
| Transportation systems risk                        | Inadequate management of the traffic on or around the site which impacts operations  | x             |                |               | Comprehensive impact studies and advanced planning   |              |
| <b>8. INTERFACE RISKS</b>                          |  |               |                |               |  |              |
| Disparity of the time and quality of work risk     | Disparity of the time and quality of works done by government and by SPC   | x             | x              |               | Coordination and integration of project implementation schedule; rework by those whose works quality is lower                |              |
| Differences in service standards / method risk     | Substantial reworks due to different standards / method of delivery  |               | x              |               | Agreement on standards / method to be confirmed by the public and private parties as early as possible                       |              |
| <b>9. POLITICAL RISKS</b>                          |  |               |                |               |  |              |
| Appropriations risk                                | Failure or delay by government to allocate budget or make contractual payments (e.g. VGF, availability payments, guarantees such as minimum revenue or FX) | x             |                |               | Establishment and maintenance of a financial support framework for PPPs (e.g. contingent liability fund, Viability Gap Fund) |              |
| Currency inconvertibility                          | Unavailability and/or inconvertibility of local currency to the investor's home currency   | x             |                |               | Local financing; off-shore account; political risk insurance; central bank guarantee   |              |

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| HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS                  |  |        |         |        |   |  |
|--|--|--------|---------|--------|---|--|
| Risk   | Description  | Public | Private | Shared | Possible mitigation measures  | Notes  |
| Currency non-transfer  | Inability to transfer funds in foreign currency to the investor's home country | x      |         |        | Local financing; off-shore account; political risk insurance; central bank guarantee  |  |
| Expropriation risk   | Nationalization/expropriation without adequate compensation                    | x      |         |        | Mediation; negotiation; political risk insurance; Government guarantee  |  |
| General change in law (incl. tax)                            | Can be considered as general business risk (cost of doing business)            |        | x       |        |   |  |
| Discriminatory or project specific change in law (incl. tax) | In form of tax policy by the relevant authority (central or regional)          | x      |         |        | Mediation; negotiation; political risk insurance; Government guarantee  | In addition to having clear contractual provisions, including compensation   |
| Delay in achieving planning approval                         | Only if it caused by the public sector's unilateral/improper decision          | x      |         |        | Where possible, planning approvals should ideally be in place prior to commercial or financial close . Clear contract provisions including resulting compensation | Suitable risk allocation must be made between federal and provincial governments. In reality, not all necessary planning approvals can be made prior to commercial/financial close, and so government needs to assure the private partner that this will be taken care of. |

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| <b>HEALTH SECTOR AVAILABILITY PAYMENT PROJECTS</b>                |   |               |                |               |  |   |
|---|---|---------------|----------------|---------------|--|---|
| <b>Risk</b>   | <b>Description</b>  | <b>Public</b> | <b>Private</b> | <b>Shared</b> | <b>Possible mitigation measures</b>  | <b>Notes</b>  |
| Failure or delay in obtaining necessary consents (excl. planning) | Only if it caused by the public sector's unilateral/improper decision   | x             |                |               | Clear contract provisions including resulting compensation   | Related to issues other than planning; suitable risk allocation must be made between federal and provincial governments |
| <b>10. FORCE MAJEURE RISKS</b>                                    |   |               |                |               |  |   |
| Natural disasters   | Catastrophic 'act of God' events  |               |                | x             | Insurance, to the extent possible  |   |
| Political force majeure   | Events of war, riots, civil disturbance   |               |                | x             | Insurance, to the extent possible  |   |
| Extreme weather   |   |               |                | x             | Insurance, to the extent possible  |   |
| Prolonged force majeure   | Beyond 6 to 12 months, it could cause economic hardship for the affected party (esp. if insurance is no longer available)       |               |                | x             | Either party should be able to terminate the PPP contract and trigger an early termination buyout of the project                           | Especially if insurance is not available for certain risks  |
| <b>11. ASSET OWNERSHIP RISKS</b>                                  |   |               |                |               |  |   |
| Asset damage / loss event risk                                    | Fire, explosion, etc  |               | x              |               | Insurance  | To the extent insurance is available and affordable   |
| Handback risk   | The asset transfer process has been hampered because there is a difference in the mechanism of transfer or condition assessment |               | x              |               | Clear contract provisions governing transfer of assets; have the handback assessment carried out by mutually agreed independent appraisers |   |

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