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Risk Matrix for Ports

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In selecting appropriate port for asset recycling, the selected port should have an operating track record, thereby **de-risking the private sector of upstream risks**, such as land acquisition, project planning, design risk, construction risks (time and cost-overrun risk), and development-related approvals.

Checklists of issues to consider when preparing or reviewing sector-specific asset recycling guidelines for ports:

- Operating Risk
- Demand / Revenue Risks
- Financial Risk
- Change in Law
- Force Majeure
- E&S Risks
- Climate Risks

Sample risk matrix – Ports

Risk	Description	Public	Private	Shared	Mitigation

	Inadequate performance	**The risk of service quality provided by the concessionaire not meeting contracted service standards or availability.**		**x**		**Ensuring the appointment of a competent concessionaire, or private sector party that can remediate any inadequacies in performance.** **Periodic monitoring and reporting of the compliance with the port minimum service standard.**
	O&M costs overrun	**Risk of O&M costs being higher than forecast or budgeted.**		**x**		**Appointment of a competent concessionaire or private sector party with experienced management that is able to put into place timely remedial steps.**
OPERATING RISKS	**Life cycle costs overrun**	**Risk of lifecycle costs being higher than forecast or budgeted.**		**x**		**Appointment of a competent concessionaire and management putting into place timely remedial steps to manage increased costs; passing of increased costs to end-users within the parameters of toll setting regime.**

Utilities costs overrun	**Risks of utility costs being higher than estimated or budgeted due to inefficiencies or increased charges.**		**x**		**Appointment of a competent concessionaire; proactive asset management to ensure that assets are maintained in a manner that optimises costs.**
Latent Defects and Existing Liabilities	**Risks of latent defects and existing liabilities in the port assets.**			**x**	**Conduct adequate technical due diligence; the concessionaire to bear the risk up to a certain threshold beyond which the risk will be borne by the public sector.**

DEMAND / REVENUE RISKS	**Demand and traffic risk**	**Actual traffic is lower than forecast causing a shortfall in revenue against budgeted revenue.**		**x**		**Ensure that traffic forecast are conducted by qualified and experienced advisers; defer timing of capacity-driven capital expenditure program; re-deployment of staff and re-calibration of level and intensity of operational functions.**
	Failure to collect toll charges	**Due to failure or non-optimality of collection system from users.**		**x**		**Proven collection system and good operational performance.**
	Tariff setting risk (1)	**Risk that toll charges indexation does not match inflation or cost increases and escalations, thereby impacting margins.**			**x**	**Clear regulations or contract terms that regulate the rate and adjustments of toll charges.**
	Tariff setting Risk (2)	**The relevant authority does not approve escalation as per agreed fee and charges escalation mechanism.**	**x**			**Contract should provide that this constitute a default on the part of the authority.**

FINANCIAL RISK	**Failure to achieve financial close**	**Inability to achieve financial close due to market uncertainty or the project capital structure is not optimal.**		**x**		**Good coordination with potential and credible lenders.** **Ensure quality in financing aspects of the bid (including potential lenders and feasibility of proposed financing) and monitor progress of financing process.**
	Foreign exchange rate risk	**Fluctuation of foreign exchange rate.**		**x**		**This will depend on the currency in which charges and fees are denominated.**
	Inflation and interest rate risk	**Increase of inflation rate used for estimating life-cycle costs and interest rate.**		**x**		**Fee and charges indexation factor; interest rate hedging.**
CHANGE IN LAW	**General change in law**	**Change in law such as taxation which impacts all businesses and industries.**		**x**		**General change in law risk should be borne by the concessionaire.**
	Discriminatory or project specific change in law	**Change in project-specific law or regulation such as fee and charges setting.**	**x**			**Mediation, negotiation; political risk insurance.**

FORCE MAJEURE	**Natural disasters**	**The occurrence of natural disasters disrupting operations.**			**x**	**Insurance, to extent possible. In extended FM, parties will have the right to terminate.** **Climate adaptation plan.** **Emergency Preparedness and Response plan (EPR plan) / Disaster Risk Management plan (DRM plan).** **Incorporate Qualified Climate Risk Events.**
	Political force majeure	**Events of war, riots, civil disturbance.**			**x**	**Insurance, to extent possible; termination with compensation if settlement cannot be reached.**
	Prolonged force majeure	**If above prolongs for 6 to 12 months, may cause economic problems to the affected party (esp. if insurance does not exist).**			**x**	**Either party should be able to terminate the contract and trigger an early termination.**

		Ports development and operation create many E&S impacts and risks, which if not appropriately managed, can result in impact on the social and natural environment. **Potential oil spills.**		**x**		**The party in charge for construction and Operation and Maintenance (O&M) to have in place an ESMS and develop E&S Studies addressing the E&S project impacts and risks and consistent with applicable laws.** **Oil spill equipment, training and membership to 24/7 365 days response services.** **Provide shore power to reduce emissions from ships at berth.** **Foster use of sprinkler system (dust emissions dry bulk).** **Decarbonize the cargo-handling facilities.**
E&S Risks	**E&S risks management**	**Risk of noncompliance on the E&S aspect of the concession agreement.**			**x**	**The parties to hire an Independent Engineer (IE) having E&S expertise to review compliance of the E&S aspect of the Concession Agreement, during construction and O&M.**

					Increased height and strength of sea walls. **Facilitate ecosystem-based adaptation.** **Implement navigation warning systems.** **Improve emergency repair procedures.** **Integrate climate resilience in maintenance regimes (e.g. dredging plans; prioritize materials tolerant to salinity and acidification).** **Provide hydraulic structures of an adequate capacity to pass water under a canal.** **Cathodic protection**

*Based on "WB (2016) - *Emerging Trends in Mainstreaming Climate Resilience in Large Scale, Multi-sector Infrastructure PPPs*" and based on "IDB (2021) - *Climate Risk and Ports: A Practical Guide on Strengthening Resilience*"

Key variables to monitor on climate risks and its impacts, in particular for toll roads assets:

- Sea level rise (in meters)
- Wave height (in meters)
- Sea roughness inside port (in meters)
- Flooding(port area affected)
- Intense precipitation events (in millimetres)
- Wind speed (in km/hour)
- Storm surge (# events and intensity)
- Fog (# days affecting port operations)
- River/Channel flow rate (in m3/hour)
- Sedimentation rate (in m3/day)
- Coastal and bank erosion (port area affected)
- Port unavailability (# days per year)
- GHG emissions (tons CO2 e.g., per year)

Related Content

- **Guidelines for Implementing Asset Recycling Transactions (Download PDF version)**

Additional Resources

- Identifying Risks
- Managing PPP risks with a new guide on guarantees

This section has not been prepared with any specific transaction in mind and are meant to serve only as general guidance. It is therefore critical that the content will be reviewed and adapted for specific transactions.

This is a new section of the website and is currently in draft form. For feedback on the content of this section or to suggest additional links or materials, please contact the PPP Resource Center using the feedback form.