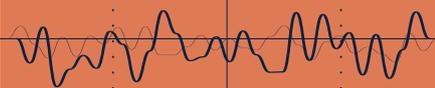


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# Project Structuring and Contract Design



## A key means of effectively allocating and managing disaster risk is by way of the PPP contract itself.

This requires effective assessment to identify key risks to be addressed; the establishment of clear and agreed-upon definitions for risks and hazard events, including the definition of force majeure; the effective and thorough allocation of risk through contracts; and the design of contract terms that preserve the financial and technical viability of projects.

To assess disaster and climate risks and determine appropriate response mechanisms, consultations with private sector operators, development and finance partners, and government stakeholders are important. Such discussions can also help establish clear definitions and standards for the levels of risks borne by parties, along with appropriate risk reduction measures. These discussions will also build consensus on project characteristics that will determine how risks will be allocated.

Generally, infrastructure PPP projects that are critical to the economy and/or public safety, subject to high disaster risk that are costly to mitigate and recover from, and have limited profitability will require that government bears more disaster risk. The share of disaster risks government will bear is likely to increase if risk transfer mechanisms such as insurance are limited, financing is difficult, private asset ownership is limited, and/or the PPP market is in an early stage of development. If a public authority prefers private developers to bear more disaster risk, the capacity to allocate risks to operators will depend on the availability of insurance and other risk transfer mechanisms.

Key objectives for policy makers with respect to project structuring are as follows:

- **Identify and assess natural disaster and climate change risks and impacts:**
  - Screen site-specific climate and disaster risks during the early project planning stage.
  - Assess site-specific hydro-meteorological and geophysical risks during the feasibility study stage.
  - Identify potential risk reduction measures including engineering designs and O&M measures to address climate and natural hazard events.
  
- **Define key disaster and climate risks:**
  - Determine which natural hazards should be specified in a contract based on the results of risk assessment.
  - Establish common understanding of disaster and climate risks between the public and private entities.
  - Establish a clear definition of force majeure and quantitative criteria, where possible and practical, for invoking force majeure.
  
- **Establish a commercially viable disaster risk allocation framework:**
  - Develop a climate and disaster risk management framework based on risk assessment and established definitions.
  - Reflect sector and project characteristics in risk allocation.
  - Adopt an iterative approach to allocating risk to the private sector, depending on insurance and PPP market maturity.
  - Identify and transfer insurable risks to the private sector.
  - Address uncertainty posed by climate change via force majeure clauses and design adjustment triggers.

- **Develop flexible contractual mechanisms to ensure business continuity and commercial viability:**
  - Prepare flexible measures to enable parties to take best possible actions to respond to disaster events.
  - Establish relief mechanisms and their terms for application in the event of a disaster.
  - Develop mechanisms that enable private developers to continue operating projects safely and profitably, over a reasonable term, in case of a force majeure event.



**Useful Tools and Resources**

- **Think Hazard!** <http://thinkhazard.org>
- **Climate and Disaster Risk Screening Tool** <https://climatescreeningtools.worldbank.org/>
- **Decision Making under Uncertainty** <http://www.deepuncertainty.org/>

**BOX**  
**1**

## Risk Sharing Policy for the Aichi Toll Road Concession Project, Japan

One example of a risk allocation arrangement is characterized by the definition of force majeure as applied for a transport PPP in Japan, the Aichi Toll Road Concession Project. The project agreement stipulates force majeure events for which additional costs are borne by the public sector, as listed in the following table. The contracting agency (government) shall bear the cost of the specified events if the concessionaire cannot foresee or cannot be reasonably expected to establish measures to prevent additional costs.

Risk-Sharing Policy, by Disaster Type, for Aichi Toll Road Concession Project

Disaster Type	Events for Which Additional Costs Are Borne by the Public Sector
 Earthquake	Damage based on normal social conventions
 Heavy rain	Maximum rainfall of 80 mm or more in 24 hours. Even if rainfall is below the above standard, it is considered heavy rain if hourly rainfall is significant (20 mm or more), provided that the hourly rainfall is observed at the nearest weather observation station (managed by the public corporation) from the damaged place.
 Storm	Maximum wind speed of 15 meters per second or more (average in 10 minutes)
 High tide, storm surge, tsunami	Extraordinarily high tide, storm surge, or tsunami caused by a storm or its aftermath with relatively non-minor damage

Source: World Bank. 2017. *Resilient Infrastructure PPPs – the Case of Japan*.