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Construction

Identifying Risks

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The first step toward structuring the PPP is often to put together a comprehensive list of all the risks associated with the project. Such a list is known as a *risk register*. In this context, a *risk* is an unpredictable variation in the project's value—from the point of view of some or all stakeholders—arising from a given underlying *risk factor*. For example, *demand risk* is the risk that the project value, and project revenues, will be lower (or higher) than expected because demand for the output is lower (or higher) than expected. **Irwin's book on PPP guarantees and risk** defines risk in more detail (Irwin 2007).

PPP risks vary depending on the country where the project is implemented, the nature of the project, and the assets and services involved. Nonetheless, certain risks are common to many types of PPP project. These are usually grouped into risk categories that are often associated with a particular function (such as construction, operations, or financing), or with a particular project phase (such as termination), as discussed in PPP Risk Categories.

PPP Risk Categories

The following categories of risk are common to many PPPs:

- **Site**—risks associated with the availability and quality of the project site, such as the cost and timing of acquiring the site, needed permits or assuring rights of way for a road, the effect of geological or other site conditions, and the cost of meeting environmental standards.
- **Design, construction and commissioning**—risk that construction takes longer or costs more than expected, or that the design or construction quality means the asset is not adequate to meet project requirements.
- **Operation**—risks to successful operations, including the risk of interruption in service or asset availability, the risk that any network interface does not work as expected, or that the cost of operating and maintaining the asset is different than was expected.
- **Demand, and other commercial risk**—the risk that usage of the service is different than was expected, or that revenues are not collected as expected.
- **Regulatory or political**—risk of regulatory or political decisions that adversely affect the project. For example, this could include failure to renew approvals appropriately, unjustifiably harsh regulatory decisions, or in the extreme, breach of contract or expropriation.
- **Change in legal or regulatory framework**—the risk that a change in general law or regulation adversely affects the project, such as changes in general corporate taxation, or in rules governing currency convertibility, or repatriation of profits.
- **Default**—the risk that the private party to the PPP contract turns out not to be financially or technically capable to implement the project.
- **Economic or financial**—risk that changes in interest rates, exchange rates or inflation adversely affect the project outcomes.
- ***Force Majeure***—risk that external events beyond the control of the parties to the contract, such as uninsurable natural disasters, war or civil disturbance, affect the project.

- **Asset ownership**—risks associated with ownership of the assets, including the risk that the technology becomes obsolete or that the value of the assets at the end of the contract is different than was expected.

For more detail, see Yescombe's chapter on risk evaluation and transfer (Yescombe 2007), and Delmon's chapter on risk allocation (Delmon 2015, Chapter 5), both of which start with descriptions of typical types of PPP risk.

Many resources provide standard risk lists and preferred risk allocations, in some cases for specific project types. Several examples are provided in Allocating Risks. These standard lists can be useful resources when identifying project risks for a particular PPP. However, PPP projects often have unique features or circumstances—for example, the specific geological conditions on the route of a proposed road. This means that implementing agencies should make use of experienced advisors to help identify a comprehensive list of project risks.

Assessing and prioritizing risks

To focus efforts when allocating risks, it is often helpful to consider their importance. Some risks will be more significant than others in terms of likelihood and severity of impact on project outcomes, or both. Risk can be assessed either quantitatively or qualitatively.

The **Infrastructure Australia guidance note on calculating the PSC** (AU 2016a, 84–109) provides detailed guidance both on identifying risk, and using various quantitative techniques to evaluate risks. An **ADB handbook for risk analysis in project evaluation** (ADB 2002, 9–28) also includes a chapter describing quantitative techniques for assessing risk. **PFRAM, the PPP Fiscal Risk Assessment Model** (IMF and WB 2016) designed by the IMF and the World Bank, identifies a large set of risks that may have a fiscal impact.

In practice, many implementing agencies take a more qualitative approach at this stage. **Guidance on risk management by the Victoria Managed Insurance Authority** (VIC 2015, 79–83) provides helpful guidance on a *risk heat map*—a qualitative risk assessment approach, in which risks are categorized according to their likelihood of occurrence, and impact. **Farquharson et al** (Farquharson et al. 2011, Appendix B) provides an example 'risk register' for a PPP project, which also takes a qualitative approach. Each risk is categorized as being low, medium, or high for both risk status (likelihood) and impact. Most effort should be directed to managing those risks identified as being both high likelihood, and high impact.

Mitigating risks

After full identification of project risks, a mitigation process should occur—wherein, based on a cost-benefit analysis, some project characteristics or procedural steps may be adjusted. For instance, additional geological surveys or traffic studies may be conducted before the tender to reduce uncertainty and contain bidding costs. Performance requirements that are not critical to project success and may create unacceptable risk to private operators may be eliminated.

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Additional Resources

- Selected World Bank Tools
- Managing PPP risks with a new guide on guarantees

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