Asia-Pacific Economic Cooperation

Peer Review and Capacity Building on APEC Infrastructure Development and Investment: Chile

APEC Policy Support Unit

October 2024

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Produced for:
Committee on Trade and Investment
Asia-Pacific Economic Cooperation

APEC# 224-SE-01.16

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EXECUTIVE SUMMARY

Project objective and scope

This Peer Review and Capacity Building on APEC Infrastructure Development and Investment project for Chile is part of the series of Peer Review Projects conducted under the auspices of APEC.

The project looks at the policies and practices, including the relevant laws, regulations and guidelines, for the planning, selection and implementation process of infrastructure projects in the economy under review so as to subsequently identify the capacity-building needs of the reviewed economy through the peer review process and suggest capacity-building activities based on the identified needs.

The project focuses on three areas:

- Resilience and emergency and disaster management related to preventing and addressing traffic accidents, within the framework of the operation/implementation of public–private partnerships (PPPs) (concession agreements).
- Technology and intelligent road management (intelligent transport systems, or ITS), within the framework of the operation/implementation of PPPs (concession agreements).
- The use of public direct investment for infrastructure development, with a focus on reviewing the way in which infrastructures and public buildings are developed and how resilience in the face of extreme events due to climate change is incorporated into infrastructure development.

As part of that process, the project undertook a comprehensive review of the legal, regulatory and guidelines structure of Chile to test the capacity to deliver quality infrastructure according to the Reference Guide for Peer Review and Capacity Building on APEC Infrastructure Development and Investment.[1] That review is contained in Part B of this report.

Methodology

The project methodology largely follows that established in the project terms of reference with modifications as a result of discussions with counterparts from the Government of Chile during the Inception Stage.

The major change in the methodology was the implementation of two workshops for each of the key Peer Review participants: Chile's Directorate of Public Works and its Directorate of Concessions. The agenda for the workshops focused on resilience, emergency and disaster management, the results of the research from the Reference Guide, and special issues raised at meetings between the project team and Government of Chile counterparts. Those issues included an assessment of conflicts and inconsistencies, and gaps in the infrastructure regulatory environment.

1 APEC, "Reference Guide for Peer Review and Capacity Building on APEC Infrastructure Development and Investment" (Singapore: APEC, 2019).

The workshops facilitated roundtables that allow open and practical discussions on the issues most relevant to the participants. From those workshops, additional meetings were held with senior personnel from each Directorate to provide a final focus for the reports and recommendations from the Peer Review.

From the workshop and meetings approach, a matrix assessment was conducted that examined inconsistencies, contradictions and gaps within the current PPP framework and in the context of the use of public direct investment. Special attention was given to resilience and disaster management and potential changes to PPP contracts to facilitate better adoption and take-up of ITS on a shared-risk basis.

Conclusions and recommendations

- The economy of Chile and its legal and regulatory framework are of international standard. Its structure is sophisticated and covers key responsibilities in PPP and standard procurement.
- In terms of the capacity for adoption of innovation, there are strong structures in place, including scientific institutions with specialised organisations focused on resilience and disaster/emergency management.
- The review of the PPP contract framework identified two gaps, and these actions have been nominated for further consideration: the adoption of the position of Independent Reviewer/Certifier to work in the best interests of particular infrastructure projects and the adoption of principles from alliance contracts (in place in Australia; Canada; New Zealand and the UK) that deal with project risk allocation in a collaborative and project-based manner as opposed to adopting the standard conflict-based, individual gain approach.
- The institutional structures for emergency and resilience management are considered strong but the interaction and coordination between the relevant agencies require improvement to allow for a cohesive approach to preventative and early mitigation measures.
- The legal and regulatory framework is of a high standard, but to facilitate preventative/mitigation measures, a review is needed to address gaps in building standards, public awareness, and education in emergency management and resilience planning. Capacity for responsive regulatory evolution and adaptation was also identified as an area for specific adoption of policy approaches that would facilitate constant upgrading. In this context, adopting a 'regulatory sandbox' approach would facilitate testing of new regulations and business models in a controlled environment to gather data and inform broader regulatory changes, reducing risks associated with obsolescence due to fast-changing technologies.[2]
- The recommended capacity-building approach covers the areas that have been identified as gaps for the Government of Chile to take action to improve their current position. The

[2] E. Cavallo, A. Powell, and T. Serebrisky, eds, *From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean* (Inter-American Development Bank, 2020). The purpose of regulatory sandboxes is to learn about the opportunities and risks that a particular innovation carries and to develop the right regulatory environment to accommodate it.

areas include: international practices and approaches for disaster and emergency management; financing for resilience bonds; laws/regulations and contracts that relate to the evolving regulatory capacity and the introduction of better risk management approaches to PPP contracts; and awareness campaigns on emergency management and resilience planning targeted at the government and public.

These conclusions and recommendations are the foundation of a comprehensive programme for the Government of Chile to undertake so as to remain at the forefront of infrastructure development and management in Latin America and indeed on the world stage. The decision to invest and then develop the implementation programme will require setting priorities as a first exercise followed by choosing the right partner economies to develop a cooperative arrangement.

DEFINED TERMS AND ABBREVIATIONS

Alliance contract(ing)[a]	An alliance contract involves a single agreement with shared risk/reward incentives and collaborative governance to foster collective responsibility for project outcomes.
Climate resilience bonds	A type of green bond that restricts the use of proceeds to projects classified as 'climate resilient', such as but not limited to water conservation projects, flood control systems, and projects aimed at improving food security.
Concessionaire	The private party in a concession agreement.
Concession agreement [e]	An agreement between a public authority and a private partner selected by that public authority outlining the terms of a concession.
DS	*Decreto Supremo* (Supreme Decree)
Green bonds [b]	Any type of bond instrument where the proceeds or an equivalent amount will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible green projects and which is aligned with the four core components of the Green Bond Principles of the International Capital Markets Association (use of proceeds, process for evaluation and selection, management of proceeds and reporting).
Independent Reviewer	This role, assigned to an independent body funded by both contracting parties, ensures project outcomes as specified in the PPP Concession Agreement and the Alliance Contract and develops and certifies key project development decisions.
ITS	Intelligent transport systems, the application of technology to integrate people, roads and vehicles, aiming to improve traffic flow, safety, efficiency and create new markets in related industries.
LCC[c]	Life cycle cost, or total cost of a project over its life which may include costs for design, construction, operation and maintenance
MOP	Ministry of Public Works
NbS [d]	Nature-based solutions are measures that protect, sustainably manage or restore nature, with the goal of maintaining or enhancing ecosystem services to address a variety of social, environmental and economic challenges.
PPP contract	Long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.
PPP[c]	Public–private partnerships or a modality of infrastructure project that utilises various capacities of the private sector.

Source:

[a] M. Sanderson, P. Allen, R. Gill, and E. Garnett, "New Models of Contracting in the Public Sector: A Review of Alliance Contracting, Prime Contracting and Outcome-based Contracting Literature," *Social Policy & Administration* 52, no. 5 (2018): 1060–83.

[b] ICMA, *Green Bond Principles: Voluntary Process Guidelines for Issuing Green Bonds (with June 2022 Appendix 1)* (Paris: ICMA, June 2021, updated June 2022).

[c] APEC, *APEC Guidebook on Quality of Infrastructure Development and Investment (Revision)* (Singapore: APEC, 2018).

[d] Organisation for Economic Co-operation and Development (OECD), "Nature-based solutions for adapting to water-related climate risks," OECD Environment Policy Papers 21, OECD Publishing, Paris, 2020, https://doi.org/10.1787/2257873d-en

[e] European Bank for Reconstruction and Development (EBRD), "Policy: Procurement Policies and Rules," EBRD, 15 May 2022, https://www.ebrd.com/work-with-us/procurement/policies-and-rules.html

1. INTRODUCTION

PROJECT TERMS OF REFERENCE

The Peer Review of the Chile economy in relation to its infrastructure commenced in July 2023. The review focused on three areas:

- Resilience and emergency and disaster management related to preventing and addressing traffic accidents, within the framework of the operation/implementation of public–private partnerships (PPPs) (concession agreements)
- Technology and intelligent road management (intelligent transport systems, or ITS), within the framework of the operation/implementation of PPPs (concession agreements)
- The use of public direct investment for infrastructure development, with a focus on reviewing the way in which infrastructures and public buildings are developed and how resilience in the face of extreme events due to climate change is incorporated into infrastructure development.

The Reference Guide for Peer Review and Capacity Building on APEC Infrastructure Development and Investment[3] requires that the Peer Review team evaluate the performance of the review economy in five areas: (1) general, (2) project planning, (3) feasibility study, (4) procurement, and (5) ex-post evaluation. Annex 2 to the Reference Guide contains a detailed list of criteria to be addressed for each of these areas, and these are addressed in Part B of this report.

The general methodology was to conduct a document-based review of the economy's policies and practices, including the relevant laws, regulations and guidelines relating to the planning, selection and implementation process of infrastructure development. Secondary data sources were used to identify the capacity-building needs of the reviewed economy, operationalising the measurement of the performance of Chile and its reference group for each of the evaluation criteria.

The approach taken for the report was a combination of a document-based review and the conduct of two workshops with the Directorate of Concessions and Directorate of Public Works of Chile to ensure practical outcomes that would allow Chile to progress their agenda for better emergency and resilience management.

STRUCTURE AND CONTENTS OF THE REPORT

This document contains a final assessment with recommendations for actions to be considered by the Government of Chile and suggests key elements of a capacity-building programme.

[3] APEC, "Reference Guide for Peer Review and Capacity Building on APEC Infrastructure Development and Investment" (Singapore: APEC, 2019).

The report is divided into two parts:

- Part A: Contains the empirical analysis and recommendations for the Government of Chile in emergency and resilience management and the contractual issues for PPP contracts, and proposals for the consideration of government for capacity building.
- Part B: Contains a detailed review and chronology of all the relevant laws, regulations and guidelines for emergency and resilience management and PPP contract arrangements, including innovation and scientific research and development related to the transport sector. This Peer Review has followed the 96 review criteria contained in the Reference Guide for Peer Review and Capacity Building on APEC Infrastructure Development and Investment.

Part A of the report is structured as follows:

- *Chapter 1*: Presents an introduction to the Peer Review and summarises the findings of the work completed at the Inception Stage, which is based on the 96 review criteria set out in the Reference Guide for Peer Review and Capacity Building on APEC Infrastructure Development and Investment. Part B of the report analyses the review criteria in detail.
- *Chapter 2*: Contains an analysis of all the issues raised by Government of Chile counterparts at the workshops and in subsequent discussions through December 2023 and January 2024. This chapter focuses on resilient infrastructure and emergency management with a gap analysis of the laws and institutional arrangements of Chile, and it goes on to suggest a number of potential actions by the government to introduce higher standards and coordinated, proactive infrastructure management.
- *Chapter 3*: Contains an analysis of the PPP contract arrangements that are in place in other jurisdictions and discusses the potential benefits of introducing alliance contracts to Chile to help deliver infrastructure projects in a contractual environment that approaches risk management on a more collaborative basis and has a higher focus on better project outcomes than traditional contracts that tend to focus on commercial outcomes for the government and the private sector.
- *Chapter 4*: Suggests a capacity-building programme for relevant government departments and options for future work by the Government of Chile in three important areas: (1) infrastructure financing needed to achieve the government's targets with respect to improving the resilience and sustainability of infrastructure services; (2) infrastructure risk identification and allocation; and (3) contractual reform for PPP-type contracts.

PART A. PEER REVIEW AND EMPIRICAL ANALYSIS

2. INITIAL ASSESSMENT BASED ON THE REFERENCE GUIDE FOR PEER REVIEW AND CAPACITY BUILDING ON APEC INFRASTRUCTURE DEVELOPMENT AND INVESTMENT

The initial assessment of infrastructure development and investment in Chile is based on 96 review criteria in the reference guide, covering five main subject areas. It was found that two subject areas ('institutional arrangements' and 'policy and law') were at international standard, and that a strong structure was in place for 'capacity for adoption of innovation'.

FOCUS AREAS

After consultations with the Government of Chile, it was agreed that the Peer Review would focus on the following areas:

- Resilience and emergency and disaster management related to preventing and addressing traffic accidents, within the framework of the operation/implementation of public–private partnerships (PPPs) (concession agreements)
- Technology and intelligent road management (intelligent transport systems, or ITS), within the framework of the operation/implementation of PPPs (concession agreements)
- The use of public direct investment for infrastructure development, with a focus on reviewing the way in which infrastructures and public buildings are developed and how resilience in the face of extreme events due to climate change is incorporated into infrastructure development.

The initial assessment in Part B contains a detailed analysis of the legal structure and contents of the laws in Chile related to construction standards, government-funded and -implemented infrastructure projects, and PPP projects. The findings of the initial assessment are summarised in Table 2.1. A more detailed analysis is provided in Part B of this report.

The initial assessment shows a well-established system for PPPs and government procurement in Chile. Existing institutions and legal frameworks meet international standards. Areas for improvement were identified through the Peer Review workshops focused on participant input and specific needs like disaster management and intelligent transportation. Despite needing some refinement, Chile appears well-positioned to leverage innovation for resilience through existing government structures.

The recommendations of this report cover laws and regulations that are administered by a number of government agencies within the Government of Chile. It is not expected that the Directorate of Concessions or the Ministry of Public Works will assume responsibility for assessing all the recommendations and implementing any changes. For example, the recommendations of this report for the development of a more sophisticated market for climate resilience finance bonds and for improved green bonds are matters for the Ministry of Finance as the prime agency for fiscal and financial policy and regulation. This report raises specific issues that are within the policy and regulatory role of the Directorate of Concessions and the

Ministry of Public Works and makes recommendation for those agencies to assess and take action. A number of these recommendations will have impacts across other laws and regulations, and they will have to be given consideration through normal governmental and industry consultation.

Table 2.1. Initial assessment: Law and standards for public/PPP infrastructure projects

Subject	Key Findings
Institutional Arrangements	The institutional arrangements and structures were assessed to be at international standard. The main responsibilities for preparing and managing PPP projects and standard government procurement are in place. Key practices were to be reviewed as part of the Peer Review workshops with a specific focus on issues nominated by the workshop participants.
Policy and Law	The initial review of the policies and laws of Chile indicated that a comprehensive structure is in place and that the principal mechanisms for regulating and initiating PPP projects and standard government procurement were at international standard. Similar to the institutional arrangements, the Peer Review workshops were to assist in bringing forward issues of specific focus that needed addressing to introduce better standards and law especially for disaster management and the introduction of intelligent transport systems (ITS).
Capacity for Adoption of Innovation	The initial assessment focused on the institutions in place within the Government of Chile structure that focused on innovation. There are a number of institutions in place and governed by legislation. Thus, it is believed that a strong structure exists, with scientific institutions and specialist organisations in place with the capacity to investigate, define and recommend the implementation of innovation for resilience and disaster/emergency management.

3. ANALYSIS OF FINDINGS ABOUT IMPROVING RESILIENCE IN INFRASTRUCTURE

Resiliency is one of the essential components in the APEC quality infrastructure concept. The APEC Guidebook emphasises the following key issues pertaining to resilience:[4]

- Infrastructure needs to be resilient to disasters and flexible to climatic changes from a long-term perspective.
- The foreign direct investment (FDI) host should pay careful attention to resilience to climate change and natural disaster.
- To guarantee stable and reliable infrastructure access, all project stages (identification, design, construction, operation) should prioritise resilience for societal and economic well-being.

The focus of traditional procurement on competition and lowest cost fosters adversarial relationships and underinvestment in the construction industry, hindering long-term efficiency and innovation.[5] PPP contracts need to better incorporate technology-enabled infrastructure and innovation resilience in order to prepare for and adapt to disruption and change. Quality infrastructure should be resilient to natural disasters and other risks, and leverage innovative technologies throughout its life cycle.

This requires early consideration of ITS in the project preparation, design, procurement and contracting stages. Key considerations include planning for disruptive innovation and focusing on climate-smart and digital projects to ensure the long-term sustainability of projects. Contracts continue to be essential for managing disaster risk in PPPs, and efforts are underway to standardise contract clauses to better support government definitions of force majeure and disaster response plans.[6]

The 2024 *Compendium of Good Practices on Quality Infrastructure* from the Organisation of Economic Co-operation and Development (OECD) emphasises the prevent, react, rebuild (PRR) concept as the three key areas linked to making infrastructure resilient to natural disasters:[7]

- *Prevent* pertains to actions, tools and infrastructure features that facilitate damage prevention or reduction, including strategic preventive maintenance.
- *React* involves actions and tools used to respond to natural disasters to restore operational capacity and minimise service disruption, such as offering short-term alternative infrastructure options.

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[4] APEC, *APEC Guidebook on Quality of Infrastructure Development and Investment* (Singapore: APEC, 2014).
[5] World Economic Forum (WEF), "Rebalancing Risk Allocation in Infrastructure: A Collective Effort to Improve Collaboration between the Public and Private Sectors" (Geneva: WEF, 2020).
[6] World Bank, "Technical Brief on Resilient Infrastructure PPPs – Contracts and Procurement" (Washington, DC: World Bank, 2019).
[7] Organisation for Economic Co-operation and Development (OECD), *Compendium of Good Practices on Quality Infrastructure 2024: Building Resilience to Natural Disasters* (Paris: OECD Publishing, 2024), https://doi.org/10.1787/54d26e88-en

- *Rebuild* focuses on actions, tools, and plans, including modifications to the infrastructure's physical characteristics, to guide the forward-looking reconstruction of disrupted infrastructure.

APPROACH TO ANALYSIS

A key aspect of the methodology was the workshops held in November 2023 with the themes 'resilience in infrastructure and disaster management' and 'concession contracts for infrastructure projects and their role in facilitating resilient infrastructure development'. The workshops were attended by representatives from APEC and the Government of Chile, and by members of the Consultant's team, and had the following objectives:

- **Enhance resilience in infrastructure**, by focusing on making infrastructure in Chile more resilient to the impacts of climate change and disaster risks. This would include learning from the experiences of other Asia-Pacific economies.
- **Discuss concession contracts for infrastructure projects**, by informing participants about the intricacies of concession contracts, particularly in the context of resilience and innovation, and discussing how such contracts can be designed to better manage and allocate risks.
- **Facilitate knowledge sharing**, by providing a platform for sharing insights and best practices from economies like Australia; Canada; Japan; and New Zealand, and explore their applicability in the Chilean context.
- **Engage stakeholders in constructive dialogue**, by bringing together various stakeholders including government officials, experts and practitioners to discuss challenges and potential solutions in infrastructure development and investment.

The workshops resulted in six main findings about improving resilience in infrastructure, which are discussed in this chapter. For each finding, the Consultant conducted in-depth one-on-one interviews with key stakeholders in the Government of Chile to identify institutional and regulatory gaps that need to be addressed. This approach also helped in developing the capacity-building recommendations that are presented in Chapter 4.

This chapter gathers all of the findings from the workshops and subsequent interviews with Government of Chile counterparts and undertakes a gap analysis of the current institutional and regulatory framework. The findings of the project are:

- Finding #1: Prioritise preventative measures
- Finding #2: Adopt a proactive stance in regulatory adaptation
- Finding #3: Further expand innovative financing
- Finding #4: Use a multidisciplinary and integrated approach for effective disaster response and resilience planning
- Finding #5: Disaster management requires a holistic approach
- Finding #6: Embed climate change and environment risks in infrastructure planning

FINDING #1: PRIORITISE PREVENTATIVE MEASURES

To address climate change impacts and natural disaster risks, it is critical that Chile prioritise preventative measures related to infrastructure resilience. The need to develop comprehensive risk assessment tools and update urban planning regulations to integrate disaster risk reduction measures underscore a major policy gap: the lack of integrated frameworks for managing climate and disaster risks across infrastructure sectors. This gap is reflected in outdated building codes and urban planning regulations, which must incorporate modern resilience standards. It highlights the necessity for policy revision to enhance structural integrity against natural hazards.

Box 3.1. Bridging the gap: Disaster preparedness for rapidly urbanising APEC cities

An APEC Energy Working Group (EWG) report has highlighted that 'an important deficit of urbanization is … the lack of disaster resilience'.[a] Rapid urbanisation often coincides with a lack of preparedness for natural disaster mitigation and prevention. This vulnerability is particularly concerning considering the increasing frequency and intensity of extreme weather events.

Data from 1998 to 2017 expose a devastating human cost from climate-related and geophysical disasters globally, with 1.3 million lives lost and 4.4 billion people impacted; earthquakes and tsunamis caused the most deaths, while floods, storms, drought and heatwaves comprise a significant 91 percent of all disasters.[b]

Disasters inflict a devastating financial toll beyond the tragic loss of life. The World Bank estimates that APEC economies have suffered annual economic losses exceeding USD 100 billion over the past decade due to these events.[c] These facts highlight the heightened risk faced by APEC cities, which are often located in regions prone to such events.

Source:
[a] APEC, "APEC Sustainable Urban Development Report – From Models to Results" (Singapore: APEC, 2019), https://www.apec.org/Publications/2019/04/APEC-Sustainable-Urban-Development-Report---From-Models-to-Results
[b] APEC, "APEC Sustainable Urban Development Report."
[c] APEC, "APEC Builds Financial Defenses against Escalating Disaster Risk," 18 February 2016, https://www.apec.org/Press/News-Releases/2016/0218_disaster

Similarly, insufficient public engagement and education on disaster risk reduction reveal a shortfall in efforts to cultivate a culture of prevention. Investing in public awareness campaigns is essential, yet the current lack of comprehensive education initiatives indicates a significant policy oversight. This gap undermines community preparedness and resilience, emphasising the need for a shift toward more inclusive disaster risk management strategies.

The implementation of early warning systems is pivotal for effective disaster preparedness, yet underinvestment and integration issues signify another critical policy area needing attention. Bridging these gaps requires not only legislative action but a paradigm shift toward proactive preventive disaster risk management.

FINDING #2: ADOPT A PROACTIVE STANCE IN REGULATORY ADAPTATION

Chile's regulatory framework requires updates to enhance infrastructure resilience against climate change and natural disasters. In this regard, Chile frequently revises its seismic building regulations, significantly minimising earthquake-related casualties and damage.[8] Further improvements would require revising laws to reflect advanced resilience standards and streamlining environmental permit processes to integrate risk assessments efficiently and address the lengthy permitting delays that hinder project timelines. Moreover, mandating climate change adaptation in infrastructure projects is essential, yet the lack of standardised guidelines for risk and impact assessments points to a significant regulatory gap.

Introducing a fast-track approval process for critical resilience projects could mitigate delays, but current regulations lack support for such expedited pathways. A fast-track approval process does not reduce the integrity of the process, but rather redesigns the process to be more responsive to the relevant project requirements and needs. Additionally, enhancing inter-agency collaboration is crucial for a unified approach to infrastructure resilience, yet existing mechanisms fall short of fostering effective cooperation.

To bridge these gaps, Chile must simplify its permit process, establish clear guidelines for climate and disaster risk assessments, and improve regulatory support for critical projects. Strengthening collaboration among regulatory bodies will also be key to ensuring comprehensive evaluations of infrastructure resilience, paving the way for a more adaptive and disaster-resilient infrastructure development approach.

FINDING #3: FURTHER EXPAND INNOVATIVE FINANCING

In the context of enhancing infrastructure resilience against the impacts of climate change, the further development of innovative financing mechanisms represents a promising financing option for Chile, which is already a global leader in the development of green/sustainable bonds.

Introducing climate resilience bonds, aimed at funding projects that bolster resilience to climate change effects, presents an opportunity to further support critical infrastructure developments. This is a type of green bond that restricts the use of proceeds to projects classified as 'climate resilient'. The first climate resilience bond was issued by the European Bank for Reconstruction and Development (EBRD) in September 2019 and raised USD 700 million. It was issued shortly after the Climate Bonds Initiative (CBI), an international not-for-profit organisation, issued its Climate Resilience Principles (CRP), which are presently the only available industry standard for climate resilience bonds.[9] Unlike the better-known Green Bond Principles,[10] the CRP does not contain a list of eligible projects, but expects the issuer to define such projects based on three sets of principles:

[8] E. Cavallo, A. Powell, and T. Serebrisky, eds, *From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean* (Inter-American Development Bank, 2020).
[9] Climate Bonds Initiative (CBI), Climate Resilience Consulting, and World Resources Institute (WRI), *Climate Resilience Principles: A Framework for Assessing Climate Resilience Investments* (CBI, 2019).
[10] ICMA, *Green Bond Principles: Voluntary Process Guidelines for Issuing Green Bonds (with June 2022 Appendix 1)* (Paris: ICMA, June 2021, updated June 2022).

(1) **Framing principles.** Issuers must define the boundaries of the climate resilient project, as well as the interdependencies between the broader system affected by the project.

(2) **Design principles.** Issuers must address climate risk, by both undertaking a climate risk assessment and by demonstrating that adequate risk mitigation measures have been put in place to show that the project is fit for purpose and does no significant harm to the system of which it will form part. Issuers will also need to address resilience benefits, by showing that the project is indeed expected to contribute to the climate resilience of the system. If the project is expected to result in increased greenhouse gas emissions, a trade-off analysis (known as the 'climate mitigation trade-off') is required.

(3) **Ongoing climate resilience principles.** Issuers are required to undertake ongoing monitoring of climate risks and benefits to determine whether the project continues to be fit for purpose and maintains climate resilience benefits as climate risks evolve.

Examples of projects that normally meet the CRP are water conservation projects, flood control systems and projects aimed at improving food security.

Leveraging PPPs emerges as a strategic approach to finance resilient infrastructure. Private investments could be attracted through government support like viability gap funding and tax incentives. The government could also strengthen incentives and enhance the relevant financial mechanisms. Developing economy-wide carbon credit and trading mechanisms offers a novel means to finance resilience through carbon offset projects. This would require establishing methodologies for quantifying carbon benefits and addressing the challenge of an underdeveloped market for carbon trading in Chile. Similarly, fostering green investment funds and incentivising green loans and mortgages would require mechanisms to pool capital for environmentally beneficial projects while confronting the hurdle of limited private investment incentives in resilient infrastructure.

FINDING #4: USE A MULTIDISCIPLINARY AND INTEGRATED APPROACH FOR EFFECTIVE DISASTER RESPONSE AND RESILIENCE PLANNING

In Chile, the imperative for cross-sectoral collaboration and integration in infrastructure resilience and disaster risk management cannot be overstated. Establishing a unified infrastructure resilience framework represents a crucial step toward ensuring that various sectors work in tandem, leveraging insights from ministries, the private sector, academia and civil society. This approach addresses a significant gap in current governance structures, which often lack the coordination necessary for effective resilience planning. By fostering a holistic approach, Chile can overcome the inefficiencies that result from siloed efforts, enhancing the economy's capacity to respond to and recover from disasters.

The enhancement of the role of the National Service for Disaster Prevention and Response (SENAPRED) underscores the need for stronger institutional frameworks that facilitate integration across key disaster management entities. This structural enhancement is vital for coordinating economy-wide responses and resilience planning effectively. However, the weak institutional anchoring of SENAPRED with other critical bodies highlights a pressing challenge: ensuring that these institutions operate in a cohesive and integrated manner. Addressing this requires not only structural but also functional reforms to build a more resilient governance model.

Furthermore, overcoming technological integration barriers presents an opportunity for innovation in infrastructure resilience. The Ministry of Transport's difficulties in incorporating new technologies into projects point to a broader issue of inadequate policies and frameworks supporting smart infrastructure. Establishing innovation labs and fostering partnerships with

technology companies can catalyse the adoption of advanced solutions, yet this requires clear policy direction and support to ensure scalability and impact. The development of collaborative planning and financing models, alongside policy advocacy and capacity-building initiatives, is essential for promoting cross-sectoral collaboration.

However, the lack of legislative support for these initiatives remains a critical barrier. To move forward, Chile should create a specific policy position that is supported by laws, which explicitly supports cross-sectoral efforts, ensuring that resilience planning is embedded across all infrastructure projects. This includes standardising data sharing and communication to enhance the flow of information among stakeholders, a step that is crucial for informed decision-making and coordinated action.

Box 3.2. Index of Governance and Public Policy in Disaster Risk Management: Chile

The Index of Governance and Public Policy in Disaster Risk Management from the Inter-American Development Bank (IDB) suggests that Chile could further improve its disaster risk management (DRM) regulatory performance in 'central policy coordination and articulation', and specifically the following areas: general framework of governance for DRM; risk identification and knowledge; recovery planning; and financial protection.

Figure 3.1. Chile's scores on the Index of Governance and Public Policy in Disaster Risk Management, 2020

Public policy phases / DRM reform components	1. Inclusion on the government agenda and policy making			2. Policy implementation	3. Policy evaluation
	Central policy coordination and articulation	Definition of sectoral responsibilities	Definition of territorial responsibilities	Evidence of progress in implementation	Monitoring, accountability and participation
General framework of governance for DRM (GF)	12.5% Low	33.3% Incipient	50.0% Good	30.0% Incipient	60.0% Good
Risk Identification and Knowledge (RI)	25.0% Incipient	33.3% Incipient	33.3% Incipient	40.0% Incipient	16.7% Low
Risk Reduction (RR)	60.0% Good	40.0% Incipient	60.0% Good	15.4% Low	60.0% Good
Disaster Preparedness (DP)	50.0% Good	70.6% Very good	20.0% Low	31.3% Incipient	33.3% Incipient
Recovery Planning (RC)	37.5% Incipient	30.0% Incipient	50.0% Good	0.0% Low	25.0% Incipient
Financial Protection (FP)	16.7% Low	0.0% Low	0.0% Low	24.4% Incipient	0.0% Low

DRM=disaster risk management
Source: Inter-American Development Bank (IDB), "Chile," accessed 25 June 2024, https://riskmonitor.iadb.org/

FINDING #5: DISASTER MANAGEMENT REQUIRES A HOLISTIC APPROACH

Chile's strategic planning for infrastructure resilience requires a unified approach that seamlessly integrates disaster risk reduction across all stages of infrastructure development. However, a significant gap exists in the absence of an economy-level framework for resilience planning, highlighting a disconnect in aligning resilient practices across various government sectors. Additionally, the application of nature-based solutions (NbS) in Chile often lacks a solid evidence base, leading to initiatives that might not effectively mitigate disaster risks. This underscores the necessity for policies to ensure that such solutions are scientifically validated.

How to incorporate the benefits of increased infrastructure resilience into social assessment methodologies should be explored. The benefits of resilience are usually very long term, in addition to the fact that designing infrastructure to be adaptable in the face of climate change implies higher costs.

Another relevant issue is the inclusion of benefits from dual use of infrastructure in response to natural disasters. For example, a park or a roadside rest area can be used as a disaster evacuation or refuge area (for example, by installing drinking water ponds), which would currently be considered a cost without an associated benefit when evaluating such a project.

There is a need for better territorial planning tools that include the risk of natural disasters and climate change. Planning must be done to provide security to the population. Efforts should be made to maintain natural watercourses.

One planning alternative could involve defining different types of risk zones, considering, for example, intermediate zones, in which houses must have a second floor resistant to floods or other disasters. The same should be sought for reconstruction, such as developing tools to analyse whether, after a natural disaster, it is better for the population to rebuild the infrastructure in the same place or to relocate it.

The challenges extend to the Supreme Decree (DS) directive related to disaster risk evaluation. This faces implementation hurdles, indicating a need for streamlined processes and clearer roles. Furthermore, the risk assessment for existing infrastructure, especially in high-risk areas prone to natural disasters, remains inadequate, pointing to a crucial policy area requiring systematic evaluation and mitigation strategies. These gaps call for a concerted effort to develop cohesive, evidence-based resilience planning and risk assessment frameworks, ensuring infrastructure safety and sustainability.

FINDING #6: EMBED CLIMATE CHANGE AND ENVIRONMENTAL RISKS IN INFRASTRUCTURE PLANNING

Integrating environmental sustainability in infrastructure projects represents a forward-thinking approach to resilience, aligning with the urgent need to combat climate change impacts. Chile's endeavour to embed environmental criteria throughout infrastructure project life cycles signify a proactive stride toward sustainability. NbS will play a role in determining approaches to mitigate climate change and environmental degradation, but the solutions should be implemented only when they have undergone rigorous scientific validation that includes substantial resilience testing. The effective implementation of these solutions demands rigorous environmental impact assessments to ensure their sustainability and effectiveness, moving beyond mere benevolence.

Given that the climate is changing, more technical information and better projections of this change are needed. On the one hand, projects should be evaluated using information from future projections of climate conditions instead of statistics based on past information (e.g.,

rainfall or flow volumes). On the other hand, a higher level of disaggregation is required in these projections. For example, if one looks at annual averages, one can find information showing that rainfall volumes are decreasing, which would lead one to think that smaller reservoirs or waterworks are required. However, if one were to look at hourly or daily projections, one would perhaps see that, although the rainfall projection for the year is lower, the rainfall would occur in fewer episodes with higher amounts, so that smaller reservoirs would not be an adequate solution.

Addressing these issues requires not only updating environmental regulatory frameworks to meet international standards but also ensuring infrastructure designs are adapted to future climate scenarios. This dual approach ensures that Chile's infrastructure is not only resilient and sustainable but also contributes positively to global environmental goals.

FINDINGS MATRIX: GAP ANALYSIS

The findings matrix can be used to review the institutional approach of the Government of Chile to examining and then developing action plans for resilient infrastructure and its financing and management. The findings of this project require a fundamental shift in the way in which the government manages infrastructure resilience. The findings are not fully specified and require the government to ask and answer more questions. This exercise is not an unusual one for the government given its status as a champion in Latin America in developing and implementing new ways of efficiently developing and managing infrastructure. The questions being asked by the findings of this project are ones that will set in motion a long period of investment in developing the best solutions for Chile.

The gap analysis in Table 3.1 summarises the arguments and issues within this chapter and then identifies the major gaps that should be addressed as a priority of the government.

Table 3.1. Gap analysis

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
Prioritise Preventative Measures	• *Develop Comprehensive Risk Assessment Tools*: Create and implement advanced risk assessment methodologies to evaluate the vulnerability of infrastructure to natural disasters and climate change impacts. This includes seismic risk assessments for earthquake-prone areas and flood risk assessments for water infrastructure. • *Incorporate Resilience in Urban Planning*: Ensure urban planning regulations require the integration of disaster risk reduction measures. This involves updating zoning laws, building codes and land use plans to consider disaster risk and resilience.	• *Lack of Integrated Risk Assessment Frameworks*: Current policies may lack comprehensive frameworks for assessing and managing the risks associated with climate change and natural disasters across different sectors of infrastructure development. • *Outdated Building Codes and Urban Planning Regulations*: Existing regulations may not fully reflect the latest advancements in resilient infrastructure design and construction, nor adequately consider the increasing severity of climate-related risks.

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
	• *Enhance Building Codes and Standards*: Update domestic building codes to incorporate modern engineering standards that address resilience against earthquakes, tsunamis, floods and other natural hazards prevalent in Chile. • *Institute Public Awareness and Education Campaigns*: Launch domestic campaigns to raise awareness about disaster risk and promote a culture of prevention. This includes education on the importance of resilient construction practices and preparedness measures. • *Invest in Early Warning Systems*: Develop and expand early warning systems and emergency communication technologies to ensure timely and effective dissemination of information before disasters strike.	• *Insufficient Public Engagement and Education*: There may be a gap in ongoing efforts to educate and engage public- and private-sector stakeholders about the importance of preventative measures and resilience planning.
Regulatory Evolution and Adaptation	• *Update Regulatory Frameworks*: Revise and update existing laws and regulations to incorporate advanced resilience standards for infrastructure development, ensuring they are adaptable to the latest research on climate change and disaster risk management. • *Simplify Environmental Permit Processes*: Implement reforms to simplify and accelerate the environmental permit process, ensuring that considerations for disaster risk and climate change are integrated efficiently without causing unnecessary delays in project approvals. • *Integrate Climate Change Adaptation Measures*: Mandate the inclusion of climate change adaptation strategies in all infrastructure projects. This includes assessing the long-term impacts of climate change on project	• *Lengthy Environmental Permitting Process*: The current environmental permitting process in Chile can significantly delay project timelines, particularly due to the extensive reviews required to assess disaster risks and climate change impacts. Streamlining this process while maintaining rigorous environmental and resilience standards is crucial. • *Lack of Cohesive Regulatory Standards for Resilience*: Existing regulations may not adequately cover the breadth of considerations necessary for modern, resilient infrastructure development. This includes gaps in guidelines for integrating climate adaptation measures and assessing long-term environmental impacts.

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
	viability and incorporating adaptive design principles. • *Establish Clear Guidelines for Risk Assessment*: Develop and disseminate clear, standardised guidelines for conducting disaster risk and climate change impact assessments as part of the environmental permitting process. This will ensure that all infrastructure projects undergo a thorough evaluation of potential risks. • *Create a Fast-track Process for Critical Infrastructure*: Introduce a fast-track approval process for projects deemed critical for the economy's resilience. This process should prioritise infrastructure projects that address urgent resilience needs or repair and upgrade existing critical infrastructure. • *Strengthen Inter-agency Collaboration*: Enhance coordination among regulatory bodies involved in the permitting process to ensure a unified approach to evaluating infrastructure projects' resilience aspects. This includes creating joint evaluation committees or task forces when necessary.	• *Insufficient Regulatory Support for Fast-tracking*: There is a need for a more refined regulatory approach that allows for the expedited approval of critical infrastructure projects, especially those that enhance the economy's resilience to natural disasters and climate change.
Innovative Financing	• *Develop and Promote Green Bonds*: Establish a clear regulatory framework and incentives for issuing green bonds, which are designed to finance projects that have environmental benefits, including resilient infrastructure development. This involves creating standards and certifications for green bonds to ensure transparency and trust among investors. • *Introduce Climate Resilience Bonds*: Introduce climate resilience bonds (which are similar to green bonds) specifically aimed at funding infrastructure projects that enhance	• *Underdeveloped Market for Green Financing and Carbon Bonds*: Chile's market for green financing and carbon bonds is still in its early stages and lack the necessary legal and regulatory frameworks to support its growth. There is a need for specific policies to promote and guide the development of green bonds and carbon trading mechanisms. • *Limited Incentives for Private Investment in Resilience*: Current incentives for private-sector investment in resilient infrastructure are insufficient.

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
	resilience against the impacts of climate change. These bonds could support projects for flood defences, earthquake-resistant buildings and sustainable urban planning. • *Leverage PPPs*: Strengthen the role of PPPs in financing resilient infrastructure by providing government support in the form of viability gap funding, guarantees, or tax incentives. This approach can attract private investment into projects that might not be financially viable without public support. • *Expand Carbon Credit and Trading Mechanisms*: Develop a domestic carbon credit system and trading platform to finance resilience through carbon offset projects. This involves establishing methodologies for quantifying carbon sequestration and emissions reductions from resilient infrastructure projects. • *Foster Green Investment Funds*: Encourage the establishment of investment funds dedicated to green and resilient infrastructure projects. These funds can provide a source of capital for projects that have significant environmental and social benefits but require upfront investment to realise these benefits. • *Incentivise Green Loans and Mortgages*: Work with financial institutions to offer green loans and mortgages at preferential rates for projects and developments that meet certain environmental and resilience standards.	Enhanced incentives and financial mechanisms are needed to encourage private-sector participation in funding resilience projects. • *Absence of Comprehensive Standards for Green Projects*: There is a gap in defining and enforcing standards for what constitutes a green or resilient infrastructure project. Clear criteria and certifications are needed to guide investments and ensure their environmental and resilience benefits.
Cross-sectoral Collaboration and Integration	• *Establish a Unified Infrastructure Resilience Framework*: Develop a domestic framework that mandates and facilitates cross-sectoral collaboration for infrastructure resilience, integrating inputs from	• *Lack of Coordinated Governance Structure*: Current governance structures may not adequately support the level of coordination and integration required for effective cross-sectoral

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
	various ministries, the private sector, academia, and civil society. • *Strengthen the Role and Integration of SENAPRED*: Enhance the structural and functional integration of SENAPRED (formerly ONEMI) with other key institutions involved in disaster risk management and infrastructure resilience, ensuring it has a central role in coordinating responses and resilience planning across sectors. • *Create Inter-ministerial Committees for Resilience Planning*: Form dedicated committees involving the Ministry of Transport, Ministry of Public Works, Ministry of Housing and Ministry of Urban Development, among others, to ensure that resilience and disaster risk reduction are incorporated across all infrastructure projects. • *Incorporate Technological Integration and Innovation*: Address the existing challenges faced by the Ministry of Transport in incorporating technological advancements into Ministry of Public Works projects by establishing innovation labs and partnerships with technology companies and academic institutions to pilot and scale up smart infrastructure solutions. • *Implement Collaborative Planning and Financing Models*: Develop collaborative planning and financing models that encourage PPPs in designing, financing and managing resilient infrastructure projects, leveraging both domestic and international investment. • *Encourage Policy Advocacy and Capacity Building*: Engage in policy advocacy to promote laws and regulations that support cross-	collaboration on infrastructure resilience, leading to siloed efforts and inefficiencies. • *Weak Institutional Anchoring of SENAPRED*: Despite the creation of SENAPRED, its integration with other key institutions involved in disaster risk management and resilience planning remains weak, hindering effective coordination and implementation of resilience measures. • *Technological Integration Barriers*: The Ministry of Transport faces challenges in integrating technological advancements into infrastructure projects, indicating a need for clearer policies and frameworks that facilitate the adoption of smart infrastructure technologies and innovations. • *Insufficient Legislative Support for Cross-sectoral Initiatives*: There may be a lack of supportive legislation or policy frameworks that explicitly promote and facilitate cross-sectoral collaboration and integration for infrastructure resilience and disaster risk management.

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
	sectoral collaboration and integration and conduct capacity-building programmes for government officials and stakeholders on the importance and implementation of integrated resilience planning. • *Standardise Data Sharing and Communication Platforms*: Establish standardised data sharing and communication protocols to facilitate the exchange of information related to disaster risk and infrastructure resilience between different government entities and stakeholders.	
Strategic Planning for Infrastructure Resilience	• *Integrate Comprehensive Resilience Planning*: Develop a domestic resilience strategy that integrates disaster risk reduction with infrastructure planning. This strategy should encompass all phases of infrastructure life cycle: planning, design, construction, operation and decommissioning. • *Incorporate Evidence-based NbS* as options for planning and design of infrastructure: While incorporating NbS for disaster risk reduction, ensure that these strategies are based on scientific evidence and are appropriate for the Chilean context. Assess the effectiveness of current NbS initiatives critically, recognizing that some may not provide the anticipated benefits and could be more about perception than actual risk mitigation. • *Revise and Enhance Infrastructure in High-risk Areas*: Conduct thorough reviews and updates of existing infrastructure in areas prone to tsunamis, landslides, or volcanic activities. This includes relocating critical infrastructure from high-risk zones where feasible and enhancing	• *Lack of a Unified Framework for Resilience Planning*: There is a gap in a cohesive, economy-level framework that aligns strategic planning for infrastructure resilience across different government levels and sectors. This framework should facilitate the integration of resilient practices into all infrastructure projects, regardless of their scale or funding sources. • *Apply Higher levels of Scientific Assessment in the Application of NbS*: The current approach to incorporating NbS in Chile lacks a robust, evidence-based foundation, which can lead to the implementation of measures that may not effectively reduce disaster risks. There is a need for policies that mandate scientific validation and monitoring of NbS to ensure they contribute meaningfully to resilience. • *Challenges in Implementing the DS Directive on Disaster Risk Evaluation*: Despite the issuance of a directive aimed at enhancing disaster risk prevention and evaluation, its practical

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
	the resilience of existing structures where relocation is not possible. • *Develop New Methodologies for Cost–Benefit Analysis* that include benefits for considering the long-term effects of climate change in projects. • *Implement and Refine the Supreme Decree (DS) Directive on Disaster Risk Evaluation*: Work toward the effective implementation of the directive issued by the DS on disaster risk prevention and evaluation. Address current challenges in its application to make the process more streamlined and practical for all stakeholders involved.	application remains cumbersome. Policies and regulations are needed to streamline the implementation process, ensure clarity in roles and responsibilities, and provide adequate training for stakeholders. • *Inadequate Risk Assessment for Existing Infrastructure*: Current policies may not adequately address the risks associated with existing infrastructure located in disaster-prone areas. This includes a lack of systematic assessment and mitigation plans for infrastructure vulnerable to tsunamis, landslides and volcanic hazards.
Resilience incorporates Climate Change and Environment	• *Integrate Environmental Sustainability in Infrastructure Projects*: Mandate the inclusion of environmental sustainability criteria in the planning, design, construction and maintenance phases of all infrastructure projects to ensure they contribute positively to the environment and are resilient to climate change. • *Promote NbS Critically*: While NbS for disaster prevention have been increasingly popular in Chile, there is a need for a more critical and scientifically validated approach to their adoption. Projects should be based on thorough environmental impact assessments that evaluate the effectiveness and sustainability of these solutions rather than adopting them based on perceived benevolence alone. • *Strengthen Climate Change Mitigation Efforts*: Acknowledge Chile's role in contributing to global CO_2 emissions reduction efforts	• *Gap in Scientific Validation of NbS*: NbS solutions should mandate empirical evidence and regular monitoring to ensure they deliver the intended environmental and resilience benefits. • *Insufficient Integration of Climate Change Adaptation*: There may be gaps in how existing policies and regulations integrate climate change adaptation into the life cycle of infrastructure projects, from planning and design to decommissioning, lacking comprehensive guidelines for adapting to future climate conditions. • *Marginal Impact on Global Emissions*: Chile's significant efforts in reducing CO_2 emissions and adhering to international climate agreements like the Paris Agreement and the Kyoto Protocol highlight a policy gap at

Finding	Definition of Actions (from additional discussions during and after the Peer Review workshops)	Policy, Institutional, Legal or Regulatory Gap
	through aggressive policies and measures, understanding that while the impact of Chile's actions on global emissions may be marginal, it sets a precedent for environmental stewardship and commitment to the Paris Agreement and the Kyoto Protocol. Chile's efforts should be seen as part of a collective global responsibility, encouraging larger emitters to take similar actions. • *Implement Adaptive Infrastructure Design*: Ensure infrastructure projects are designed with adaptability in mind to cope with future climate scenarios. This includes the use of resilient materials and technologies that can withstand extreme weather events and climate change impacts over the lifespan of the infrastructure. • *Better Projections and Information to use in Cost–Benefit Analysis*, including a higher level of disaggregation in the data. • *Enhance Environmental Regulatory Frameworks*: Update environmental laws and regulations to align with the latest international standards and best practices in climate change mitigation and adaptation. This includes enforcing stricter pollution controls, promoting renewable energy, and enhancing biodiversity conservation in infrastructure planning.	the global level, where the impact of smaller economies' contributions could be overshadowed by larger emitters. This discrepancy calls for policies that not only advance domestic emissions reduction efforts but also advocate for stronger international collaboration and commitment.

CO_2=carbon dioxide; NbS=nature-based solutions; ONEMI=National Office for Emergency of the Ministry of Interior and Public Security; PPP=public–private partnership; SENAPRED=National Service for Disaster Prevention and Response

The major gaps represent a challenge to the Government of Chile to develop specific policy responses. Those responses will cut across sectors and government activities. There are several ways to implement the government response, which can be summarised as follows.

- The traditional option is to articulate the government policy, and then adopt the policy elements into relevant legislation. This will require a substantial review of existing legislation and the development of a body of law comprising appropriate amendments.
- Another traditional option is to articulate the government policy, and then create specific resilience-based legislation that impacts and regulates activities and actions under existing legislation. Within that approach there is the option to create an institution that oversees and controls the implementation of resilience-based regulations and standards. This approach fits neatly with the concept of Regulatory Evolution and Adaptation identified in this chapter.
- A more innovative way would be to articulate the government policy and adopt a hybrid approach to implementing the policy elements. That approach could be based on specific legislation to enhance and direct the financing of resilience-based infrastructure that incorporates the Innovative Financing approach articulated in this chapter, which is coupled with amendments made to specific laws and the adoption of new regulations and standards. This option highlights the financing of innovation and again, fits neatly with the Regulatory Evolution and Adaptation concept identified in this chapter.

The issue of risk identification and allocation is discussed within the concepts presented in Chapter 4 which discusses the contractual arrangements for infrastructure in the context of PPP arrangements and the potential for alliance-based concepts to be introduced.

4. ANALYSIS OF FINDINGS ABOUT PPP CONTRACTS AIMED AT IMPROVING RESILIENCE

Through the 1970s, the Chilean government held sole responsibility for providing infrastructure, which contributed to significant public deficits that became unsustainable.[11] With the view of supporting its rapid economic growth, Chile embarked on a privatisation process throughout the 1980s, allowing the private sector to take the lead in infrastructure investment.[12] In the attempts to explore wider alternative financing methods and resources, the Government of Chile embarked to form a public–private partnership (PPP) concession programme.

The Ministry of Public Works was tasked to implement the PPP programme by managing infrastructure concessions through competitive bidding processes. This involved collaboration with other government agencies to ensure a smooth and transparent process, with the Ministry of Public Works responsible for assessing the profitability of project proposals, appraising risk, determining penalties, and supervising construction/operation and management of bids.[13] The foundational legislation for PPP, the 'concessions law' (Special Decree No. 164), was approved in 1991.[14] Chile's strong regulatory framework, with the concessions law at its core, creates a transparent and risk-managed environment that attracts investors to its PPP programme.[15]

In addition to the key role of Ministry of Public Works in preparing and executing infrastructure projects, the Ministry of Finance also performs an important gatekeeper role by ensuring that infrastructure projects are affordable and do not compromise financial stability. This institutional framework has contributed the delivery of high-quality infrastructure development in Chile.

In this context, the design, structuring and management of PPP contracts play an important role in the development of high-quality infrastructure. Ideally, the PPP contract should be the mechanism in which parties allocate risks between them in an optimal manner to ensure a successful PPP project. Effective risk allocation is crucial for PPP projects as it directly affects both a project's attractiveness to lenders (bankability) and its affordability for the government and users (pricing).[16] Ideally, PPP contracts assign risks based on management capacity and incentives, aiming for a balanced allocation that fosters long-term, mutually beneficial partnerships.[17] At the same time, external factors such as the maturity of the market, the experience of the participants and the level of competition between bidders also affect risk

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[11] A. Jadresic, "Regulating Private Involvement in Infrastructure: The Chilean Experience," in *Choices for Efficient Private Provision of Infrastructure in East Asia*, ed. H. Kohli, A. Mody, and M. Walton (Washington, DC: World Bank,1997), 54–68, https://documents.worldbank.org/en/publication/documents-reports/documentdetail/487461468752086028/choices-for-efficient-private-provision-of-infrastructure-in-east-asia

[12] Jadresic, "Regulating Private Involvement in Infrastructure."

[13] C. Sabatino, "Leveraging Public–Private Partnership Projects to Modernize Infrastructure: The Case of Chile," Global Delivery Initiative, June 2017, https://www.effectivecooperation.org/content/leveraging-public-private-partnership-projects-modernize-infrastructure-case-chile

[14] C.C. Lorenzen, M.E. Barrientos, and S. Babbar, "Toll Road Concessions: The Chilean Experience," PFG Discussion Paper 124, Project Finances and Guarantees Department, World Bank, Washington, DC, 2004, http://ibtta.org/sites/default/files/ChileToll%20Roads%20Concessions%20World%20Bank.pdf

[15] A. Hill, "Foreign Infrastructure Investment in Chile: The Success of Public–Private Partnerships through Concessions Contracts," *Northwestern University Journal of International Law and Business* 32, no. 1 (2011): 165, https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1012&context=njilb

[16] World Bank, *Guidance on PPP Contractual Provisions, 2017 Edition* (Washington, DC: World Bank, 2017), https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/Guidance_%20PPP_Contractual_Provisions_EN_2017.pdf

[17] World Bank, *Guidance on PPP Contractual Provision*.

allocation in a particular project.[18] The PPP contract should also establish clear and measurable performance standards for the quality and quantity of the delivered asset, along with the expected service level.[19]

APPROACH TO ANALYSIS

The Peer Review workshops generated strong discussion on PPP contracts and how Chile might improve them in three areas in order to improve their performance and their role in increasing resilience, and increase the quality of the infrastructure and its management and services to the public:

- Reviewing and restructuring the risk management approach between the government and the private sector.
- Improving disaster and emergency management.
- Adopting intelligent transport systems (ITS), especially in managing the risk of obsolescence.

A substantial portion of the discussions was dedicated to unravelling the complexities inherent in concession contracts. These contracts, particularly in the context of risk identification and allocation, present a myriad of challenges and opportunities. The workshops stressed the critical need for well-defined key performance indicators (KPIs) in these contracts. Clear KPIs are crucial for ensuring accountability, effective maintenance, and overall performance of infrastructure projects. They serve as benchmarks for assessing the success of projects and guide all parties involved toward common goals.

The discussion also brought forward a relatively new style of infrastructure contract called an alliance contract. This style of contract is a contractual innovation that was introduced in the United Kingdom and has been adopted in Australia; Canada; and New Zealand over the past 10 or so years.[20] The essence of the contract is 'the project is the primary matter' and not individual gains at the expense of another.

RISK ASSESSMENT AND ALLOCATION

Risk identification, allocation and mitigation are the key underlying activities that the government must pursue to maximise infrastructure sustainability planning, financing and implementation.

PPP contracts work in a way that structures risk and its responsibility for management and mitigation between the government and the private sector. The principle adopted in risk allocation is that risk is allocated to the party best able to manage it. The concept of value for money (VfM), which based on the allocation of risk and the transfer of risk cost from the government to the private sector, is the embodiment of that principle.

For the Government of Chile to fully assess the risks of resilience and the responsibility for it and then disaster and emergency management, a full review of its risk policy and practices is required. The review should focus on establishing all the risks associated with the development,

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[18] World Bank, "Guidance on PPP Contractual Provision."
[19] P. Bel-Pinana, "Public–Public Partnerships in Roads: Economic and Policy Analyses," PhD Thesis, University of Barcelona, 2018, https://www.tesisenred.net/bitstream/handle/10803/663251/PBP_PhD_THESIS.pdf
[20] An alliance contract is similar to the concept of integrated project delivery (IPD) in the USA. See: L. Abramowicz, J. Banaszak, T.G. Jayanth, and H. Zarrinkoub, "Collaborative Contracting: Making It Happen," McKinsey & Company, 11 July 2018, https://www.mckinsey.com/capabilities/operations/our-insights/collaborative-contracting-making-it-happen

construction and operation of infrastructure. To undertake that task, it must be done from a position of higher learning and being better informed. That comes from engaging specialists from a similarly challenged economy. The key questions in developing its risk position are:

- What are the risks that Chile faces now and in the next 20 years?
- How can the risk be managed better?
- Is there a way for standards to be improved and applied over the life of a project (perhaps through Regulatory Evolution and Adaptation)?
- How can the contractual arrangements – including risk definition, allocation and mitigation be aligned to facilitate more resilient infrastructure?
- What is the market looking for in risk mitigation and management?
- Where is the best practice moving forward in the next 10 years?

One factor contributing to the disappointing performance of regulations and regulatory institutions with reforms is the underestimation of transitional challenges.[21] The high frequency of contract renegotiations and international arbitration cases suggest that reformers overlook economy- and sector-specific contexts.[22]

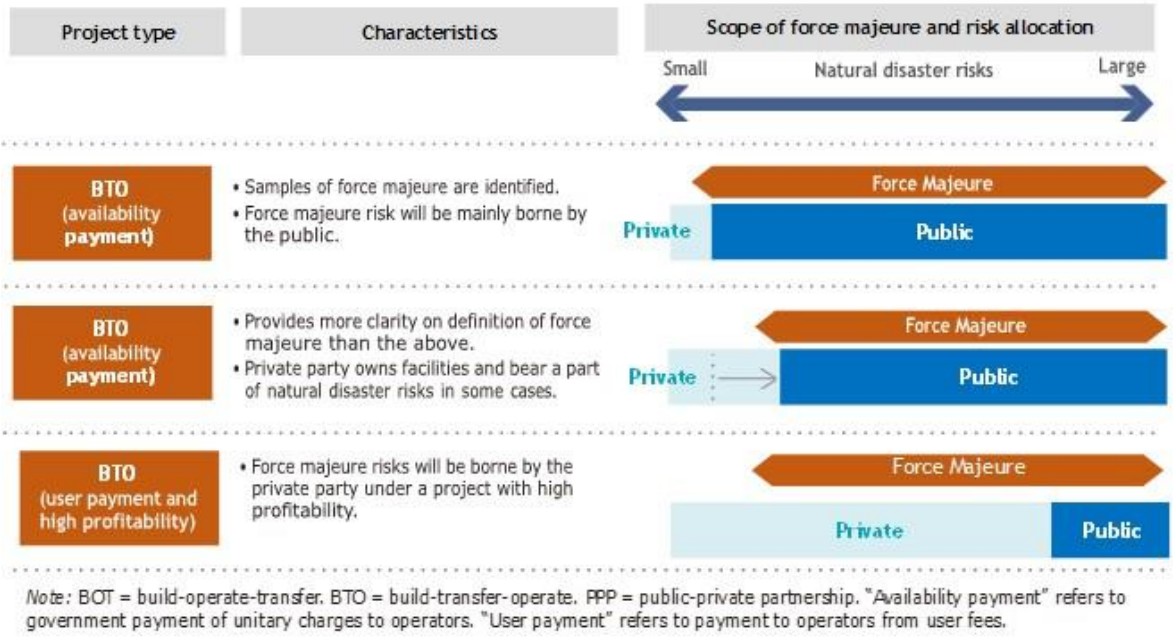
DISASTER AND EMERGENCY MANAGEMENT

According to studies by the World Bank, incorporating resilience into PPPs necessitates a multifaceted approach, encompassing adjustments to PPP policies and legal frameworks, determining project-specific needs, strategically distributing disaster risks among stakeholders, designing incentives for proactive climate and disaster risk management in contracts and procurement processes, utilising disaster risk financing mechanisms, and incorporating adaptability throughout the PPP life cycle.[23] For efficient disaster response, governments should integrate disaster risk management (DRM) throughout project development and procurement; this includes defining technical requirements in bids and contracts, and structuring bidding, award and payment terms to incentivise resilience-focused solutions.[24]

Disaster and emergency management approaches and risk allocation varies between economies. For example, Figure 4.1 shows where Japan sits with its current risk allocation approach to disaster and emergency management.[25]

[21] *The Handbook of Economic Development and Institutions*, ed. J.M. Baland, F. Bourguignon, J.-P. Platteau, and T. Verdier (Princeton, NJ: Princeton University Press, 2020), 634–88.
[22] Cavallo et al., *From Structures to Services.*
[23] World Bank, "Technical Brief on Resilient Infrastructure PPPs – Contracts and Procurement."
[24] World Bank, "Technical Brief on Resilient Infrastructure PPPs – Contracts and Procurement."
[25] World Bank, "Resilient Infrastructure Public–Private Partnerships (PPPs): Contracts and Procurement – The Case of Japan" (Washington, DC: World Bank, 2017), https://thedocs.worldbank.org/en/doc/221901515466795175-0090022018/original/ResilientInfrastructurePPPsContractsandProcurementJapanCase.pdf

Figure 4.1. Transfer of natural disaster risks in PPP projects, by project and payment type



Source: Adapted from World Bank, "Resilient Infrastructure Public–Private Partnerships (PPPs): Contracts and Procurement – The Case of Japan" (Washington, DC: World Bank, 2017), https://thedocs.worldbank.org/en/doc/221901515466795175-0090022018/original/ResilientInfrastructurePPPsContractsandProcurementJapanCase.pdf

Early Japanese PPPs, primarily availability payment-based build–transfer–operate (BTO) projects, initially mirrored traditional procurement risk-sharing models. However, with increasing experience, both the public and private sectors have gradually shifted certain manageable disaster risks to the private sector (under build–operate–transfer, or BOT, projects), depending on project-specific factors.[26]

This approach is markedly different to that of the United Kingdom and Australia for example, where the risk will largely be attached to the concessionaire and managed through force majeure provisions. Contingent risks still remain for the governments of the United Kingdom and Australia, but the principal risk remains with the concessionaire. In Chile, earthquakes are excluded from force majeure clauses in PPP contracts due to their frequent occurrence. Instead, the Public Works Concessions Law mandates insurance coverage for catastrophic risks, with payments used for asset reconstruction; loss-sharing agreements are possible only for catastrophic events.[27]

This clearly indicates that the Government of Chile needs to establish its own risk position and implement it based on its own circumstance. This should be made both for the management of natural disasters and for other emergencies such as traffic accidents.

In cities prone to natural disasters like earthquakes, traffic accidents can exacerbate the overall damage and hinder emergency response efforts. Outdated infrastructure and road management systems can fail to adequately support modern traffic needs, leading to higher accident rates. Inefficient emergency response practices can turn minor accidents into major incidents, complicating rescue operations and increasing casualties.

[26] World Bank, "Resilient Infrastructure PPPs: Contracts and Procurement – The Case of Japan."
[27] See: World Bank, *PPP Contracts in An Age of Disruption* (Washington, DC: World Bank, 2022), 60.

ITS can provide real-time data on traffic conditions, helping to prevent accidents by managing traffic flow more effectively. Advanced ITS can detect accidents immediately and deploy emergency response teams faster, reducing the time between an accident and the arrival of help. Additionally, ITS can monitor the condition of infrastructure and alert authorities to potential hazards before they result in accidents.

To address these challenges, it is essential to invest in modernising road infrastructure to accommodate ITS and enhance overall traffic safety. Implementing technologies such as automated traffic management systems, smart traffic lights, and connected vehicles will significantly improve traffic management. Furthermore, developing policies that mandate the integration of ITS in all new infrastructure projects and establishing regulations to ensure compliance and effectiveness are crucial steps toward a safer traffic environment.

With real-time management and monitoring, traffic accidents can be significantly reduced. Faster detection and response to accidents can save lives and minimise the impact of incidents. A modernised, well-managed traffic system improves the safety and efficiency of urban transportation, benefiting all road users.

ADOPTION OF INTELLIGENT TRANSPORT SYSTEMS

The risk allocation for intelligent transport systems (ITS) is again an area where there has been little attention given to the continuing risk and responsibility for it. Within the European jurisdiction and in Australia and the United Kingdom, as it relates to toll roads, the risk in ITS for tolling operations is specifically with the concessionaire. The key questions for the Government of Chile to ask and answer are:

- How should concession contracts manage current ITS arrangements and the issue of obsolescence?
- Which party will carry the most risk?
- For the future, what will be the obsolescence risk (knowledge from past experience) and how is the future managed?
- What are the available techniques now to identify and manage the risk?

The International Transport Forum, through its 2020 publication *Dealing with the Obsolescence of Transport Infrastructure in Public Private Partnerships*, suggests that 'the concessionaire should not bear the obsolescence risk. Obsolescence is an exogenous shock that the concessionaire cannot control and there are no deep markets to buy insurance against obsolescence'. However, there are several issues to consider in determining the risk issues and the contractual obligations for ITS. In relation to the toll road sector, the first step is for a government policy on ITS, and the development of KPIs for its structure, reporting and operation. Interoperability arrangements between different PPP connected projects and PPP projects that connect into the public road network must form an essential element of that policy.

In a city vulnerable to earthquakes, ITS applications such as real-time traffic management (with predictive analytics) can reroute vehicles around damaged areas in the aftermath of a disaster,

while automatic emergency response systems can expedite aid to those in need.[28] Cloud-based ITS also have the potential to help cities better prepare for disasters.[29]

PPP contracts that contain an alliance component offer a long-term strategic framework for mutual collaboration between the public sector and the private sector. By structuring PPP contracts to incentivise ongoing innovation, governments can ensure their ITS remains cutting-edge in the era of disruptive technology while at the same time enabling wider-scale deployment of such technology.[30] These contracts can also include clear provisions for regular system upgrades, maintenance and modernisation, ensuring the technology and facilities do not become obsolete. Failure to structure the PPP contract adequately in terms of maintenance and upgrade usually result in increased user costs and in some cases the activation of contingent liabilities for the government.[31]

By structuring PPP contracts to incentivise innovation to address resilience issues, governments can ensure their ITS remains relevant longer. For example, these contracts can include the following provisions.

- *Performance-based framework that encourages innovation and technology*: A performance-based framework that encourages innovation and technology-driven solutions can significantly enhance the effectiveness of ITS. By tying a portion of the private sector's compensation to the performance of the ITS as part of the quality standards, especially during and after catastrophic events, this framework incentivises the development of robust, innovative, and reliable systems to prevent and mitigate natural disasters or disruptions. Including best industry practices as part of the performance requirements may compel the private partner to adopt technological advancements to meet certain infrastructure resilience standards.

  One example of a performance-based framework is the RIIO principle (Revenue = Incentives + Innovation + Outputs), which sets targets to encourage more innovation that reduces costs and improves services to users. However, it is important to recognise that such frameworks must be carefully designed to avoid promoting only incremental improvements that attract regular funding without delivering substantial innovation or enhanced performance. Therefore, it is crucial to balance the incentives to ensure they drive significant advancements and not just minor, continuous enhancements.

- *Technology obsolescence-related clauses*: These specify the private sector's responsibility for regular upgrades and maintenance to ensure the ITS remains technologically advanced. This could safeguard the system's effectiveness in mitigating future disaster risks. For example, contracts could require contractors to annually

[28] H. Siba, "The Role of Intelligent Transportation Systems Big Data in Emergency Response and Disaster Management in Vanuatu," n.d., https://www.unescap.org/sites/default/d8files/event-documents/Vanuatu.pdf
[29] LYT, "How Cloud-based Intelligent Transportation Systems Can Help Your City Better Prepare for Disasters," 26 October 2023, https://lyt.ai/blog/how-cloud-based-intelligent-transportation-systems-can-help-your-city-better-prepare-for-disasters/
[30] V. Briggs, T. Delk, and C.M. Walton, C. M. "Public–Private Partnerships for Providing ITS: Case Studies in Transportation and Other Industries," Research Report SWUTC/99/472840-00067-1, University of Texas, 1999.
[31] National Audit Office, "The Department of Transport: The Failure of Metronet," 5 June 2009, https://www.nao.org.uk/reports/the-department-for-transport-the-failure-of-metronet/

develop and submit comprehensive Obsolescence Management Plans, detailing a robust approach to manage asset obsolescence.[32]

- *Risk-sharing mechanisms*: Force majeure clauses should outline clear protocols for risk sharing (who bears the financial burden) and risk mitigation (actions required to minimize damage and restore services) specific to natural disaster events. These protocols can address issues such as rapid system restoration, deployment of temporary solutions to maintain essential transportation functionality immediately following a disruption, and cost allocation for infrastructure repairs. For example, Chinese Taipei has put in place disaster prevention strategies for railroads and roadways, incorporating measures like real-time monitoring of vulnerable routes, strengthening bridges and tunnels against shocks, implementing reinforcement projects, and establishing alert systems for disaster preparedness.[33]

USE OF PUBLIC INVESTMENT FOR INFRASTRUCTURE DEVELOPMENT

There are several issues when it comes to using direct public investment for infrastructure development that need to be addressed by Chile. Social project appraisal methodologies apply for all three topic sectors of this report and they should consider the inclusion of resilience benefits. Currently, the cost of these measures is included in the assessment, but how to measure their benefits is not defined. Three key areas to commence with are:

- How to assess multipurpose infrastructure for natural disaster response (for example, if a park or gymnasium wants to include an underground drinking water tank to be used as an evacuation area).
- The use of more disaggregated projections and estimates for planning, for example, if projections show that rainfall will be reduced, it might be concluded that smaller dams are required; however, if the lower annual rainfall is concentrated in fewer events, that solution may not be the correct one.
- Have a guide or catalogue of solutions to different types of problems, with different types of measures for infrastructure, so that they can be used by less-prepared users of the central investment system (for example, those from less well-resourced or smaller municipalities).

ALLIANCE CONTRACTS AND THE CONNECTION WITH PPP CONTRACTS

Alliance contracts have gained a greater presence in the last 10 to 15 years. The cornerstone issue for an alliance contract is ‘the project is the primary matter’ and not individual gains at the expense of another. Risk is allocated but many are shared including disaster and emergencies, as opposed to PPP contracts where the risk is separated between the parties on most occasions.

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[32] Caltrans Division of Research, Innovation and System Information (DRISI), “Life Cycle Planning for Intelligent Transportation System Assets: Survey of Practice (PI-0261)” (California Department of Transportation, 2021), https://dot.ca.gov/-/media/dot-media/programs/research-innovation-system-information/documents/preliminary-investigations/pi-0261-a11y.pdf

[33] APEC, “Individual Economy Reports,” in APEC, *APEC Economic Policy Report 2018* (Singapore: APEC, 2018), Annex 2.

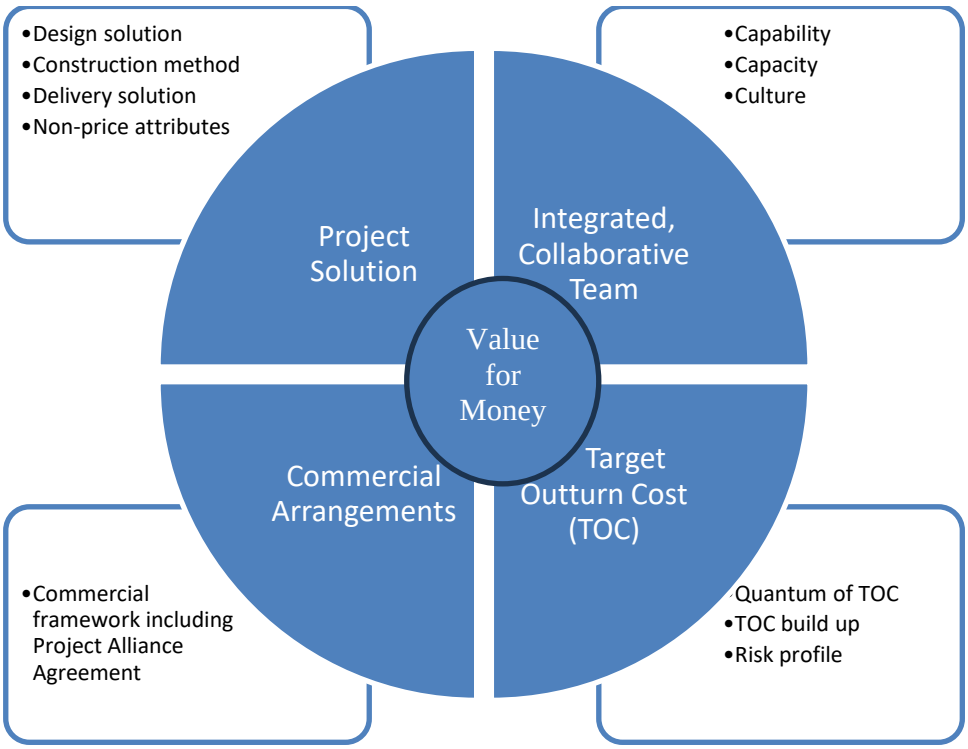
The key elements of an alliance contract are:

- All participants are required to work together in good faith, acting with integrity and making best-for-project decisions (risk and opportunity sharing).
- An integrated, collaborative team, that makes unanimous decisions on all key project delivery issues.
- A specific institutional structure that requires an integrated collaborative team (an Alliance Contract Leader and Committee), a focus on the project solution and the agreed target outturn cost (TOC).
- Transparency expressed as open book documentation and reporting.

An alliance contract is characterised by several key features that operate collectively as part of the alliance framework to ensure that the alliance is a success. It is the collective dynamic of these features that is unique to alliancing; generally, other delivery methods will only selectively apply one or more of the features to a more traditional contracting structure.

The structure of an alliance contract can be best explained by Figure 4.2 drawn from the Australian alliance contracting guidelines.

Figure 4.2. General structure of alliance contracts



PAA= Project Alliance Agreement

Source: Adapted from Department of Infrastructure and Regional Development of Australia, *National Alliance Contracting Guidelines: Guide to Alliance Contracting* (Canberra: Australian Government, 2015), https://www.infrastructure.gov.au/sites/default/files/migrated/infrastructure/ngpd/files/National_Guide_to_Alliance_Contracting.pdf

Under the Australian alliance contracting guidelines, the owner (the entity procuring the project and that will hold the asset in the long term) establishes an alliance with non-owner participants (contractors, designers, consultants, etc.)34 to achieve their VfM goals for a project. The success of these alliances hinges on four key factors: a collaborative team, an effective project solution, suitable commercial arrangements, and a realistic target outturn cost (TOC). However, the effectiveness of these factors relies on the support of the following key features:[35]

- risk and opportunity sharing
- commitment to 'no disputes'
- best-for-project unanimous decision-making processes
- a no fault, no blame culture
- good faith
- transparency expressed as open book documentation and reporting
- a joint management structure.

As with other recommendations in this report, if the Government of Chile wishes to investigate the appropriateness of alliance contracts for its jurisdiction, there is a process for its consideration. That process includes the following steps:

- Engage a specialist in alliance contracts to identify the successes, problems and potential failure areas of this contractual approach.
- Conduct an analysis of the alliance contract concept against a real-life project and test its advantages and issues through a process that incorporates the essential structure of Chilean contractual norms and industry expectations.
- Engage the private sector in the policy consideration of alliance contracts and test their reaction to its concepts and establish with the private sector how the concept might be adjusted to be facilitated within the Chilean jurisdiction.

INDEPENDENT REVIEWER

Part of the process of keeping the integrity of projects as they are under the initial stages of design, financing, and construction is the appointment of what is termed an Independent Reviewer or Independent Certifier or Independent Verifier ('Independent Reviewer'). This role is one allocated to a body (person or corporation) appointed and paid for by both contracting parties, that is independent of the PPP Contract and the parties. The role is to ensure the project outcomes as established in the PPP Contract and certify/approve key decisions on the project development. In broad terms, the Independent Reviewer role approves/certifies/verifies the following matters:

- The project site has been acquired in accordance with the project specifications to enable the project to commence.
- The design of the project complies with all relevant standards specified in the regulated standards and the PPP contract.

[34] Denys S., "What is an Alliance Contract? (Pros, Cons & Examples)," ConstructionFront.com, 14 September 2023, https://constructionfront.com/alliance-contract/
[35] Denys S., "What is an Alliance Contract?"

- The construction has been completed in accordance with the approved design and has been done in accordance with the regulated standards and the PPP contract.
- All project manuals required under the PPP contract have been completed.
- In the event of a dispute or a change in design or project alignment or construction, to determine the best solution to achieve the requirements of the PPP contract.

This role is not common to all jurisdictions. However, it is recognised as best practice by a range of international financial institutions including the World Bank,[36] and the Asian Development Bank[37] and the European Bank Reconstruction and Development.[38] The United Nations[39] also recognises the Independent Reviewer as a best practice approach.

In the context of examining the potential to adopt such a position and role in Chile for PPP contracts, further research is required and contact with experts/firms that have conducted this role should be undertaken. It could form part of the capacity-building programme, with the engagement of a specialist to undertake workshops based on live projects and circumstances. That expert should have experience that includes situations where the principal financier has also joined with the two contract parties to engage an Independent Reviewer.

In the end, the adoption of an Independent Reviewer arrangement will require an assessment of Chile's needs and the role should be adapted to those needs (and not a 'cut and paste' adoption).

HIGH-LEVEL EVALUATION OF CONTRACTUAL OPTIONS

This evaluation is drawn from three jurisdictions: Australia; the United Kingdom; and Japan. The comparisons to Australia and the United Kingdom have been provided because of the flexibility of contractual arrangements that have been in place in both economies, in particular under the alliance framework. The comparison to Japan has been selected to provide some continuity from the expert presentation in the Peer Review workshops conducted in November 2023. Japan is a civil law economy and works within jurisprudential concepts similar to that of Chile. It also has a disaster and emergency management profile that is similar to but operates at a far higher risk value than Chile.

Table 4.1 has been developed from literature research and highlights the difference between alliance contracting and the conventional PPP approach, particularly in addressing obsolescence, dispute resolution, risk allocation, and the adoption of best-for-project solutions.

With regard to DRM, Japan's approach to PPPs (Table 4.2) involves a comprehensive framework with shared public–private responsibility. This includes evaluating and allocating risks, promoting proactive DRM measures through incentives, and utilising insurance and financial tools. Ultimately, the aim is to maximise VfM while ensuring resilient infrastructure in the face of natural disasters.

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[36] B. Gericke, T. Henning, and I. Greewood, "Review of Performance-based Contracting in the Road Sector –Phase 1" (Washington, DC: World Bank, 2014), https://documents1.worldbank.org/curated/ar/985071468324286123/pdf/878260NWP0TP4200Box377314B00PUBLIC0.pdf

[37] M. Moseley, "Restoring Confidence in Public–Private Partnerships: Reforming Risk Allocation and Creating More Collaborative PPPs," The Governance Brief 41, ADB, 2020, https://www.adb.org/sites/default/files/publication/648721/governance-brief-41-restoring-confidence-ppps.pdf

[38] European Bank for Reconstruction and Development (EBRD), "EBRD Project Procurement: Procurement Policies and Guidelines," accessed 24 June 2024, "https://www.ebrd.com/procurement/project-procurement/policies-guidelines.html

[39] United Nations Trade and Development (UNCTAD), "Best Practices in Investment for Development: How to Utilize FDI to Improve Transport Infrastructure – Roads: Lessons from Australia and Peru" (New York: United Nations, 2009).

Table 4.1. PPP contracts evaluation

Topic	Benchmark (Japan) Act on Promotion of Private Finance Initiative 1999	Benchmark 2 (Australia) No legislation. All managed through domestic and state contract guidelines	Benchmark 3 (UK) All managed through HM Treasury and contract guidelines
Level of Services	Defined as core values of the contract		
KPIs	• KPIs are a core aspect of the contract. • Institutional arrangements are specified for all KPIs. • KPIs relate to all aspects of the project. • Reporting is required on all KPIs. • Calculation of non-performance of KPIs contained in contract – penalty calculation.		

Alliance: Work Dynamic and Contract Rules	Not in the jurisdiction
	
	(Note: traditional types of PPP contracts exist – BTO, BOT, and concession contracts where the management of an infrastructure asset is concessioned to an operator)
		• Undertaken from late 1990s.[40]
		• Government owns the asset
		• Possible PPP contract for operate and maintain
		• Contract structure developed to cater for alliance model
		  ○ Alliance Contract Board
		  ○ Alliance Contract manager
		  ○ Principles of Project solutions contained in contract
			• Undertaken from 1990s.[41]
			• Contract structure developed to cater for alliance model
			  ○ Alliance Contract Board
			  ○ Alliance Contract manager
			  ○ Principles of Project solutions contained in contract
			• Checklist criteria for adopting an alliance contract:[42]
			  ○ Complex environments
			  ○ Where performance improvement or business change is required
			  ○ Where there are difficult stakeholder issues
			  ○ Where supply chain partners have a direct customer interface
			  ○ Where opportunities or threats are better managed collectively
			  ○ Where the project is being delivered within a changing environment – for example technology interfaces
			• Where scope can only be confirmed over time

Independent Reviewer for PPP Contracts	• Not provided for in contracts • The Committee for the Promotion of Private Finance Initiatives studies and deliberates the situation regarding the formulation of an implementation policy, selection of a qualified	• Market confidence in system. • Paid for jointly by contracting parties • Role is focused on independent/expert decisions on technical problems and project delay curing, final sign-off of construction. • Limits disputes and arbitration	• Market confidence in system. • Paid for jointly by contracting parties • For dispute resolution, the main options are referring a dispute to an independent expert for a non-binding opinion and referring the dispute to Senior Representatives of each member of the

[40] CMS, "Contract Alliancing in Construction: Case Study: Australia," 2005, https://cms.law/en/int/publication/contract-alliancing-in-construction/case-study-australia
[41] K. Lister, J. Davis, and C. Mayo, "Alliancing Contracts: An Innovative Approach or Another False Start?" Clyde & Co, 7 September 2022, https://www.clydeco.com/en/insights/2022/09/alliancing-contracts#:~:text=In%20the%20UK%2C%20alliancing%20contracts,in%20its%20North%20Sea%20operations
[42] Infrastructure Client Group, "Improving Infrastructure Delivery: Alliancing Code of Practice" (London: HM Treasury, 2015).

Topic	Benchmark (Japan) Act on Promotion of Private Finance Initiative 1999	Benchmark 2 (Australia) No legislation. All managed through domestic and state contract guidelines	Benchmark 3 (UK) All managed through HM Treasury and contract guidelines
	project, objective evaluation of the project, and other matters (Article 85).[43]	• Not negotiated outcomes from project issues – best solution within contract framework. • Example of contracts: Melbourne City Link Project[44] and Victoria Peninsula Link Project[45]	alliance contract. They in turn can decide to mediate.[46] • Limits disputes and arbitration • Not negotiated outcomes from project issues – best solution within contract framework
Community Opinion/Expectations	• If the Committee for the Promotion of Private Finance Initiatives finds it necessary, it may request the heads of relevant administrative organs, heads of relevant local governments, and other relevant bodies to provide submission of materials, expressions of opinions, and explanations (Article 85).[47]	• Community participation and opinion sought in 1996 for City Link Project. • Community expectations not canvassed • Defining expectations introduced in 2005 – Peninsula Link Expressway Project	• Health Service England is planning to adopt alliance contracting together with a 12-week public consultation process.[48]

ITS management - Obsolescence	• Not specifically mentioned in literature. It is expected that the issue will be managed within the concept of normal PPP arrangements specified for PPP contracts. The risk of obsolescence is managed by the private sector but based on meeting KPIs.	• PPP contracts
		  ○ Negotiated arrangements.
		  ○ Solutions from concessionaire cost to shared cost
		  ○ Potential for tariff increases
		• Alliance contracts
		  ○ Flexibility for change
		  ○ Best-for-project solution discussion
		  ○ Government owns the asset
		• Potential for a PPP Operator
			• PPP contracts
			  ○ Negotiated arrangements.
			  ○ Solutions from concessionaire cost to shared cost
			  ○ Potential for tariff increases
			• Alliance contracts
			  ○ Flexibility for change
			  ○ Best-for-project solution discussion
			  ○ Government owns the asset
			  ○ Potential for a PPP Operator
			• Note: Alliance contracts specifically cater for a project that is being delivered within` a changing environment – for example technology interfaces.

Disaster/Emergency	The agreements specify the level of disasters, the range of compensation, the guidelines on the use of insurance to compensate costs, the procedure to handle cumulative damage, and the damage reporting and confirmation process. For a definition of force majeure, the guideline provides examples from the definitions in	• Shared risk based on specific duties allocated between the concessionaire and the contracting agency. • Force majeure insurance provisions.	• Shared risk based on specific duties allocated between the concessionaire and the contracting agency. • Force majeure insurance provisions.

[43] *Act on Promotion of Private Finance Initiative,* Act No. 117 of 1999, Japan, https://www.japaneselawtranslation.go.jp/en/laws/view/3573/en#je_ch7at3
[44] *Agreement for the Melbourne City Link,* Act No. 107/1995, Australia, https://www.dtf.vic.gov.au/sites/default/files/2018-01/Amended-CityLink-Concession-Deed.pdf
[45] State Government of Victoria, Australia, "Contract – PLPD2010," accessed 1 July 2024, https://www.tenders.vic.gov.au/contract/view?id=49003
[46] Fenwick Elliott, "Alliancing: What Does the New NEC4 Alliance Contract Have to Offer?" October 2018, https://www.fenwickelliott.com/research-insight/newsletters/insight/81; Pinsent Masons, "NEC4 Alliance Contract: The Basics," 26 October 2018, https://www.pinsentmasons.com/out-law/guides/nec4-alliance-contract-the-basics
[47] *Act on Promotion of Private Finance Initiative,* Act No. 117 of 1999, Japan.
[48] Bevan Brittan, "Accountable Care Contracting," accessed 4 June 2024, https://bevanbrittan.com/expertise/services/health-social-care-integration/accountable-care-contracting/

Topic	Benchmark (Japan) Act on Promotion of Private Finance Initiative 1999	Benchmark 2 (Australia) No legislation. All managed through domestic and state contract guidelines	Benchmark 3 (UK) All managed through HM Treasury and contract guidelines
	the Disaster Countermeasures Basic Law and the cost sharing in the Construction Contract Agreement for public works (standard condition of contracts for public works).[49] See Table 4.2 on risk sharing, including disaster management and insurance	• Environment which encourages innovation if it is within an Alliance Contract.[50]	• Application of R&D and innovation is incentivised in the commercial relationships, which are aligned to outcomes if it is within an alliance contract.[51]
Disputes/Arbitration	Standard dispute resolution and arbitration procedures that are regulated by Japan's jurisprudence.	PPP contracts: • Standard dispute resolution arrangements. Arbitration and Court-based. • The role of the Independent Reviewer lessens disputes on key issues such as design, land acquisition delays and construction certification. Alliance contracts: • Last resort. The dispute resolution mechanisms primarily rely on non-legal processes.[52] • Focus on best-for-project solutions. • Shared risks – both positive results and cost results.	

BOT=build–operate–transfer; BTO=build–transfer–operate; ITS=intelligent transport systems; KPI=key performance indicator; PPP=public–private partnership

[49] World Bank, "Resilient Infrastructure PPPs: Contracts and Procurement – The Case of Japan."
[50] D. McNair, "Alliancing," (PwC, 2016).
[51] Mott MacDonald, "Insights and Guidance on How to Use the Project 13 Enterprise Model" (Mott MacDonald, n.d.), https://www.mottmac.com/download/file?id=36944&isPreview=True
[52] Moseley, "Restoring Confidence in Public–Private Partnerships."

Table 4.2. Overview of Japan's lessons learned from PPP infrastructure projects

	Risk Sharing between Public and Private Sector	Measures to Incentivise Private Sector DRM	Disaster Risk Finance and Insurance
Policy and Legal Framework	• Disaster Countermeasures Basic Act is the fundamental basis for DRM and resilience in Japan. • Develop a legal framework that takes into account project characteristics for each sector and indicate the possibility of risk sharing and intervention by a public entity. • PFI projects are to comply with the DRM policy and legal frameworks. • Prepare PPP guidelines on risks and standard contracts. • Establish a forum for public and private entities to enable flexible responses to increasing climate risks.		• Expand the insurance (including reinsurance) market.
Project Preparation and Structuring (Contracting)	• Evaluate the disaster risks and identify the scope of risk sharing between the public and private sectors. • When considering risk sharing to maximise VfM, review structural and non-structural DRM measures, nature of the project, project profitability, and the private sector's capacity to absorb the risks. • Organise workshops to enhance understanding on disaster risks to promote DRM. • Depending on economy and regional characteristics, define force majeure based on risk assessment to minimise uncertainty among both public and private sectors in preparing for and responding to a natural disaster.	• Transfer a certain degree of natural disaster risk to private operators to promote their efforts on resilience and innovation. • Disclose information on past disaster damage and encourage DRM efforts from the private entities. • Incentivise the private operators to proactively develop DRM measures by introducing a monitoring and payment mechanism to reduce facility development fees in case of non-compliance with the specifications on DRM. This would incentivise the private sector's DRM.	• Encourage to insure insurable risks. • Identify insurable risks that can be insured at a reasonable cost to maximise VfM.
Procurement and Implementation	• Decide appropriate project schemes and risk sharing through Q&A sessions between the public and private entities at a selection stage. • Evaluate technical robustness and price in the context of life cycle costs. • Evaluate both structural and non-structural DRM measures.	• Set evaluation criteria on DRM measures such as BCPs and additional insurances. • Encourage private operators to procure robust materials and use supply chains for risk reduction and quick emergency response and recovery.	• Consider whether agile disaster recovery is possible by using insurance or derivatives.
Financing	• In addition to predictability, determine the scope of risk sharing based on the potential impacts. • Taking into account the possibility of fundraising, use the risk assessment conducted by financial institutions.	• Financial institutions are to require the private operators to prepare a BCP, DRM plans, and risk reduction investments. • Consider preferential finance and insurance arrangements (such as lower interest rates, lower premiums) for companies with robust DRM system including a BCP.	• Arrange financing based on the results of project's risk assessment. • Develop innovative financial products.

BCP= business continuity plan; DRM=disaster risk management; PFI=private finance initiative; PPP=public–private partnership; VfM=value for money

Source: World Bank, "Resilient Infrastructure Public–Private Partnerships (PPPs): Contracts and Procurement – The Case of Japan" (Washington, DC: World Bank, 2017), https://thedocs.worldbank.org/en/doc/221901515466795175-0090022018/original/ResilientInfrastructurePPPsContractsandProcurementJapanCase.pdf

5. POSSIBLE CAPACITY-BUILDING NEEDS AND APPROACH

APPROACH TO ANALYSIS

The analysis from Chapters 3 and 4, the discussions at the Peer Review workshops and the subsequent meetings with the Government of Chile counterparts, suggest the following capacity-building needs:

- review of best international practices with respect to in-depth integration of disaster risk reduction in infrastructure planning, and possible application of such practices in Chile
- development of framework for sovereign climate resilience bonds
- advice on making infrastructure more resilient through concession contracts
- development and pilot-testing of awareness campaigns and education programmes to make communities and local leaders more prepared to deal with natural disasters.

THE ASSESSED CAPACITY-BUILDING NEEDS

This section develops the main themes of capacity building and suggests steps to develop a capacity-building programme.

International practices and approaches for disaster and emergency management: The Peer Review workshops set out a substantial case for the re-evaluation of the standards and approaches in Chile for disaster and emergency management. This is a core expertise available in Japan. The Government of Chile should continue to pursue this stream and place it in the list of activities with the highest priority. Chapter 3 of this report identifies the key gaps in policies and laws/standards in Chile.

In addition, the government should engage the private sector in these capacity-building sessions to increase their knowledge and expertise. That will have a significant benefit for both the government and the private sector being able to identify their risks and how they should be managed/mitigated. This is especially where there is room for a cooperative /alliance approach to mitigate those risks.

Financing for resilience bonds: This area is gaining substantial interest after the workshops. The process can start with gaining knowledge on this issue and continuing the early work of the Government of Chile in introducing green financing bonds. From that work, the capacity building should be targeted and the expertise needed to conduct the capacity building with real-time examples should be sought to conduct the capacity building. Like the disaster and emergency management approach, the Government of Chile should target the private sector as a participant also and establish early cooperative working arrangements on this subject.

This matter is under active consideration now and being led by the Ministry of Finance. It is logical for the ministry to lead this issue and take into account the recommendations of this report.

Law/regulation and contracts: This area has been the focus of the Concessions Directorate and was the subject of detailed discussions. Two specific topics are covered:

- **Law/regulations**: This area is identified in the gap analysis in Chapter 4. Evolving standards is the most substantial issue, particularly how to introduce a system of evolving regulation/standards that the government and the private sector is able to implement and manage. In this instance, the financial risk is a factor that will drive the capacity for regulatory evolution and innovation. Selecting a partner economy will be an important step to commence this capacity building.

- **Contracts**: Risk definition and allocation is at the heart of this matter. From there, contractual arrangements can begin to reformulate. Like the capacity building for the law and regulations, research on selecting a practised partner in concession management and in devising different cooperative-based contract structures (alliance contracts) will be an important step. Alliance contracts have a limited market at this stage with the most practised markets being in the United Kingdom and Australia. Inclusion of a contract decision process that involves the establishment of an Independent Reviewer within the context of PPP contracts has a wider field of expertise.

  However, the government should progress in a phased approach by first learning more about what these contractual changes can do for Chile and its project development and implementation, and then establishing a specific capacity-building programme based on its needs. Selecting the appropriate experienced economy will be important to learn the benefits, the significant problems and failures and developing an approach that fits Chile.

Awareness campaigns: Chapter 3 of this report identifies awareness campaigns as a method to address gaps in public knowledge of climate change and disaster preparedness and resilience. The chapter recommends that the government emphasises the need for a shift toward more inclusive disaster risk management strategies. The structure of the campaigns needs to address the public in general and their capacity to understand the environment they are living in. The second aspect is to specifically engage the private sector to increase its knowledge of the issues it faces in delivering resilient infrastructure and being able to convert technology to commercially viable risk management arrangements.

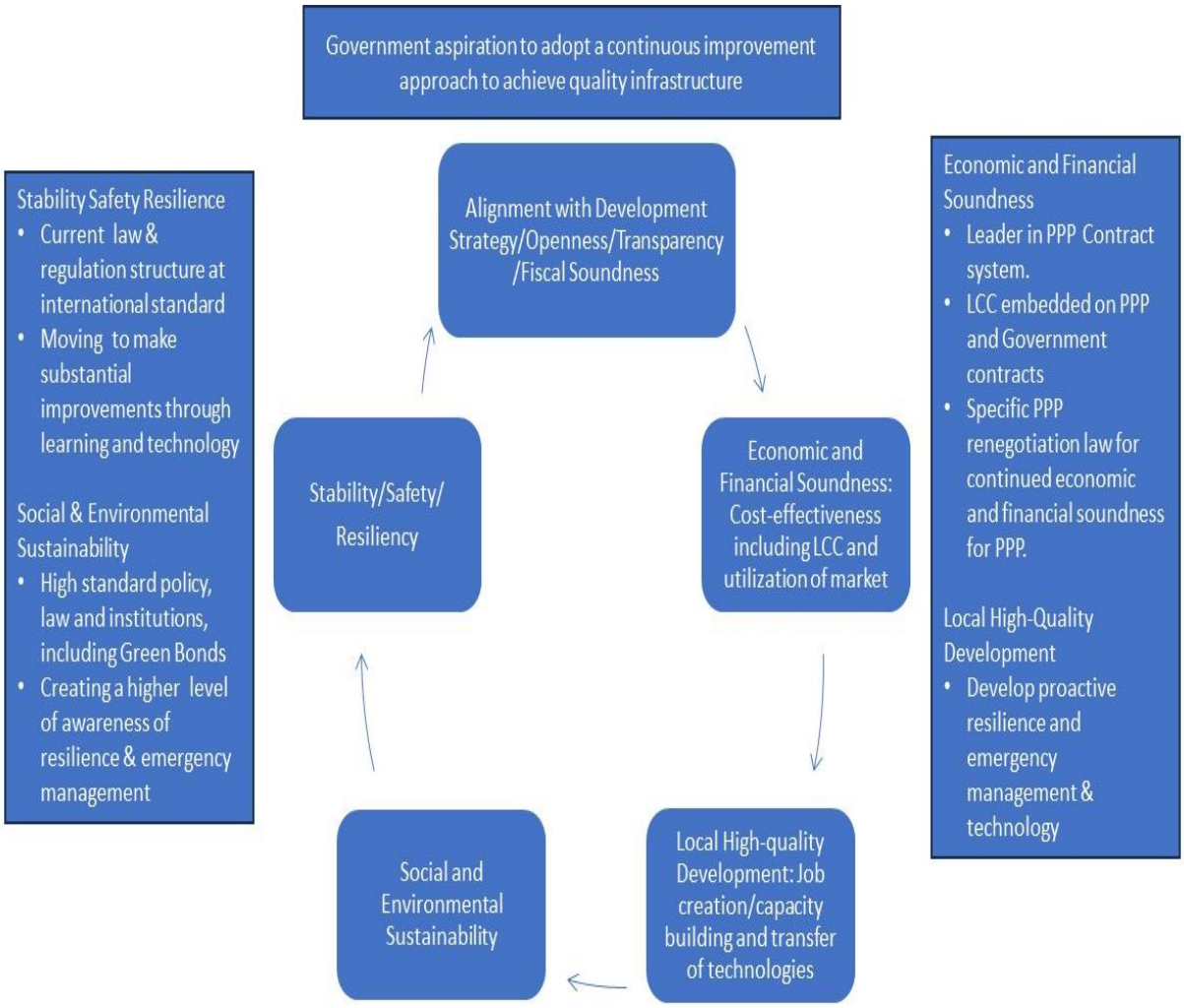
The implementation of awareness campaigns should be either be led by or conducted with the National Service for Disaster Prevention and Response (SENAPRED). There are few examples of this approach other than in Japan where risk management and disaster management are threaded through the everyday life of citizens and the commercial responses by the private sector to building and operating infrastructure. The awareness campaigns like the other recommendations made in this report must be adapted for Chile and not simply moved from one economy to another.

6. CONCLUSIONS

CHILE'S OVERALL POSITION: FIVE ELEMENTS OF QUALITY INFRASTRUCTURE

This chapter draws together the major conclusions from the Peer Review. The first step is to position the economy of Chile in the context of the five elements of quality infrastructure.

Figure 6.1. Chile's overall position: Five elements of quality infrastructure



LCC=life cycle cost; PPP=public–private partnership

In terms of alignment with the development strategy (element 1), the Government of Chile demonstrates a commitment to long-term infrastructure development through its medium- and long-term plans at both the central and regional government levels. These plans prioritise attracting private investment through a combination of laws, incentives and strategic frameworks.

Chile's infrastructure development process also prioritises affordability assessments and maximising value for both investors and society, specifically:

- *Conventional Infrastructure*: Life cycle cost (LCC), including environmental and social impacts, are considered in project evaluation. Willingness to pay is sometimes assessed, especially for projects with user fees.
- *PPP Infrastructure*: Feasibility studies for public–private partnerships (PPPs) comprehensively examine user willingness to pay and affordability. Projects must demonstrate financial viability and broader societal benefits. Chile actively collaborates with multilateral development banks to leverage private investments effectively.

Chilean laws and project guidelines promote the use of a local workforce in both conventional and PPP infrastructure projects. This aims to directly benefit local communities through job creation. Additionally, Chile encourages the use of effective technologies during infrastructure project planning through a supportive framework:

- Urban planning and construction laws often mandate standards that necessitate modern technologies.
- The Ministry of Public Works and its divisions actively promote technological adoption, especially in PPP projects.

For element 4, that is, stability/safety/resilience, while the current legal and regulatory structure in Chile already meets international standards, there is a continuous drive for improvement through learning and technology adoption.

Chile demonstrates a high standard of policy, law and institutions for social and environmental sustainability. This is exemplified by their pioneering work in green bonds, including being the first sovereign issuer in the Americas (2019) and launching the world's first sovereign sustainability-linked bond in 2022, which attracted international investors across Europe, Asia and the Americas, a sign of confidence in the Chilean economy. For future work, as emphasised during the Peer Review workshop based on the experience of Japan, there is a need to create a higher level of awareness of resilience and emergency management.

From this overall assessment, the economy of Chile is in a strong position already and has aspirations to adopt a continuous improvement approach to its infrastructure with specific targets in resilience capacity, emergency management and intelligent transport systems (ITS). The regulatory structure and the government institutional structure are of international standard.

KEY AREAS FOR IMPROVEMENT

The major areas for improvement and their details are contained in Chapters 3, 4 and 5. The following summarise those areas:

- Building on the existing policy and legal/regulatory framework, a higher level of institutional coordination for resilience preparedness and emergency management is the next significant step for the government.
- Adopting a specific policy for prevention/risk mitigation of disasters that will be the foundation for managing infrastructure building and also risk.
- The allocation of risk between the public and private sector and the development of higher standards of cooperation and risk sharing between them will enhance the contractual landscape for Chile and could create high level skills and expertise especially within the private sector.
- While Chile already is at the forefront of green financing, the next step is to create a market based on financing for resilience that incorporates the policy of prevention/mitigation of disasters and their impact.
- To make significant headway and to define the areas and approaches that Chile could adopt, it needs to develop benchmark partners to begin the process of learning and capacity building within its public and private sectors. Those partners can come from Japan (where resilience circumstances and emergency management issues are similar to Chile) and the United Kingdom; Australia; and Canada for innovative approaches involving private sector concession contracts under PPP-type arrangements.

PART B. DETAILED REVIEW AND CHRONOLOGY OF RELEVANT LAWS, REGULATIONS AND GUIDELINES FOR CONVENTIONAL AND PPP CONTRACT ARRANGEMENTS

This part of the report provides a brief summary of the results of the review criteria (Appendix B) and a full chronology of the review criteria (0) for the relevant laws, regulations and guidelines related to infrastructure development.

When measured against APEC's five elements to ensure quality infrastructure (see also Chapter 5):

- The economy of Chile and its legal and regulatory framework are of international standard. Its structure is sophisticated and covers key responsibilities in public–private partnership (PPP) and standard procurement.
- The capacity for adoption of innovation has strong structures in place. Scientific institutions with specialist organisations on resilience and disaster/emergency management are in place.

A brief summary of the results of the review criteria is provided in Appendix B (Table B.1 to Table B.5). Several highlights are provided below:

- Legal and Strategic Foundation:
    - Dedicated laws provide clarity for procurement, PPPs, accounting, and taxation.
    - Infrastructure aligns with domestic goals, prioritising economic viability, resilience, and environmental sustainability.
- Commitment to Transparency and Fiscal Responsibility:
    - Laws and platforms promote open budgeting, project information, and anti-corruption measures.
    - Project selection is guided by fiscal constraints and oversight.
- Prioritisation of Technology, Innovation and Economic Value:
    - Laws mandate modern standards, and agencies actively promote technology adoption.
    - Rigorous economic evaluation ensures projects deliver value for money and consider alternatives.
- Robust Environmental and Social Focus:
    - Mandated assessments include public participation and provisions for vulnerable groups.
    - Emphasis is placed on minimizing environmental impact, addressing climate risks, and sustainability.
- Effective Procurement and Contract Management:
    - Emphasis on quality and flexibility, with potential to further enhance VFM and social inclusion.
    - Evaluation considers financial capacity, track record, and environmental factors.
    - Robust contract oversight with penalties and incentives, and a clear process for project maturity and re-concessioning.

The complete chronology (0) is a fully detailed document that will be of substantial benefit to the Government of Chile. Its immediate use is for the government to re-examine the policies and laws related to infrastructure development and management and to look for ways to improve the position of Chile in the critical areas of infrastructure resilience, implementation of innovation in the use of infrastructure, and a scientific base to create areas of high-level expertise in the field of intelligent and effective technology.

APPENDICES

APPENDIX A. SUMMARY OF MEETINGS WITH THE GOVERNMENT OF CHILE

Ministry or Department	**Directorate of Hydraulic Works, Ministry of Public Works (DOH)**
Date	5 December 2023
Attendees	• Directorate of Planning, Ministry of Public Works (DIRPLAN) • Directorate of Hydraulic Works, Ministry of Public Works (DOH) • The Directorate of Housing and Urban Development (under the Ministry of Housing and Urbanism, or MINVU) • Urban Watercourses Division, National Directorate of Hydraulic Works (DGA) • AARC Pty Ltd (Consultant)
Summary	• Evaluation methodologies: How to incorporate and valorise resilience benefits to include in the evaluation. The DGA has good methodologies for assessing increases in resources or production but not for incorporating long-term benefits in the evaluation of projects related to resilience against climate change. • The Urban Watercourses Division of the DGA is conducting many climate change protection works in watercourses, alluvial fans and ravines because of temperature increases, prioritising community protection works. • Adapting to climate change implies carrying out more expensive works for higher flow rates, and it is required that the Ministry of Social Development and Family (MDSF) recognises that future projections should be considered instead of working with the current situation, for example, of the flow rates of the rivers or snow heights. There are also no scientific records of precipitation or flow increases for the next 30 years. It is necessary to know hourly or daily rainfall projections, not just annual ones, and this is not available. • When these variables are considered in the cost–benefit analysis, the projects costs increase, but there are no additional benefits to include in the social evaluation methodologies. • The DGA has established an optimal storage capacity for dams. When this limit is surpassed, excess water must be released. Maintaining this maximum level can have impacts downstream, on drainage and potentially flooding. • The DGA noted that ideally, dams should not release more water than they are receiving in any specific moment. However, water could be proactively discharged before heavy precipitation to create a buffer. This approach carries high risk, both economic (if the water released is too much and insufficient water is left for irrigation or electricity generation) and due to potentially unreliable forecasts, if the precipitation is significantly higher or lower than predicted. • The DGA explained that reservoirs were filled during the first rise in June, leaving no capacity by the second. The reservoir law states that if there was harm due to the government's actions, the government must provide compensation. This makes it difficult for someone to take responsibility afterward. • While protocols exist for the operation of reservoirs, those managed by the treasury often rely on intuition since there are no reliable predictions of what will happen with

	the tributaries in advance. Some reservoirs managed by the DOH dedicate a specific percentage of storage capacity for flood control. • The DGA's Urban Watercourses Division advocates for establishing a framework and scale for risk mitigation measures that leverage nature-based solutions (NbS). They suggest combining traditional hard infrastructure with NbS in certain sectors. Floodable parks are a good and interesting example. • One of the relevant issues is to maintain the natural space of the watercourses. They are used, built on and utilised for productive purposes. But when floods occur, these encroachments are lost. Proactive measures are needed to prevent construction in at-risk areas or removal of existing structures. Relying solely on reactive solutions like constructed defences or riprap that narrow river channels often create problems in other downstream areas. • There is a need to equip urban planners with the knowledge (capacities) to ensure safety before building in flood-risk zones. Unlike Chile's binary risk zone classification, Japan utilises a tiered system. For example, medium-risk areas might require flood-resistant first floors for houses. There could be mixed solutions, such as flood-slowing forests alongside flood-resistant first-floor housing for low-speed floods. • The DGA emphasises two key areas. The first is NbS. It is necessary to determine the appropriate scale for these solutions and identify the institutions best suited to implement them. Probably the Ministry of Public Works may not be the most suitable entity to work on these types of solutions. • The second is related to the effects of climate change. There is agreement on the input factors (average temperature, precipitation) but not on the consequences, such as suggestions to reduce the size of reservoirs. There is a lack of discussion on the output variables. And the places to build dams or walls are scarce; if you put one type of wall, then you cannot put another. The second concern relates to the impact of climate change. While there is agreement on input factors like average temperature and precipitation, there is a lack of consensus on the consequences, such as potential reductions in reservoir capacity. • The lack of robust evaluation methodologies is another critical issue. Existing methodologies are inadequate for assessing both the impact of climate change on reservoir capacity and the effectiveness of NbS. For example, relying solely on average precipitation for reservoir sizing can be misleading. A smaller reservoir might appear sufficient based on this data, but it would not be able to handle a scenario where all the rain falls within a short period. • The entire discussion revolves around protecting people's lives from flooding. All the proposed solutions (better forecasting, reservoir management, NbS, improved urban planning) aim to safeguard human life and well-being.

Ministry or Department	**Ministry of Housing and Urbanism (MINVU)**
Date	12 December 2023
Attendees	• General Directorate of Public Works (DGOP) • Ministry of Housing and Urbanism (MINVU) • Ministry of Social Development and Family (MDSF) • ARRC Pty Ltd (Consultant)
Summary	• A programme for post-disaster reconstruction for MDSF is being implemented, and decrees for reconstruction are being developed. • Several issues could have been avoided by the Ministry of Public Works (MOP). MINVU is currently evaluating the feasibility of rebuilding in the affected areas. Guidance on determining the most appropriate course of action, whether reconstruction or relocation, would be highly beneficial. • DGOP has a legal mandate to protect people from events like floods. • The current MDSF programme does not include a formal relocation process. Therefore, the DGOP must prioritise actions that protect residents in affected areas. The ultimate decision on relocation rests with MINVU, and the MOP acts in accordance with that decision. • Disasters will recur; they cannot be prevented but their risks and consequences can be minimised. Disasters are a recurring threat, and while complete prevention may not be possible, we can significantly reduce risks and minimise the consequences through collaborative efforts. MINVU recognises the need for improved coordination among various ministries and steps have been taken to achieve this. The MOP generally builds infrastructure according to what other ministries or organisations mandate. • Following the workshop, MINVU developed a questionnaire to gather further information. This initiative complements the efforts of the National Service for Disaster Prevention and Response (SENAPRED) on resilient infrastructure development. A challenge identified is the lack of reliable rural drinking water. The reconstruction ordinance mandates that rebuilt structures must meet current standards, including for essential services like potable water. For instance, a house previously lacking running water would be outfitted with this essential amenity during reconstruction. • In rural areas, where the greatest effects of fires and floods generally occur, rural drinking water is an issue since many times it does not function well. This delays the delivery of housing and causes people to live informally. To deliver a house today, water is provided by tanker truck. Unreliable rural drinking water poses a significant challenge in rural areas frequently affected by fires and floods. This lack of basic infrastructure significantly delays housing delivery and forces people into informal settlements. • Should rebuilding efforts prioritise meeting current building codes, even in cases where existing structures lack basic amenities? • Another challenge relates to the recent transfer of responsibility for all rural drinking water systems (APRs) and small sanitary works to the MOP. While the MOP now holds responsibility for these, they lack the necessary resources to manage them effectively. • Security concerns in certain regions further complicate reconstruction efforts. In areas like Araucanía, where territorial conflicts exist, even delivering water by tanker truck requires military escorts. In other regions, contractors are either unwilling to operate

	due to safety risks or significantly inflate their prices to account for these risks. This can lead to project costs tripling compared to safer areas. • MINVU is promoting the development of regulatory plans, while the DGOP is proposing differentiating in those plans areas with different types of risk, flood zones, others with more resistant constructions, etc. • It is difficult to make informed decisions because there are no models to estimate scenarios and to evaluate the outcomes of those scenarios, both economically and socially. So the proposed technical assistance lines could be: o disaster scenario analysis model o cost–benefit analysis methodologies • Incorporate MINVU report where the status of the prioritised territorial planning instruments (IPTs) is stated. • MINVU's risk mitigation methodological guide has been published. • Parks could be designed with enclosed spaces and integrated water tanks that can serve as refuges during natural disasters. Similar principles could be applied to concession rest areas along highways, potentially providing additional shelter and resources during emergencies. Even without explicit regulation, dual-use infrastructure can still be promoted. • The DGOP is exploring how to include dual-use infrastructure in project evaluation methodologies, that is, how to incorporate its value as a benefit of the project. • Another relevant point to discuss or to receive assistance for is how to use public investment in reconstruction zones in order to attract more private investment. • While the response to major disasters has been swift, we are now experiencing floods, mudslides and forest fires each year. This necessitates the assumption that climate change is having a lasting impact. Consequently, regulations and analysis methodologies must be adapted to account for this new reality. There is a need to move away from a case-by-case approach to reconstruction and establish a more standardised process.

Ministry or Department	**Ministry of Social Development and Family (MDSF)**
Date	13 December 2023
Attendees	• General Directorate of Public Works (DGOP) • Ministry of Social Development and Family (MDSF) • AARC Pty Ltd (Consultant)
Summary	• Reconstruction efforts need to go through faster processes. • A significant challenge lies in integrating climate change adaptation into reconstruction methodologies. A gap exists in the form of a lack of consensus on standardised mitigation measures for different types of infrastructure. It would be highly beneficial to develop a comprehensive catalogue of mitigation measures. This would serve as a central resource by compiling best practices and technical recommendations from various existing tools for risk mitigation and disaster response. The catalogue would be useful as a reference guide in building infrastructure such as bridges by providing solutions with resilient design criteria. • MDSF has different types of clients. The mitigation measures catalogue should cater to users with varying levels of expertise. This includes highly skilled professionals working on large-scale projects for municipalities, as well as individuals or communities with limited technical knowledge. • There is a need to improve administrative processes for recovery or reconstruction after natural disasters. Additionally, technical support on risk mitigation for disasters requires attention, with a growing interest in advancing on the climate change front. In collaboration with the Ministry of Housing and Urbanism (MINVU), the MDSF has been looking at tsunami evacuation guides and other guides so as to standardise and generate infrastructure resilient guides.

APPENDIX B. GENERAL ASSESSMENT OF REVIEW CRITERIA

Table B.1. Review criteria: General

Aspects	General assessments
PUBLIC PROCUREMENT	Chile has a specific legal framework consisting of Law No. 19,886 and its related regulations that govern most public procurement activities, with some exceptions for foreign-funded projects, certain property acquisitions and public–private partnership (PPP) infrastructure.
LEGAL SYSTEM RELATED TO PPP	Chile has a well-developed legal framework for PPPs, primarily based on the Law of Public Works Concessions (Law No. 20,410) and supported by supplementary laws, regulations, decrees and a dedicated oversight body (the General Directorate of Public Works Concessions).
ACCOUNTING SYSTEM	Chile has a comprehensive accounting system for both conventional and PPP infrastructure that includes laws governing audits of public spending, budgeting and fiscal responsibility, as well as reporting mandates and oversight mechanisms to ensure transparency and accountability.
TAX LAW	Chile has a tax system that applies to conventional and PPP infrastructure projects, including income tax and value-added tax (VAT), and offers specific tax incentives or exemptions to promote foreign and/or private investment in both the conventional and PPP infrastructure sectors.
DEVELOPMENT STRATEGY	Chile has a comprehensive framework for infrastructure development encompassing both conventional and PPP models. Key points include: • Infrastructure strategies consider medium- and long-term development plans at both central and regional levels. • Laws and best practices encourage stakeholder dialogue, particularly in projects with environmental impacts. • The government aims to attract private investment in infrastructure using a combination of laws, incentives and strategic frameworks. • Infrastructure planning prioritises multi-sector demand forecasts, ensuring projects are necessary and economically viable. • Laws and assessment processes (environmental impact assessment, or EIA) mandate that both public and PPP infrastructure projects prioritise environmental protection, biodiversity conservation and sustainability. • Domestic disaster prevention policies, risk assessment methodologies and strict construction standards ensure infrastructure is built to withstand potential natural disasters.
OPENNESS	Chile's regulatory environment encourages private investment, including foreign direct investment (FDI), in both conventional and PPP infrastructure projects through laws promoting investment, transparency and specific frameworks for PPPs.
TRANSPARENCY	Chile has a working framework that supports transparency, preventing corruption, and managing spending in both conventional and PPP infrastructure projects. Key elements include: • Laws mandate public access to information on project details, budget allocations, spending, procurement decisions, and contracts. • Dedicated electronic platforms (Mercado Público, Concesiones Chile) provide centralised access to project information.

	• Agencies like the Office of the Comptroller General of the Republic audit and report on project spending. • Government bodies – the Budget Directorate (DIPRES) and the Ministry of Public Works – publish comprehensive budget documents and project-specific financial reports. • Laws and regulations exist to prevent unfair competition, corruption, and conflicts of interest.
FISCAL SOUNDNESS	Chile has a detailed framework for fiscal management of both conventional and PPP infrastructure, including: • Laws mandate structural balance targets, fiscal rules and limit public debts, ensuring fiscal responsibility. • Frameworks incorporate capital and recurring expenditures, with project databases prioritising investments based on fiscal availability. • Budget laws, project evaluation systems and PPP guidelines mandate regular cost updates to maintain the reliability of development strategies and manage risks, including contingent liabilities.
STABILITY/SAFETY/ RESILIENCE	Chile has regulations and institutional mechanisms to ensure that both public agencies and private partners involved in infrastructure projects have reliable organisational structures, sufficient human resources and adequate project funding.
LOCAL COMMUNITY	Chile has policies within its laws and project guidelines that promote the use of a local workforce in both conventional and PPP infrastructure projects, to directly benefit local communities through job creation.
ENVIRONMENTAL AND SOCIAL ASSESSMENT	Chile has an existing framework of laws, guidelines and policies to promote sustainable infrastructure development: • Laws mandate EIAs or environmental impact declarations for both conventional and PPP projects with potential environmental effects. • Projects must adhere to environmental quality standards to control pollution and promote sustainability. • The Ministry of Social Development and Family assigns a value to greenhouse gas (GHG) emissions allowing for the monetisation of environmental impacts. • Chile's commitments to international agreements like the Paris Agreement drive the adoption of low-carbon infrastructure in both public and PPP projects.
FUNDS	Chile has an established structure for funding conventional and PPP infrastructure projects: • Funding sources include the National System of Investments with its Project Bank (SNIP), the annual Public Sector Budget Law and regional development funds. • Private companies often fund feasibility studies, with potential government support. Government-backed funds, guarantees and the robust concessions law framework facilitate private investment in PPPs.
STRUCTURE FOR PROJECT PROMOTION	Chile has dedicated organisations that promote infrastructure projects, particularly PPPs, including the Coordination of Public Works Concessions unit within the Ministry of Public Works, and InvestChile, the agency for foreign investment promotion.

OTHERS	Chile has a framework to promote transparency, protect investors, address social needs and prevent corruption in conventional and PPP infrastructure projects: • Laws governing taxes, land acquisition and foreign exchange provide stability. • Policies and surveys like the Chile National Socioeconomic Characterisation Survey (CASEN) help target the needs of vulnerable groups. Laws promote inclusion of people with disabilities and address gender equality. • Laws mandate transparency, criminalise bribery and establish oversight bodies like the Comptroller. The robust Mercado Público portal managed by ChileCompra procurement platform promotes transparent bidding processes.

Table B.2. Review criteria: Project planning

Aspects	General assessments
CONSISTENCY BETWEEN POLICY AND MASTER PLAN	There is a process to evaluate how all infrastructure projects, even those not initially outlined in master plans, contribute to domestic development goals: • Projects must align with the objectives of master plans or demonstrate how they support broader development goals. • Agencies like the Ministry of Social Development and Family evaluate projects to ensure consistency with policies and societal benefits. • If a compelling case exists for a project outside existing plans, the relevant plans or project pipelines can be amended after thorough justification and assessment.
FISCAL SOUNDNESS	Chile's public agencies prioritise infrastructure projects – both conventional and public–private partnership (PPP) infrastructures – in alignment with domestic development strategies and within available fiscal and financial limits, guided by policies, plans and oversight from dedicated institutions.
USE OF EFFECTIVE TECHNOLOGIES	Chile has a framework to encourage the use of effective technologies in infrastructure projects during planning: • Urban planning and construction laws mandate standards that often necessitate modern technologies. • The Ministry of Public Works and its divisions actively promote technological adoption, especially in PPP projects. • Agencies like the National Council for Urban Development (CNDU) and the Innovation Centre in Concessions (CICS) foster innovation and technology integration in infrastructure projects.
PROJECT'S ECONOMIC EVALUATION	Chile employs a process to evaluate and select infrastructure projects based on economic performance and value for money (VfM): • Conventional Infrastructure: The National System of Investments (with its Project Bank) (SNIP) mandates project evaluation using measures like social internal rate of return (SIRR) and comparison of alternatives. Cost–benefit analysis ensures projects deliver net positive social benefits. • PPP Infrastructure: Projects undergo economic viability studies (using the economic internal rate of return, or EIRR) and cost-efficiency

	evaluations. The Ministry of Public Works emphasises selecting projects that offer the best VfM.
ENVIRONMENTAL AND SOCIAL ASSESSMENT CONSIDERATIONS	Chile has an existing framework for considering environmental and social impacts in infrastructure projects, with emphasis on including vulnerable groups: • Environmental laws mandate assessments for both conventional and PPP projects, with provisions for public participation and consultation with Indigenous communities. • The PPP framework also emphasises social considerations, and concession contracts often include specific provisions to address the needs of vulnerable populations.

Table B.3. Review criteria: Feasibility study

Aspects	General assessments
CLARIFICATION OF THE PROJECT'S LEVEL OF ACHIEVEMENT	Chile has regulations and frameworks to ensure infrastructure projects meet required quality standards and achieve desired outcomes: • Mandates for both conventional and public–private partnership (PPP) projects specify adherence to technical specifications and quality standards. • Project guidelines from agencies like the Ministry of Public Works often include quantitative performance indicators for measuring project success.
STABILITY/SAFETY/ RESILIENCE	Chile considers a range of factors to enhance infrastructure resilience in conventional and PPP projects: • Laws and technical standards mandate resilience against natural disasters like earthquakes. • Projects are designed for robustness to ensure sufficient access and functionality during shocks. • Agencies like the National Office for Emergency of the Ministry of the Interior and Public Security (ONEMI or SENAPRED) promote community preparedness protocols for effective infrastructure use during emergencies. • PPP frameworks ensure private partners have adequate financial backing to manage disruptions.
COST-EFFECTIVENESS INCLUDING LCC AND UTILISATION OF MARKETS	Chile's infrastructure development process prioritises affordability assessments and maximising value for both investors and society: • Conventional Infrastructure: Life cycle cost (LCC), including environmental and social impacts, is considered in project evaluation. Willingness to pay is sometimes assessed, especially for projects with user fees. • PPP Infrastructure: Feasibility studies for PPPs comprehensively examine user willingness to pay and affordability. Projects must demonstrate financial viability and broader societal benefits. Chile actively collaborates with multilateral development banks to leverage private investments effectively.
FISCAL SOUNDNESS	Chile has a fiscal management framework for infrastructure projects. The framework requires budget certifications for conventional projects and commercial closure clauses for PPPs, with ongoing monitoring of liabilities and

	contingent liabilities, though multi-year budgeting limitations can pose challenges for future funding commitments.
IMPLEMENTATION OF ENVIRONMENTAL AND SOCIAL ASSESSMENT	Chile has a working framework to assess the environmental and social impacts of infrastructure projects, including risks from climate change: • Environmental laws mandate impact assessments for both conventional and PPP projects with potential environmental effects. • Agencies like the Environmental Assessment Service set measurable environmental and social performance indicators for projects. • Agencies continuously review standards, particularly environmental ones, to ensure sustainability. • Projects must identify and mitigate climate change risks and prioritise the use of existing infrastructure or proactive rehabilitation when possible.
SAFETY CONSIDERATIONS	Chile considers safety, international standards and energy security risks in infrastructure development: • The Chilean Standards (NCh) align with international norms; various NCh standards dictate the use and quality of building materials. Agencies like the Ministry of Public Works and specialised bodies supervise projects for safety compliance. • The Public Works Concessions Law and the Ministry of Public Works ensure PPP projects meet both local and international safety standards. • Laws and ministerial guidelines prioritise a secure energy supply. Project assessments consider energy security risks.
JOB CREATION/ CAPACITY BUILDING AND TRANSFER OF TECHNOLOGIES	Chile has a framework to promote job creation, skill development, equal opportunity and capacity building in infrastructure projects: • The Labour Code sets standards, and laws like the Employment Promotion Law incentivise local hiring. Agencies like the National Service for Training and Employment (SENCE) provide job training programmes. • Laws promote advanced human capital development and agencies like National Commission for Scientific and Technological Research (CONICYT) and the Production Development Corporation (CORFO) support technology transfer and skill development initiatives. • Laws mandate non-discrimination and protect women's rights in the workplace. The Labour Directorate oversees compliance. • For PPP projects, the Public Works Concessions Law indirectly promotes these principles and the Ministry of Public Works monitors compliance.
RISK MANAGEMENT	Chile has a working framework for risk management in infrastructure projects, particularly PPPs: • Conventional Infrastructure: Regulations and guidelines mandate risk identification, with project-specific measures (contractors are typically required to have insurance policies). • PPP Infrastructure: The Public Works Concessions Law requires clear risk identification and allocation in contracts. The Ministry of Public Works ensures fair risk-sharing between public and private sectors.
STUDY ON THE PRIVATE MARKET	Chile's laws promote fair competition in infrastructure projects, but do not explicitly mandate hearings with private entities:

	• Conventional Infrastructure: The focus is on transparent bidding processes, potentially including consultations. • PPP Infrastructure: The laws encourage consultation with the private sector during project design to ensure competitiveness. Environmental assessments often include a public participation phase, providing an avenue for private sector input.
SELECTION OF THE PROCUREMENT METHOD	Chile indirectly emphasises value for money (VfM) principles in PPP infrastructure project procurement, even if the specific term is not explicitly used: • The Public Works Concessions Law and the Ministry of Public Works focus on optimising project LCC, mirroring VfM principles. Feasibility assessments consider a project's overall value proposition to determine if PPP is the most suitable procurement method.

Table B.4. Review criteria: Procurement

Aspects	General assessments
PROCUREMENT IN GENERAL	• Quality Focus: Both conventional and public–private partnership (PPP) projects require technical proposals emphasising quality, not just price. Project contracts often include performance-based elements and quality standards. • Flexibility: Certain projects allow the private sector to propose alternative solutions and improvements, especially within PPPs. Contract modifications are possible. • Risk Allocation: Effective risk allocation is emphasised, especially in PPP contracts, with risk assigned to the party best able to mitigate it. • Areas for Improvement: Explicit use of formalised value for money (VfM) tools could be strengthened. More standardised procedures promoting social inclusiveness in tenders would be beneficial. The evaluation methods should consider resilience enhancement as variables for the selection.
PRE-QUALIFICATION	Chile offers a working framework for evaluating infrastructure project bids, but there is room for improvement in data management and anti-corruption measures: • Conventional Infrastructure: Laws and regulations mandate the evaluation of financial capacity, track record, schedule adherence, cost control and environmental impacts. • PPP Infrastructure: Similar evaluation criteria apply, with seemingly stronger emphasis on past performance and environmental considerations. • Data Management: Chile maintains a National Registry of Contractors, tracking their performance, which likely informs future project bids. A more comprehensive database would enhance analysis. • Anti-corruption: While not explicitly using international lists like the World Bank list, Chile does have systems to ensure bidder eligibility. Further strengthening these measures would be beneficial.
PROPOSAL EVALUATION	Chile incorporates several criteria to select the most advantageous bids for infrastructure projects, but it may lack a formalised VfM approach:

Aspects	General assessments
	• Criteria: Both conventional and PPP infrastructure assessments consider financial capacity, track record, environmental impact and risk management. • PPP Projects: PPP evaluations have more variability, potentially including factors like tariff structure, government subsidies and risk sharing. • VfM: While not explicitly termed 'value for money', laws focus on maximising social returns and government agencies use evaluation methodologies to optimise project benefits. A more formalised VfM approach could be beneficial.
MANAGEMENT OF CONTRACT AND MONITORING	Chile has an operational framework for infrastructure project contract management and includes monitoring mechanisms with penalties and potential incentives: • Conventional Infrastructure: A public inspector oversees contract execution and compliance. • PPP Infrastructure: A fiscal inspector supervises the concession contract, and the Public Works Concessions Law mandates clear service level requirements with penalties for non-compliance. The Ministry of Public Works can require accounting information from concessionaires to monitor their financial status.
MATURITY OF A PROJECT	Chile's Public Works Concessions Law (DS 900) mandates that upon a PPP project's maturity, the infrastructure must be re-concessioned to ensure continuity of operation or, in certain cases, the President may declare an exemption if the project becomes obsolete.

Table B.5. Review criteria: Ex-post evaluation

EX-POST EVALUATION	Chile has mechanisms for ex-post evaluation of infrastructure projects, but there is room to strengthen its systematic use for informing future projects: • The Ministry of Social Development and Family conducts ex-post evaluations analysing project performance against initial projections. • PPP Projects: Concessionaires are mandated to collect data, providing a potential foundation for systematic ex-post evaluations. • Improvement Area: While not explicitly stipulated, the collected data could be more intentionally leveraged to improve future infrastructure project design.

APPENDIX C. DETAILED REVIEW AND CHRONOLOGY OF RELEVANT LAWS, REGULATIONS AND GUIDELINES FOR CONVENTIONAL AND PPP CONTRACT ARRANGEMENTS

GENERAL

Table C.1. General: Public procurement

Criteria	Conventional Infrastructure	PPP Infrastructure
Is there a legal system in place on public procurement?	**Law:** Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o Public procurement in Chile is governed this law and its regulations. o This law applies to all procurement activities of the central government, including infrastructure projects, goods, and services. This includes all ministries, regional governments, municipalities and decentralised public institutions. **Regulation:** Regulation of Law No. 19,886 (Decree No. 250, 2004): o The regulation's scope includes both local- and foreign-funded procurement activities. However, some exceptions are outlined, such as specific international treaties or agreements. The regulation does not apply to the following: - Procurement funded from foreign grants, as they might have their own stipulations. - Procedures established under Law No. 20,410 related to the acquisition of properties for the execution of public infrastructure projects. - 'Public–private partnership infrastructure or development projects' under the Concessions Law (Law No. 20,742), which sets the framework for private entities to finance, design, construct, operate and maintain public infrastructure.	

Table C.2. General: Legal system related to PPP

Criteria	Conventional Infrastructure	PPP Infrastructure
Is there a legal system in place related to PPP?		**Law:** Law of Public Works Concessions (Law No. 20,410, 2010): o Highlights the significant role of the private sector in domestic infrastructure development. o It allows the private sector the opportunity to design, build, operate and maintain infrastructure projects with the oversight and/or financing by the government, fostering public and private collaboration. **Law:** Basic Law on Administrative Contracts for the Execution of Public Works (Law No. 19,886, 2004): o Expands the scope of public agencies that can engage in public–private partnership (PPP) projects. It provides a framework for tendering, awarding and executing public works funded directly with government resources. **Regulations:** Regulations for the Public Works Concession System (Decree MOP No. 900, 1991): o These regulations provide detailed guidance on the execution of the Law of Public Works Concessions, ensuring the transparency of the process, competitive bidding, appropriate risk sharing, and coordination between central and local government entities. **Executive Decree:** DS No. 900, 1996: o The decree is instrumental in designating roles, processes and coordinating mechanisms related to PPP projects in Chile. **Organism:** General Directorate of Public Works Concessions (DGC): This entity is responsible for overseeing and coordinating the PPP projects in Chile, interfacing with various implementing agencies, central government entities, municipalities and other relevant public entities, ensuring quality and adherence to established norms and regulations.

Table C.3. General: Accounting system

Criteria	Conventional Infrastructure	PPP Infrastructure
Is there an accounting system in place?	**Law:** Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o This law governs how public work contracts are tendered, awarded and executed in Chile. It outlines the procedures and guidelines for infrastructure assets. **Law:** Public Sector Budget Law (Law No. 20,640, year variable[53]): o This law, updated annually, provides the general framework for budget allocations and expenditures, including for infrastructure projects. **Guidelines:** The Office of the Comptroller General of the Republic: o Audits public spending, including on infrastructure. Their reports provide detailed oversight and are available to the public.	**Law:** Law of Public Works Concessions (Law No. 20,410, 2010): o This governs the concession framework in Chile, allowing private entities to design, construct, operate and maintain public infrastructure. **Guidelines:** General Directorate of Public Works Concessions (DGC): o This body, under the Ministry of Public Works, supervises the execution and management of concessions. Their website offers a wealth of information about ongoing and future concession projects. **Law:** Law on Fiscal Responsibility (Law No. 20,128, 2006): o This law introduced the concept of contingent liabilities into public accounting, particularly important for PPP projects. Such liabilities refer to potential financial obligations that the government could face, dependent on future events out of its control. For instance, guarantees offered by the government to PPP project sponsors would fall into this category. The law mandates the government to report these liabilities and make provisions for them. **Accounting and reporting**: Integrated System for Financial Reports (SIIF): o This is Chile's integrated financial information system, which tracks public expenditure, including spending on PPP projects. **Guidelines:** Decree No. 1 (2019) of the Ministry of Finance: o This outlines the specific guidelines for public sector accounting, ensuring transparency and standardisation across various agencies and levels of government.

[53] The Chilean Public Sector Budget Law is defined by the congress yearly.

Table C.4. General: Tax law

Criteria	Conventional Infrastructure	PPP Infrastructure
Is there a tax law in place?	**Law:** Income Tax Law (DL No. 824, 1974): o States the rate of income tax to be imposed. **Law:** Public Works Promotion Law (Law No. 19,460, 1996): o Provides incentives for private investment in public infrastructure projects. The incentives might include: o Tax credit mechanisms for specific investments. o Additional deduction for labour expense. o Tax credit for taxes on raw materials – for registered enterprises. o Tax exemptions on imported machinery and tools required for infrastructure projects. **Decree:** DS No. 600 (1974): o This promotes foreign investments in Chile and offers a series of benefits, including tax stability for foreign investors.	**Guidelines:** Ministry of Finance (https://www.hacienda.cl/english): o The current administration periodically reviews public–private partnership (PPP) programmes and tax laws, announcing changes and reforms for implementation. **Law:** Law of Public Works Concessions (Law No. 20,410, 2010): Currently, the Ministry of Public Works supervises PPP infrastructure projects. Incentives provided under this framework may include: o Income tax holiday periods for specific infrastructural projects. o Additional deduction for labour expense. o Tax credit for raw materials for registered enterprises. o Tax exemptions on certain imports required for the infrastructure project. **Other relevant taxes:** Value Added Tax (VAT) (DL No. 825, 1974): o 19% VAT is applicable on sales and services.

Table C.5. General: Development strategy

Criteria	Conventional Infrastructure	PPP Infrastructure
Is the infrastructure development strategy in line with medium- and long-term development strategies at the central and regional levels?	**Plan:** National Infrastructure Plan for Mobility 2020–2050: o This strategic plan focuses on interurban connectivity and mobility. It aims to contribute to the economy's development through sustainable infrastructure, enhancing the welfare and quality of life for all Chileans. By 2050, the plan envisions doubling Chile's GDP in the most economically efficient manner, promoting territorial equity and minimising environmental impact. **Law:** General Law of Urbanism and Construction (DL No. 458, 1976): o This law and its subsequent modifications provide the regulatory framework for urban planning and construction, ensuring that urban development aligns with central and regional priorities.	**Plan:** National Infrastructure Plan for Mobility 2020–2050: o This plan, while focusing on interurban connectivity and mobility, also offers opportunities for public–private partnerships (PPPs) to play a significant role in achieving the envisioned infrastructure milestones. **Law:** Law of Public Works Concessions (Law No. 20,410, 2010): o This law provides the framework for the development of public infrastructure through PPPs. The partnership mechanism ensures that private sector capabilities are harnessed to achieve the medium- and long-term infrastructure goals of the economy. **Strategy:** MOP: o The ministry, through its General Directorate of Public Works Concessions

Criteria	Conventional Infrastructure	PPP Infrastructure
	Strategy: National Urban Development Policy: o A strategy that presents guidelines for urban development in Chile, ensuring that urban growth aligns with the medium- and long-term goals of the economy. **Agency:** Ministry of Public Works (MOP): o The ministry constantly assesses, plans, and executes public works, making sure that conventional infrastructure projects align with domestic development objectives and cater to the needs of both central and regional levels.	(DGC), manages PPP contracts, ensuring that these projects are in line with Chile's broader development strategies and priorities.
Does the project planning include and incorporate dialogues with stakeholders from the early stages of the project?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Article 31 indicates that for certain projects, including conventional infrastructure projects, an environmental impact assessment (EIA) is required. During the EIA process, the public, as key stakeholders, must be consulted. This allows them to voice concerns, provide feedback and participate in the evaluation. **Agency:** MOP (official website and guidelines): o While the ministry does not always mandate direct stakeholder dialogue for all conventional infrastructure projects, it is a common and recommended practice. Engaging with stakeholders early can mitigate potential risks and disputes.	**Law:** Law of Public Works Concessions (Law No. 20,410, 2010): o Articles within this law highlight the importance of transparency and stakeholder involvement. While it does not detail public consultation requirements as thoroughly as environmental laws, it does express the necessity of clarity and ensuring that stakeholders, including potential private partners, understand project goals, risks and rewards. **Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o For PPP infrastructure projects that might have environmental implications, they are also subject to an EIA and subsequent public consultation, as mentioned above. **Guidelines:** Ministry of Social Development and Family (official guidelines on participation and consultation): o Guidelines from this ministry often emphasise the importance of stakeholder involvement, particularly from communities and local entities, for projects with social impacts.
Does the public agency pay attention to attracting private investment and new industries through an infrastructure project?	**Law:** General Law of Urbanism and Construction (DFL No. 458, 1975): o Establishes the framework for urban development and planning. While it does not directly refer to private investments, the orderly planning and zoning can make the economy more attractive for investments.	**Agency:** MOP: o This ministry has a specific role in promoting, planning and supervising PPP projects. Their actions and programmes can directly impact private sector participation. **Guidelines:** Ministry of Finance (https://www.hacienda.cl/english): o The government has emphasised PPPs as a tool to improve efficiency in public service

Criteria	Conventional Infrastructure	PPP Infrastructure
	Strategic framework: National Urban Development Policy: o Outlines the economy's urban development vision, which indirectly can attract private investments by ensuring a robust, coherent, and efficient urban infrastructure. **Government agency:** Production Development Corporation (CORFO): o This is a governmental agency that fosters economic growth and promotes Chilean businesses. Through its various programmes, CORFO incentivises infrastructure investments that can boost specific industries or regions.	delivery and infrastructure development. This inherently seeks to attract private investment. **Strategic framework:** Productivity, Innovation and Growth Agenda (2014): o Launched by the government to foster productivity and innovation. Infrastructure, especially through PPP, is a vital component of this agenda, focusing on fostering conditions to attract private investment in sectors deemed strategic.
Is the infrastructure development strategy based on long-term multi-sector demand forecast?	**Strategy document:** National Plan for Development and Investments in Infrastructure (PNDII): This plan, periodically updated by the Chilean government, seeks to provide a multi-year roadmap for infrastructure development. It outlines priorities based on demand forecasts in sectors like transportation, water, energy, and telecommunications. **Law:** General Law of Electrical Services (DL No. 3,200, 1979): For the energy sector, demand forecasts play a crucial role in planning and infrastructure development. This law mandates the creation and periodic updating of a long-term plan based on projected electricity demand. **Guidelines:** MOP (official website): o The ministry periodically conducts and updates demand forecasts for various sectors under its purview, which includes water, transportation and public works. These forecasts inform infrastructure planning and budget allocations.	**Law:** Law of Public Works Concessions (Law No. 20,410, 2010): For infrastructure projects under PPP, demand forecasting is an essential component. Before the private sector is engaged, the government conducts feasibility studies, including demand forecasts, to ensure the viability and necessity of a proposed project. **Guidelines**: Coordination of Public Works Concessions, MOP (official website): This entity within the Ministry of Public Works provides guidelines and methodologies for conducting demand forecasts, especially for projects that seek private sector participation. **Strategy Document:** Concessions Pipeline (periodically updated): o This is a roadmap for future concession projects. The selection of these projects is based on multi-sector demand forecasts to ensure that PPP projects align with the economy's priorities and emerging needs.
Do the public agency and the private sector pay consideration to the ecosystem and further promote environmentally friendly infrastructure?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Establishes the regulatory framework for environmental protection in Chile. All public and private projects, including infrastructure developments, must evaluate their potential environmental impact before obtaining approval.	**Guidelines:** Law of Public Works Concessions (Law No. 20,410, 2010): o While this law mainly concerns the process of awarding public works to private companies, environmental considerations are inherent as all projects under this scheme still need to comply with environmental laws, notably Law No. 19,300.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Guidelines: Environmental Impact Assessment System (SEIA): o An environmental evaluation system, established under Law No. 19,300, mandates that any significant infrastructure project, be it public or private, undergo an EIA or a more concise environmental impact declaration (DIA) depending on the scale and potential effects of the project. **Agency:** Environmental Assessment Service (SEA): o Responsible for managing the SEIA process and ensuring that infrastructure projects adhere to environmental standards.	**Agency:** MOP: o For PPP projects, the MOP often collaborates with the SEA to ensure that the private sector involved in public works adheres to environmental standards. **Certifications:** Municipal Environmental Certification (CAM): o A voluntary environmental certification promoted by the Ministry of Environment for municipalities. It can influence both public and PPP infrastructure projects at a local level by promoting sustainable and environmentally friendly practices.
Do the public agency and the private sector promote biodiversity conservation and the sustainable management of living natural resources through implementing infrastructure projects?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Establishes the basis for environmental protection in Chile, emphasising sustainable development. It mandates that significant projects, which include infrastructure, undergo an EIA to ensure they do not adversely affect biodiversity or natural resources. **Regulation:** Regulation of the Environmental Impact Assessment System (DS No. 40, 2012): o Specifies the projects and activities that must undergo the EIA. This aims to mitigate negative environmental impacts, which includes preserving biodiversity and sustainable management of resources. **Entity:** SEA: o Responsible for analysing the Environmental Impact Statements and Studies, ensuring that infrastructure projects consider biodiversity conservation and sustainable management of natural resources.	**Law:** Law of Public Works Concessions (Law No. 20,410, 2010): o While primarily focusing on the procedural aspects of concessions, it requires all PPP projects to comply with existing environmental laws and regulations, which include biodiversity conservation and sustainable management mandates. **Guidelines:** MOP guidelines: o The MOP oversees the development of public infrastructure through PPP and requires compliance with the environmental assessment process, ensuring that the projects have minimal impact on biodiversity and promote the sustainable use of resources. **Entity:** SEA: o Similar to conventional infrastructure projects, PPP projects are also subject to scrutiny by SEA. They ensure that the projects adhere to environmental protection norms, focusing on biodiversity and sustainable resource management.
Is there a disaster prevention standard?	**Policy:** National Policy for Disaster Risk Management by the National Office for Emergency of the Ministry of the Interior and Public Security (ONEMI or SENAPRED): o Provides guidelines for disaster risk management, emphasising prevention, mitigation and recovery in the face of various natural threats. The policy aims to strengthen institutions, coordinate	**Policy:** As with conventional infrastructure, the National Policy for Disaster Risk Management by ONEMI (or SENAPRED) is also applicable for PPP infrastructure. PPP projects, especially if funded or supervised by government bodies, would need to adhere to the guidelines and strategies set out in this document.

Criteria	Conventional Infrastructure	PPP Infrastructure
	between them, and enhance society's ability to face and recover from disasters. **Guidelines:** MDS Manual for Complementary Methodology for Disaster Risk Assessment in Public Infrastructure Projects: This manual lays out the methodologies for evaluating disaster risks in public infrastructure projects. This aims to ensure that new infrastructure projects are resistant to potential natural disasters. **Standards:** Chilean Standards (NCh) on seismic resistance: o NCh2369 – earthquake-resistant design of buildings. o NCh2745 – seismic design of industrial structures and systems. o NCh433 – design of construction in seismic zones. These standards are pivotal in ensuring infrastructure resilience, given Chile's location in a seismic zone. **Organisations:** ONEMI (or SENAPRED): Main body responsible for planning, coordinating, and executing activities related to disaster prevention and emergency operations. Ministry of Housing and Urbanism (MINVU): o Works on urban planning, housing and city infrastructure, ensuring compliance with disaster risk management regulations.	**Guidelines:** PPP projects will similarly refer to the MDS Manual for risk evaluation in infrastructural projects, ensuring that private partners are building projects that align with the economy's disaster prevention standards. **Standards:** PPP infrastructure also adheres to the NCh on seismic resistance to maintain the structural integrity and safety of projects. **Regulating body:** General Directorate of Public Works Concessions (DGC) under the MOP: Supervises, regulates and manages PPP contracts, ensuring that they align with the economy's standards, including those pertaining to disaster risk management.

Table C.6. General: Openness

Criteria	Conventional Infrastructure	PPP Infrastructure
Does the current regulatory environment allow for greater openness to private investment, especially foreign direct investment (FDI), in local infrastructure?	**Law:** Foreign Investment Promotion Law (Decree No. 600, 1974): o This law aims to promote foreign investments in Chile. It offers benefits such as tax invariability for a certain number of years, freedom to remit profits abroad, and access to the formal foreign exchange market.	**Law:** Law of Public Works Concessions (Law No. 20,410, 2010): o Encourages the participation of both local and foreign private investors in the financing, construction, operation and maintenance of public infrastructure projects through a concession system. It is an explicit recognition of the benefits of private sector involvement, including FDI, in developing the economy's infrastructure.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Transparency: Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o Ensures public access to information on various aspects of government, including infrastructure projects. While it does not directly promote FDI, it creates an environment of trust and openness, which can indirectly foster private and foreign investments.	**Guidelines:** Treasury (https://www.hacienda.cl/): o The Chilean government has periodically expressed its commitment to improving and expanding the economy's infrastructure through PPP projects. This often includes fostering a conducive environment for FDI. **Transparency:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o This law ensures public access to information, including PPP projects. Such transparency provides greater clarity for foreign investors, ensuring that they have the necessary information about projects, potential risks, benefits and other relevant details.

Table C.7. General: Transparency

Criteria	Conventional Infrastructure	PPP Infrastructure
Is the decision-making for an infrastructure project open?	**Law:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o This law mandates that public acts and resolutions, especially those that affect third parties, be duly published. All acts and resolutions taken by governmental bodies, including those related to infrastructure projects, must be transparent and accessible to the public. **Guidelines:** Council for Transparency (CPLT): o An autonomous body responsible for promoting transparency in public services and ensuring the right of access to public information. Anyone can request information about an infrastructure project, and public entities are obligated to provide it unless there is a justifiable reason to withhold it.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o Specifies that the bidding process for PPP projects must be public. All terms, conditions and decisions related to these bids are to be transparent and based on technical, financial and professional criteria. **Guidelines:** Ministry of Public Works (MOP): o The MOP provides transparency in its PPP projects by publishing all project documentation, bidding conditions, evaluation criteria, and awarded contracts on its official website. Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o As with conventional infrastructure, the transparency law also applies to PPP infrastructure. All information related to the decision-making of PPP projects is to be transparent and open to the public.
Does open access to information entirely cover from the publication of contract opportunities, availability of tender information and documents, information on procurement	**Law:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o This law ensures public access to information related to administrative acts and final resolutions of government bodies. It includes a mandate that such entities must disclose, among other aspects, relevant aspects about the	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law, governing public infrastructure concessions, mandates transparency in the tendering process. It dictates that tender opportunities, accompanying documents, procurement decisions and contract awards be made public.

Criteria	Conventional Infrastructure	PPP Infrastructure
decisions, and publication of contract awards?	contracts they have entered into, whether it is for procurement or other matters. **Guidelines:** Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o Regulates the procedures for procurement and contracting of public works. It requires the publication of tender opportunities, documentation, decisions and contract awards, available at Mercado Público (www.mercadopublico.cl), the procurement platform of the Directorate of Government Procurement and Contracting (ChileCompra).	**Guidelines:** Regulation of the Public Works Concessions Law (DS No. 956, 1997): o This decree further details the procedures and requirements for the tendering process under the PPP model. It emphasizes the importance of transparency, detailing how information should be disseminated, and what details must be made public. The MOP publishes all related information on its official platform. **Platform:** General Directorate of Public Works Concessions (DGC), MOP: o The DGC manages the tender processes for PPP infrastructure projects, and their official website provides access to all relevant information, ensuring transparency throughout the concession process.
Is the public procurement procedure based on international norms such as the Procurement Regulations or Guidelines of Multilateral Development Banks?	**Law:** Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o Establishes general guidelines for public procurement in Chile, aiming to guarantee transparency, equal access and competitiveness. **Guidelines:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o Promotes transparency by ensuring that every Chilean citizen has the right to access information related to administrative acts and resolutions, including those concerning public procurement. Mercado Público portal managed by ChileCompra (DL No. 29, 2004): o A government electronic platform to centralise public purchases. It operates under the principles of transparency, efficiency and free competition. **International reference:** While Chile's public procurement is based on its domestic laws, many principles are in line with the best international practices, including those recommended by Multilateral Development Banks.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law sets the framework for the public-private partnership in infrastructure, detailing how projects should be proposed, evaluated, and awarded. **Guidelines:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o As with conventional infrastructure, this law ensures that every aspect of the PPP projects remains transparent to the public. Regulation of the Concession System (DS No. 900, 1996): o Provides detailed guidelines for the implementation of the PPP projects, emphasising transparency in bidding and awarding processes. **International reference:** While Chile has its domestic framework for PPP projects, it often takes advice from international entities and benchmarks against international best practices. The guidelines and laws take into account standards promoted by organisations like the World Bank, especially when seeking financing or expertise from such institutions.
Are there regulatory mechanism and measures to prevent unfair competition (including corruption,	**Law:** Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o Provides the framework for public procurement processes, ensuring	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o Sets out the legal framework for infrastructure development through public-private partnerships.

Criteria	Conventional Infrastructure	PPP Infrastructure
collusion and nepotism) in infrastructure project procurement?	fairness, competitiveness, and transparency in the bidding process. o Establishes sanctions and disqualifications for companies found to have engaged in corrupt practices. **Guidelines:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o Enforces the right of citizens to access public information, and mandates public bodies to publish certain information on their websites, contributing to a transparent procurement process. o Requires public agencies to disclose information related to procurement processes and contracts. **Platform:** Mercado Público portal managed by ChileCompra: o Chile's electronic procurement system that aims to guarantee transparency, equality of opportunity, and competition in the public market. **Complementary norms:** Administrative Probity Law (Law No. 19,653, 1999): o Seeks to prevent conflicts of interest, and regulate the conduct of public officials, with stipulations against corruption, bribery, and undue influence.	o Specifies transparent procedures for the tendering, awarding, and monitoring of concession contracts, including anti-collusion clauses and strict evaluation criteria for proposals. **Guidelines:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o As with conventional infrastructure, this law enforces transparency in PPP projects and allows public scrutiny of tender processes and contract awards. **Supervisory entity:** MOP: o Through its office for the Coordination for Public Works Concessions, the MOP oversees the proper implementation of PPP infrastructure projects, ensuring that concessionaires comply with the legal and technical specifications set out in the contracts. o Audits and evaluations are routinely conducted to check compliance and identify any instances of unfair competition or corrupt practices. **Complementary norms:** Administrative Probity Law (Law No. 19,653, 1999): o Similarly, for PPP infrastructure, this law helps in ensuring the probity of public officials involved in the concession process, preventing conflicts of interest and establishing sanctions for corrupt behaviour.
Does the public agency transparently report and manage multiyear spending commitments, including the costs of operation and maintenance for infrastructure projects?	**Law:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o Mandates all public agencies to disclose information related to their activities, including budgetary allocations and expenditures. This ensures that multiyear spending commitments and other financial details related to infrastructure projects are made available to the public. **Guidelines:** Law of Bases on Administrative Contracts for the Execution of Public Works (DL No. 1,305, 1975): o Regulates the bidding process for public works contracts, ensuring that the financial aspects of these contracts, including multiyear spending	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o Stipulates that all PPP projects must follow a transparent bidding process. It ensures transparency in the awarding of concessions and the subsequent financial commitments associated with those concessions. **Guidelines:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o As with conventional infrastructure, the Transparency Law mandates all public agencies, including those overseeing PPP projects, to disclose detailed information about their operations and finances.

Criteria	Conventional Infrastructure	PPP Infrastructure
	commitments, are transparent and competitive. **Platform**: Mercado Público portal managed by ChileCompra: o The Chilean government's electronic procurement platform, where all public bids, including those related to infrastructure projects, are posted, providing transparency on the contract terms, bidders and awarded contracts.	**Platform:** Concesiones Chile (under the MOP): o Provides detailed information on various public concession projects, including financial commitments, project status, and awarded companies.
Is all spending on capital projects accounted for comprehensively in budget documents?	**Law:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o This legislation ensures public access to information about the activities of government organs. It mandates all government entities to publish information about their budgets, contracts and other significant activities. **Guidelines**: Public tenders: o The Public Procurement and Contracting Directorate operates the Mercado Público web portal, which is a platform where all public tenders are published, ensuring a transparent process. All details of tenders, including financials, are accessible to the public. **Reports:** Budget Directorate (DIPRES): o Regularly publishes detailed reports on public spending, including capital expenditures on infrastructure projects. These reports are comprehensive and are designed to ensure transparency in the use of public funds. MOP: o Periodically provides reports on infrastructure projects, detailing costs, progress and other relevant information.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o Sets the legal framework for public-private partnerships in infrastructure. This law mandates the publication of all information related to concession contracts, ensuring transparency in the bidding process and the terms of the contract. **Guidelines:** Concession tenders: These are specific tenders for PPP projects, ensuring transparent processes. All details, including financial aspects, are published and accessible to the public. **Reports:** DIPRES: o As with conventional infrastructure, DIPRES also publishes detailed reports on PPP projects. This ensures transparency in both the selection of private partners and the financial arrangements of PPP projects. MOP: o Also provides reports specific to PPP infrastructure projects, detailing expenses, progress, and other relevant data.
Are there measures on preventing corruption, including the adequate supervision and training of staff involved in infrastructure projects?	**Law:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o It ensures public access to information relating to public administration functions and includes obligations for active transparency and sets the framework for making information publicly available.	**Guidelines and regulations:** Law on Public Works Concessions (Law No. 20,410, 2010): o Regulates PPP projects, setting forth transparency requirements in the bidding process. Every step of the tender process is made public, from the initial project draft to the awarding of the concession.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Guidelines and regulations: Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o This establishes the legal framework for the procurement of public works. The process is transparent and competitive, aiming to prevent corrupt practices. Office of the Comptroller General of the Republic: o The oversight institution that audits government accounts and assures that public funds are spent appropriately and transparently. They often release reports on expenditures, including infrastructure projects. DIPRES: o Their reports on public spending, available online, include infrastructure expenditures. It ensures that the public funds allocated for infrastructure projects are transparently used and are consistent with the budgeted amounts. MOP: o It conducts regular reviews and audits of infrastructure projects to ensure they are in line with technical, environmental, and financial standards. **Training and supervision:** The government, through various agencies like the MOP and Contraloría, provides training sessions for staff involved in infrastructure projects, aiming to bolster transparency and adherence to regulations.	Office of the Comptroller General of the Republic: o It also oversees and audits PPP projects, ensuring public funds in such partnerships are transparently and appropriately used. Coordination of Public Works Concessions, MOP: o It is the unit within MOP supervising the development and execution of PPP projects. Regular audits and reviews are conducted to ensure the transparency of these projects. **Training and supervision:** Similar to conventional infrastructure, staff involved in PPP projects undergo specific training to ensure the transparent execution of such projects. The training ensures they are up to date with the latest regulations and best practices.

Table C.8. General: Fiscal soundness

Criteria	Conventional Infrastructure	PPP Infrastructure
Does the public agency establish and observe debt-related fiscal targets and/or fiscal rules applicable to central and regional governments?	**Constitutional and legal framework:** Constitution of the Republic of Chile (1980): o Establishes that only the central government can incur public debt, and any such operation must be authorised by a law passed by the National Congress. Fiscal Responsibility Law (Law No. 20,128, 2006): o This law provides a framework for fiscal policy and promotes transparency, accountability, and responsibility in public finances. It establishes structural balance rules for the central government, considering the economic cycle and the	**Constitutional and legal framework:** Constitution of the Republic of Chile (1980): o As with conventional infrastructure, only the central government can incur debt, and PPP commitments must also be authorised by law. Law on Public Works Concessions (Law No. 20,410, 2010): o Although PPP projects often involve private financing, any fiscal commitments made by the government under these projects need to be in compliance with the overall fiscal rules and targets.

Criteria	Conventional Infrastructure	PPP Infrastructure
	price of copper (important for Chile's revenues). **Agency:** Budget Directorate (DIPRES): o This agency is responsible for the elaboration, administration and control of the domestic budget. It periodically publishes reports on the fiscal situation, and the implementation of fiscal policy, ensuring that the government respects the fiscal targets and rules.	**Agency**: Ministry of Public Works (MOP) and DIPRES: o The MOP supervises PPP projects, but any fiscal implications, commitments, or potential debt arising from these projects are closely monitored by DIPRES to ensure they align with the economy's fiscal rules and targets.
Is there a medium-term fiscal and expenditure framework that includes both capital and recurrent spendings and identifies the fiscal availability for new projects?	**Framework:** Annual Budget Law: o This is an annual law that establishes the government's revenue and expenditure framework, detailing both capital (investment) and recurrent (operational) expenses. **Database**: National System of Investments (with its Project Bank) (SNIP): o This database identifies and prioritises public investment projects. It provides a multi-year perspective on capital expenditures for projects under evaluation or implementation.	**Framework:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law promotes and regulates PPPs, ensuring that PPP projects are fiscally sound and transparent. It establishes mechanisms for project evaluation, ensuring they align with fiscal availability and priorities. **Guidelines:** Treasury: o As part of the medium-term fiscal framework, the Ministry periodically reviews PPP commitments, both capital and recurrent, to ensure they align with fiscal sustainability goals. **Consideration:** Contingent liabilities: o For PPP infrastructure, contingent liabilities can arise from government guarantees or commitments given to private concessionaires. The management of these liabilities is crucial to ensure fiscal sustainability. The Ministry of Finance, through various directives and the Comptroller's office, monitors and manages these potential fiscal costs to mitigate risks.
Does the public agency update the cost of development strategies when changes occur in order to make these strategies more reliable?	**Law and reporting mechanism:** Public Sector Budget Law: o Each year, the Chilean government releases its annual budget law, which reflects the anticipated expenditures for the following year. Changes in costs and updates related to infrastructure projects would typically be reflected here. **Guidelines:** SNIP: o The SNIP is an essential tool to prioritise and evaluate public investment projects. It is designed to ensure efficient use of resources by rigorously analysing and updating costs of projects over time. This ensures that projects with the highest	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law oversees PPP projects. It mandates mechanisms for cost updates and risk assessment, especially if there are significant changes in the project's circumstances that might affect its feasibility or profitability. **Reporting and risk management:** Contingent liabilities: o In the realm of PPPs, there is the concept of contingent liabilities, which represent potential financial obligations that might arise depending on the outcome of a future event. In Chile, these liabilities related to

Criteria	Conventional Infrastructure	PPP Infrastructure
	return on investment are prioritised. When cost changes occur, they are updated in this system to maintain the reliability of development strategies.	PPP infrastructure projects are closely monitored and reported. The rationale is to provide transparency and manage fiscal risks tied to these projects. This ensures that the cost and potential financial liabilities associated with these projects are updated and made more reliable.

Table C.9. General: Stability/safety/resilience

Criteria	Conventional Infrastructure	PPP Infrastructure
Do public agencies and/or private enterprises ensure a reliable organisation and sufficient human resources, together with sufficient project funding?	**Regulations:** Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o Mandates that public infrastructure projects maintain high standards of quality and safety. It emphasises the obligation of public agencies to allocate adequate resources, both financial and human, to ensure project stability and resilience. **Institutional guidelines:** General Directorate of Public Works (DGOP): o This body oversees the proper development of public infrastructure projects. It ensures that agencies have a reliable organisation and adequate human resources. **Budget allocation:** The Chilean government's annual budget, as approved by the Public Sector Budget Law, includes allocations for infrastructure development, ensuring sufficient project funding. This can be compared to international standards to gauge adequacy.	**Regulations:** Law on Public Works Concessions (Law No. 20,410, 2010): o Establishes the legal framework for PPP projects. It ensures that private enterprises have a clear organisational structure, sufficient human resources and adequate funding to guarantee the stability, safety and resilience of infrastructure projects. **Institutional guidelines:** Ministry of Public Works (MOP): o This ministry supervises PPP projects and ensures that private participants meet the required standards of organisation, human resources and funding. **Financial assurance:** Financial Market Commission (CMF): o Regulates and oversees the proper financial backing of private entities in PPP projects, ensuring that they have the necessary funds to guarantee stability and resilience.

Table C.10. General: Local community

Criteria	Conventional Infrastructure	PPP Infrastructure
Are there local policies that ensure the local labour force benefits from job creation?	**Law:** Law on the Bases of Administrative Contracts for the Execution of Public Works (DL No. 1,028, 1976): o While this law primarily dictates how public infrastructure projects are tendered and executed, it implies the use of local resources, including labour, wherever feasible. The main aim is to ensure economic efficiency and generate local employment.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law, which regulates public–private partnerships (PPPs), often results in large-scale projects that require a considerable labour force. While the law does not explicitly mandate the use of local labour, the nature and location of many projects naturally benefit the local labour market.

	Guidelines: Ministry of Public Works (MOP): o The ministry often includes clauses in its contracts that promote or require the use of local labour for infrastructure projects, especially in areas with high unemployment.	**Guidelines:** MOP: o As with conventional infrastructure, clauses that promote or require the use of local labour can be found in contracts for PPP projects. It is beneficial for private entities to employ local labour due to logistical reasons and social considerations, fostering goodwill in the community. **Additional considerations:** Labour Inclusion Law (Law No. 21,015, 2017): o While not exclusive to infrastructure projects, this law mandates that companies with 100 or more employees ensure that at least 1% of their workforce consists of people with disabilities. This helps in increasing the inclusivity of job creation.

Table C.11. General: Environmental and social assessment

Criteria	Conventional Infrastructure	PPP Infrastructure
Are there laws and guidelines in place that stipulate the implementation of an environmental and social assessment for implementing infrastructure projects?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Stipulates that certain projects, activities or industries, due to their characteristics, may cause environmental harm or degrade natural resources. As such, they must be subjected to the Environmental Impact Assessment System (SEIA). o This process may involve either an environmental impact declaration (DIA) for projects with a lesser environmental impact or an environmental impact assessment (EIA) for those with greater potential impacts. **Regulation:** Regulation of the Environmental Impact Assessment System (DS No. 40, 2012): o Defines the types of projects and the specific criteria that require either a DIA or an EIA. Also, it details the procedures, timeframes and requirements for each type of assessment. o Establishes the obligations regarding public participation in the process. **Institution:** Ministry of the Environment and the Environmental Assessment Service (SEA):	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o Stipulates that PPP projects must comply with all applicable environmental laws and regulations. This means that if a PPP project falls within the categories listed in the Environmental Framework Law (Law No. 19,300) or its regulation, it must undergo the SEIA process (either DIA or EIA). o Environmental permits or resolutions resulting from the SEIA process must be secured before initiating the construction of the project. **Institution:** Ministry of Public Works: o While mainly responsible for the technical and financial aspects of PPP projects, it also ensures that environmental evaluations (DIA or EIA) are carried out when necessary.

Criteria	Conventional Infrastructure	PPP Infrastructure
	o The primary agencies responsible for overseeing and implementing the SEIA process, ensuring projects' compliance with environmental regulations.	
Are there policies such as responsible business conduct standards, social and environmental standards (or safeguards) that assist in ensuring costs and risks are appropriately mitigated?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o This law establishes the environmental regulatory framework in Chile, which includes EIAs and DIAs. **Guidelines:** SEIA: o An institution under the Ministry of the Environment responsible for evaluating the environmental impacts of various projects. DIA: o For projects with lesser environmental impacts, a DIA is required. It is a simpler tool than the EIA. EIA: o For projects with significant environmental impacts, a comprehensive EIA is required. **Other relevant guidelines:** Environmental Quality Standards: o These standards dictate permissible levels of pollutants in the environment and are integral in defining the environmental responsibilities of infrastructure projects. **Institutions:** Ministry of the Environment: o The main governmental institution responsible for environmental policies and regulations.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o While this law sets the framework for PPP projects in Chile, any infrastructure project, irrespective of its funding mechanism, is subject to environmental and social assessments through the SEIA. SEIA: As with conventional infrastructure, both DIA and EIA processes apply to PPP projects depending on their environmental impact. **Other relevant guidelines:** Environmental Quality Standards: These standards still apply, dictating permissible levels of pollutants for projects. **Institutions:** Ministry of the Environment: The institution remains the key player in ensuring environmental compliance in PPP infrastructure projects.
Does the public agency promote environmentally friendly infrastructure to realise a low-carbon society?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Sets the foundation for the establishment of the SEIA. It requires the assessment of projects or activities, either public or private, that might cause environmental harm or risk. **Guidelines:** Ministry of the Environment: o Responsible for promoting sustainable development and ensuring the protection of the environment.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o While primarily aimed at fostering PPPs, it indirectly promotes sustainable infrastructure by mandating that projects, even under a PPP model, must comply with all environmental regulations set by the MMA and international agreements. Ministry of the Environment: o Its guidelines for environmental protection are mandatory, regardless of the financing model (public or PPP). Therefore, even PPP

Criteria	Conventional Infrastructure	PPP Infrastructure
	They set guidelines and policies to incorporate environmental considerations into infrastructure projects. Social prices: o The Ministry of Social Development and Family assigns a value to greenhouse gas (GHG) emissions, allowing for the monetisation of environmental impacts and their integration into cost–benefit analyses of infrastructure projects. **Treaties and agreements:** Paris Agreement and Kyoto Protocol: o Chile is a signatory and has committed to reduce GHG emissions to combat climate change. This commitment drives the promotion of low-carbon and environmentally friendly infrastructure. **Others:** Carbon Bond Market: o Though not yet fully operational, there is interest and there are initiatives in Chile to operate a carbon bond market, offering a mechanism for businesses and public agencies to offset carbon emissions.	infrastructure projects must adhere to environmental standards and practices promoted by the ministry. **Treaties and agreements:** Paris Agreement and Kyoto Protocol: o Chile's commitment extends to PPP infrastructure projects. All infrastructure undertakings, whether government-funded or under a PPP model, must align with Chile's goals and commitments under these international agreements. **Others:** Carbon Bond Market: o PPP projects can potentially benefit from the carbon bond market as a way to finance and promote low-carbon infrastructure initiatives.

Table C.12. General: Funds

Criteria	Conventional Infrastructure	PPP Infrastructure
Is there a structure in place for providing funds (e.g., funds for conducting a feasibility study) for infrastructure projects?	**Institution:** National System of Investments (with its Project Bank) (SNIP): o Managed by the Ministry of Social Development and Family, it evaluates, prioritises and provides financing to public investment projects. It is one of the main avenues to secure funding for various types of public projects, including infrastructure. Public Sector Budget Law: o Annually, it determines the amount of resources allocated for public investments, including feasibility studies for infrastructure projects. **Other instruments:** National Regional Development Fund (FNDR): o Provides resources for regional projects, including studies and infrastructure developments.	**Institution:** Ministry of Public Works (MOP): o The MOP has a unit dedicated to PPP projects, which can assist in the feasibility, design and execution of PPP infrastructure projects. **Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o This framework allows private companies to propose and participate in infrastructure projects. The private entity often funds the feasibility study, hoping to recoup their investment and earn a return once the project is operational. However, the law also permits the Government to finance feasibility studies when it deems necessary. **Funding mechanism:** Infrastructure Fund S.A.: o This is a fund created by the Chilean government to finance large-scale

Criteria	Conventional Infrastructure	PPP Infrastructure
		infrastructure projects. It can be used to fund feasibility studies for projects with high social impact.
Is there a structure in place for providing funds necessary for promoting PPP projects and for providing government guarantees?		**Institution:** Coordination of Public Works Concessions, MOP: o This body promotes, manages, and coordinates the granting of concessions for public works to private entities. **Regulations:** Law on Public Works Concessions (Law No. 20,410, 2010): o Provides the framework for public–private collaboration. It allows for private funding in infrastructure projects, where the private entity can operate and monetise the infrastructure for a period before transferring it back to the government. **Guarantee mechanisms:** Infrastructure Fund S.A.: o A government-owned company designed to finance, invest in, or directly or indirectly fund infrastructure projects, including PPP projects. This institution can act as a guarantee, providing greater security for private investors. Government guarantees: o In specific projects under the concessions system, the Chilean government can provide guarantees to ensure the financial stability and feasibility of the project. This can be particularly relevant for large-scale projects or those deemed of strategic importance. Chile's long-standing experience with the concessions system and PPP projects has led to a robust regulatory and institutional framework. Private entities considering investing in Chile's infrastructure can rely on this framework and the various financial and guarantee mechanisms in place.

Table C.13. General: Structure for project promotion

Criteria	Conventional Infrastructure	PPP Infrastructure
Are there organisations in place for promoting infrastructure projects or PPP projects?		Coordination of Public Works Concessions, Ministry of Public Works (MOP): Specifically, the Concession Programme managed by the MOP is responsible for promoting and overseeing infrastructure projects under the public–private partnership (PPP) model. This department ensures that PPPs are well-structured, transparent and

Criteria	Conventional Infrastructure	PPP Infrastructure
		beneficial to both the public and private sectors. InvestChile: o This is the Chilean agency for the promotion of foreign investment. While its main focus is to attract foreign investment, it also actively promotes PPP projects and helps potential investors navigate the Chilean infrastructure sector.

Table C.14. General: Others

Criteria	Conventional Infrastructure	PPP Infrastructure
Is there a system in place for protecting the private sector from arbitrary policies or changes in the system?	**Law:** Income Tax Law (DL No. 824, 1974): o Ensures that the tax obligations and rates for infrastructure projects are clearly established. **Guidelines:** Law of Bases on Administrative Contracts for the Execution of Public Works (DL No. 1,305, 1975): o Sets the general rules and procedures for public contracts, ensuring that all parties involved have clarity regarding their responsibilities and rights. This law brings predictability and security to the private sector participating in conventional infrastructure projects. **Institutional oversight:** Office of the Comptroller General of the Republic: o Provides an independent review and approval of public contracts and ensures that all government actions adhere to the laws, preventing arbitrary decisions or changes. Directorate for Public Procurement and Contracting (ChileCompra): o Ensures transparency, competition, and non-discrimination in public procurement processes. The rules and platform provided by ChileCompra bring clarity and predictability to private sector entities participating in public bids.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o Specifically tailored for public–private partnerships (PPPs), this law establishes the legal framework and procedures for the granting of concessions. It includes provisions that protect concessionaires from arbitrary changes in agreed-upon conditions. For instance, if a concession contract requires modifications, both the public and private entities must agree. **Guidelines:** Concessions contracts: o Each PPP project will have its specific concession contract, which, once approved by the Office of the Comptroller General of the Republic, provides legal certainty and stability for the private sector involved. The contract details the responsibilities, rights and mechanisms for dispute resolution. **Institutional oversight:** Office of the Comptroller General of the Republic: o Similar to conventional infrastructure, for PPPs, the Comptroller General ensures that all agreements and modifications adhere to the laws, offering a layer of protection against arbitrary changes. ChileCompra: o PPPs also benefit from the transparency and competitive rules set by ChileCompra, ensuring that the private sector knows the landscape and that changes to processes are not made arbitrarily.
Is there a system in place relating to land acquisition?	**Law:** General Law on Urbanism and Construction (DL No. 458, 1975): o Provides the legal framework for land use and urban development. It is essential to ensure that land	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o Under this framework, the Government can designate land for infrastructure projects developed in partnership with private

Criteria	Conventional Infrastructure	PPP Infrastructure
	designated for infrastructure conforms to its regulations. **Ministry:** Ministry of National Assets: o This ministry is responsible for managing government-owned land. It oversees the sale, lease, and transfer of government-owned lands, making them available for infrastructure projects when needed. o Law on Property Tax (Law No. 17,235, 1998): Provides the guidelines for the taxation of rural and urban properties, which can be relevant during land acquisitions. **Regulation:** Office of the Comptroller General of the Republic: o Supervises the legality of acts of the administration, including the procurement of lands for public use.	entities. The law also provides the basis for the rights and responsibilities of concessionaires in the acquisition and use of land. **Contracts:** Concessions contracts: o Specific contracts under the Public Works Concessions Law, which lay down the terms and conditions for land use, acquisition and the responsibilities of the concessionaires. **Ministry:** Ministry of National Assets: o In the context of PPPs, this ministry can work in coordination with private entities for the provision or acquisition of lands essential for infrastructure projects. **Regulation:** Office of the Comptroller General of the Republic: o Ensures the legality of PPPs, including those involving land acquisitions and its use for PPP projects.
Is there a system in place relating to foreign exchange?	**Institution:** Central Bank of Chile: o Responsible for managing the economy's foreign exchange regulations. **Regulation:** Chapter XIV of the Compendium of Foreign Exchange Regulations of the Central Bank of Chile: o Governs foreign loans (including those related to infrastructure projects) and requires that foreign debts, depending on the terms and amounts, be reported to the Central Bank. o Establishes conditions under which these operations can be carried out and their relevant registration with the Central Bank. **Law:** Constitutional Organic Law of the Central Bank of Chile (Law No. 18,840, 1989): o Confers autonomy to the Central Bank and establishes its role in maintaining the stability of the currency.	**Institution:** Central Bank of Chile and Budget Directorate (DIPRES): o While the Central Bank oversees foreign exchange regulations, DIPRES is in charge of evaluating and endorsing public investment projects, including those under PPP, and their financing structures which may involve foreign exchange considerations. **Guideline:** Law on Public Works Concessions (Law No. 20,410, 2010): o Under this framework, if foreign investment is involved, the associated foreign exchange transactions need to align with Central Bank regulations. **Regulation:** Chapter XIV of the Compendium of Foreign Exchange Regulations of the Central Bank of Chile: o Any foreign investment or loan associated with PPP projects would fall under this regulation, which details the obligations regarding foreign debts and investments.
Are there policies and systems in place taking account of the poor, the socially	**Guidelines:** Chile National Socioeconomic Characterisation Survey (CASEN): o Conducted by the Ministry of Social Development and Family. It is a primary tool for measuring and	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o While primarily focused on the legal framework for PPP projects, there is an implicit understanding that all infrastructure

Criteria	Conventional Infrastructure	PPP Infrastructure
vulnerable, the gender gap, etc.?	analysing socioeconomic conditions in Chile. The results often guide policies aimed at addressing poverty, social vulnerability, and other related issues. Labour Inclusion Law (Law No. 21,015, 2017): o Requires both public and private organizations with over 100 employees to ensure that at least 1% of their workforce comprises people with disabilities. **Institutions:** Ministry of Social Development and Family: o Oversees various programmes and initiatives to support the socially vulnerable, including children, seniors, and individuals with disabilities. Ministry of Women and Gender Equity: o Promotes gender equality and women's rights across various sectors, including infrastructure development. Their initiatives aim to incorporate a gender perspective in public policies, ensuring equal opportunities for all.	projects should adhere to broader Chilean social and gender policies. This ensures that projects do not marginalise vulnerable groups or perpetuate gender inequality. Gender Mainstreaming in Public Policies: o The Ministry of Women and Gender Equity collaborates with various sectors, including infrastructure, to ensure that gender mainstreaming is integrated into policies, strategies, and practices. **Institutions:** Ministry of Social Development and Family: o Works alongside other ministries, including those responsible for infrastructure, to ensure that PPP projects incorporate social perspectives and benefit the wider community, especially the vulnerable. Ministry of Women and Gender Equity: o Collaborates with different sectors, pushing for the integration of a gender perspective in all aspects of public and private endeavours, including PPP infrastructure projects.
Are there laws and guidelines in place for preventing bribery and corruption?	**Law:** Law No. 20,393 (2009): o This law establishes the criminal liability of legal entities for the crimes of money laundering, financing of terrorism, and bribery. Companies involved in infrastructure projects are required to adopt prevention models to mitigate these risks. **Guidelines:** Law of Transparency and Access to Public Information (Law No. 20,285, 2008): o Ensures public access to information concerning administrative acts, ensuring transparency and minimizing opportunities for corrupt practices. ChileCompra: o Established by the Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003). It dictates the rules, principles and procedures for public procurement, ensuring transparency and equal opportunities for bidders.	**Law:** Law No. 20,393 (2009): o As with conventional infrastructure, this law establishes the criminal liability of legal entities involved in PPPs for specific crimes including bribery, mandating them to adopt risk prevention models. **Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o Regulates the concession contracts for public infrastructure, establishing principles of transparency, competition and equal treatment of bidders. ChileCompra and Law No. 19,886 (2003): o Even for PPPs, this procurement system and the associated law ensure transparency in the procurement processes for infrastructure projects. **Oversight:** Office of the Comptroller General of the Republic: o Monitors and audits PPPs to ensure legal compliance and prevent corrupt practices.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Oversight: Office of the Comptroller General of the Republic: o Audits and oversees government spending and projects, ensuring that they adhere to the established legal framework and are free from corrupt practices. **Law:** Law No. 20,393 (2009): o As with conventional infrastructure, this law establishes the criminal liability of legal entities involved in PPPs for specific crimes including bribery, mandating them to adopt risk prevention models.	

PROJECT PLANNING

Table C.15. Project planning: Consistency between policy and master plan

Criteria	Conventional Infrastructure	PPP Infrastructure
Are the current projects specified in the master plan and infrastructure development plan?	**Master plans and development plans:** National Infrastructure Plan for Mobility 2020–2050: o The Ministry of Public Works (MOP) has launched this comprehensive plan which is expected to guide Chile's infrastructure developments, focusing on mobility, over a 30-year period. This plan identifies specific projects, investments, and priorities to enhance transportation and connection across the economy. Technical Secretariat for Transport Infrastructure (SECTRA) Master Plans: o SECTRA periodically releases master plans outlining the economy's long-term objectives in transport and telecommunications. These master plans detail major infrastructure projects that aim to improve urban and inter-regional connectivity. Government-owned Railways Company (EFE) Master Plans: o EFE regularly establishes and updates strategic development plans specifying rail infrastructure projects, aiming to expand and modernise the domestic railway network. **Consistency with projects:** In general, projects initiated under the umbrella of the MOP and other agencies are designed to align with the long-term	**Master plans and development plans:** National Infrastructure Plan for Mobility 2020–2050: o This also encompasses projects under PPP frameworks, ensuring that there's a cohesive vision for both publicly and privately funded initiatives. Concessions Project Pipelines (Coordination of Public Works Concessions, MOP): o The MOP, through its concessions coordination unit, maintains a pipeline of infrastructure projects that are planned to be executed under the PPP model. This pipeline is a dynamic list, which provides a transparent overview of upcoming projects that private investors might be interested in. **Consistency with projects:** The PPP model in Chile is recognised for its transparency and rigorous planning. Projects selected for the PPP framework typically fit within the economy's larger development strategy and are identified as key priorities. This ensures that there is a consistent alignment between policy, master plans, and actual infrastructure projects.

Criteria	Conventional Infrastructure	PPP Infrastructure
	goals and visions outlined in these master plans and infrastructure development plans. However, specific projects and their timing can be influenced by budget constraints, changes in government priorities and other unforeseen challenges.	
In case the current projects are not specified in the master plan or the infrastructure development plan, has it been confirmed that the project will contribute to achieving the objectives of policies or goals?	**Plan:** National Infrastructure Plan for Mobility 2020–2050: o Any infrastructure project, even if not explicitly mentioned in this plan, must align with its objectives and vision. This ensures that projects contribute to the overarching goals of improved mobility, sustainability, and economic development. **Guidelines:** MOP: o The MOP regularly releases various sector-specific master plans. It is mandatory for any project under the conventional infrastructure to comply with these master plans or, in case they fall outside their scope, to demonstrate how they support the broader objectives laid out by the ministry. **Evaluation:** Ministry of Social Development and Family: o Through the National System of Investments (and its Project Bank) (SNIP), it ensures that all public investment projects, regardless of their financing source, are technically feasible, socially profitable and consistent with government policies and plans.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o While this law provides the framework for PPP projects, it also mandates that any project, even if not explicitly detailed in the master or infrastructure plans, should align with the economy's objectives and its overall vision of infrastructure development. MOP's concessions pipeline: o The MOP maintains a pipeline of concession projects, which provides a roadmap for the private sector on upcoming PPP opportunities. While these projects usually are aligned with master plans, any project that is not explicitly mentioned is subject to rigorous evaluation to ensure it contributes to the broader goals of the economy's infrastructure development. **Evaluation:** Ministry of Social Development and Family: o Just like for conventional infrastructure, the SNIP plays a crucial role in evaluating and ensuring that all PPP projects, even those outside master plans, align with domestic policies and contribute to societal welfare and development.
In case the current project is not specified in the master plan or the infrastructure development plan, have necessary measures been taken such as the amendment of the master plan or the infrastructure development plan?	**Reference plan:** National Infrastructure Plan for Mobility 2020–2050: o Before any conventional infrastructure project progresses, it should ideally align with the vision laid out in this plan. If a project is not specified in this plan or any other relevant master plan, it requires consultation and possible amendments to ensure alignment. **Procedure:** MOP: o The MOP oversees the inclusion of new projects into existing plans. The need for infrastructure must be justified, evaluated, and then integrated into ongoing strategies. Depending on the scale and nature of the project, public	**Reference plan:** Concession Projects Pipeline: o This document outlines the vision and specifics for infrastructure projects planned to be developed through PPP. Any project not specified here would typically need a rigorous justification process, and possibly, an amendment of this pipeline. **Procedure:** General Directorate of Public Works Concessions (DGC) under the MOP: o This entity manages the PPP framework. For a project not listed in the current pipeline to be considered, it must be presented to, evaluated and approved by the DGC. The feasibility, potential social and economic impacts, and alignment with domestic goals and policies will be assessed.

Criteria	Conventional Infrastructure	PPP Infrastructure
	consultations and assessments might be necessary. **Additional documents:** Other infrastructure plans by the MOP: o Besides the primary plan mentioned above, the MOP periodically releases other strategic documents and updates that guide infrastructure development in various sectors, including transport, water resources and public buildings. It is crucial to cross-reference these to ensure a project's viability and relevance.	**Considerations:** Financial and social impact studies: o For a PPP project not initially specified in the master plan or the pipeline, thorough financial and social impact studies must be conducted to ensure its viability and the benefits it offers to the public.

Table C.16. Project planning: Fiscal soundness

Criteria	Conventional Infrastructure	PPP Infrastructure
Does the public agency prioritise projects in the context of development strategies and within the available fiscal and financing envelopes?	**Guidelines:** National Urban Development Policy: o This document provides a blueprint for urban development in Chile and prioritises projects based on urban growth and transformation demands. Public agencies refer to this policy when considering and prioritising infrastructure projects. **Institutional body:** Ministry of Social Development and Family: o Through National System of Investments (and its Project Bank) (SNIP), this ministry assesses and prioritises public investment projects, ensuring they align with domestic development goals and available fiscal resources.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law provides the regulatory framework for public–private partnerships) (PPPs. It requires that the Ministry of Public Works (MOP) assess and prioritise projects not only based on their feasibility but also how they align with broader development strategies and fiscal capacities. **Institutional body:** Coordination of Public Works Concessions, MOP: o This body within the MOP evaluates and prioritises private initiatives and projects proposed under the PPP framework, ensuring they fit within the economy's broader development plans and are fiscally sound. **Guidelines:** National Sustainable Infrastructure Plan 2018–2028: o This plan guides the development, prioritisation and execution of PPP infrastructure projects, ensuring they support Chile's long-term sustainable development goals and adhere to available fiscal and financing limits.

Table C.17. Project planning: Use of effective technologies

Criteria	Conventional Infrastructure	PPP Infrastructure
Are effective technologies appropriately embedded into infrastructure projects during	**Law:** General Law on Urbanism and Construction (DL No. 458, 1975): o This establishes the legal framework for urban planning and building regulations. It does not directly address	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law encourages the incorporation of advanced technologies by allowing concessionaires to propose innovative

Criteria	Conventional Infrastructure	PPP Infrastructure
the planning phase?	the use of technologies but sets standards that implicitly require the use of modern techniques and practices to meet. **Guidelines:** Regulation of the General Law of Urbanism and Constructions (DS No. 47, 1992): o It defines how urban projects should be developed and includes provisions for the use of technologies that guarantee safety, sustainability, and efficiency. Ministry of Public Works (MOP): o Through various departments and divisions, it mandates the use of certain technologies, especially in areas like road construction, hydraulic works, etc., to ensure projects meet international standards. **Institution:** National Council for Urban Development (CNDU): It provides recommendations on urban policies, many of which emphasise the use of advanced planning and construction technologies.	solutions and technologies in their bids. The most economically advantageous bid often includes the use of effective and efficient technologies. Coordination of Public Works Concessions, MOP: o This body oversees PPP projects, promoting the use of new technologies, both for project execution and operation. **Institution:** Innovation Centre in Concessions (CICS): o It is dedicated to the promotion of innovative technologies and practices in PPP infrastructure projects. It serves as a platform for knowledge exchange and encourages the integration of the latest technologies in infrastructure planning.

Table C.18. Project planning: Project's economic evaluation

Criteria	Conventional Infrastructure	PPP Infrastructure
Is it stipulated that the project's economic performance be quantitatively measured using measures such as economic internal rate of return (EIRR)?	**Guidelines:** National System of Investments (and its Project Bank) (SNIP): o Governed by DS No. 955 of 1980. All public projects requiring financing, whether from the domestic budget or external sources, need to be evaluated and approved through the SNIP. o Social evaluation of projects: Public projects are mandatorily evaluated using methodologies that calculate the social internal rate of return (SIRR), which is akin to the EIRR but focuses on societal impacts. This assessment is essential to ensure project feasibility and viability. o Social discount rate: Projects within the SNIP framework use a social discount rate, which as of the latest guidelines, stands at 6%. This rate is utilised to discount the projected benefits and costs over time to present values. **Institution:** Budget Directorate (DIPRES): o Responsible for the evaluation of public investment projects, ensuring they are	**PPP social measures**: o Public–private partnership (PPP) projects need to ensure that they provide value for money, and their economic viability is usually assessed using measures such as EIRR. This measure, in the context of PPPs, assesses the returns from the perspective of the private sector equity holders. o Cost-efficiency evaluation criteria: Within the PPP framework, there is an emphasis on ensuring that the project is not only economically viable but also cost-efficient, comparing different means of achieving the same ends. **Institution**: Ministry of Public Works (MOP): o Oversees and evaluates PPP infrastructure projects, ensuring their alignment with the economy's goals and economic viability.

Criteria	Conventional Infrastructure	PPP Infrastructure
	consistent with the government's objectives and provide a positive net present value when evaluated at the social discount rate.	
Is it stipulated that alternatives be considered and the better method adopted through comparing economic performance?	**Guidelines:** The SNIP: o The SNIP, managed by the Ministry of Social Development and Family, sets out guidelines for the appraisal, evaluation and approval of public investment projects. o Within the Social Project Evaluation framework, projects must undergo a rigorous cost–benefit analysis to ensure they deliver net positive social benefits. o Alternatives are required to be considered and the project with the best economic performance, in terms of net present value (NPV) and internal rate of return (IRR), should be adopted. Social Project Evaluation Manual: o This document provides in-depth guidance on how to undertake social evaluation, including comparing alternatives using cost-effectiveness and cost-benefit analysis criteria.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o PPP projects, overseen by the MOP, require an economic viability study to ensure they provide value for money. o The law stipulates that proposed projects should consider alternatives, and the option with better economic performance should be selected. **Guidelines:** PPP Programme Framework, MOP: o The guidelines specify the methodologies to be adopted for project appraisal, including comparing the economic performance of different project alternatives. o The framework mirrors several SNIP principles, emphasising cost-efficiency and cost–benefit analyses, to ensure projects undertaken under the PPP scheme deliver optimal value to the public.
Is project selection based on value-for-money assessments?		For PPPs in Chile, there is not a direct application of value for money or the public–private comparator. Instead, Chile uses a mechanism called Standard Evaluation of Concessions. This evaluation focuses on ensuring the financial sustainability of the project and seeks to guarantee that the tendered project can be awarded and executed under the proposed conditions. This process involves an evaluation of the project's costs, the expected demand, financing mechanisms and potential revenues. **Reference:** Coordination of Public Works Concessions, MOP: This department is responsible for the standard evaluation of concessions, and their methodology and guidelines are available on the MOP's official website.

Table C.19. Project planning: Environmental and social assessment considerations

Criteria	Conventional Infrastructure	PPP Infrastructure
Are considerations of environmental and social assessment stipulated?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Stipulates that projects that may cause environmental harm must undergo an environmental impact assessment (EIA)	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o Stipulates that public–private partnership (PPP) projects, like any other project, must comply with environmental regulations,

Criteria	Conventional Infrastructure	PPP Infrastructure
	or an environmental impact declaration (DIA). **Regulation:** Regulation of the Environmental Impact Assessment System (DS No. 40, 2013): o Provides the specifics of how the EIA and DIA processes should be carried out, including public participation and indigenous consultation when applicable. **Institution:** Environmental Assessment Service (SEA): o The government agency responsible for evaluating and overseeing the EIA and DIA processes for infrastructure projects.	which often includes undergoing an EIA or DIA. **Regulation:** Regulation of the Environmental Impact Assessment System (DS No. 40, 2013): o As with conventional infrastructure, PPP projects must adhere to the standards set out in this regulation, including social considerations like public consultations. **Institution:** Ministry of Public Works (MOP): o Oversees the development and management of PPP projects, ensuring compliance with environmental and social regulations. **Additional consideration:** Consultation with Indigenous Communities: o Based on the Indigenous Law (Law No. 19,253, 1993) and international agreements like International Labour Organization (ILO) Convention 169, specific projects that may affect Indigenous territories or resources must conduct consultations with the relevant Indigenous communities.
Does the project design, delivery and management consider the needs of all people, especially those who experience vulnerabilities, including women, children, displaced communities or individuals, those with disabilities, Indigenous groups and poor and marginalised populations?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Requires an environmental impact assessment for projects that may cause environmental harm. This assessment process considers the needs and opinions of the affected communities, ensuring their involvement in the decision-making process. **Guidelines**: SEA: o Evaluates projects based on their social and environmental impact, ensuring that vulnerable groups are considered. **Indigenous communities:** Indigenous Law (Law No. 19,253, 1993): o Aims to promote, protect and ensure the development of Indigenous people, their cultures and communities. Any project that affects their lands or rights requires consultation. **Inclusion of vulnerable groups:** National Urban Development Policy: o Advocates for urban integration, taking into account the diverse needs of all inhabitants, especially the most vulnerable, when designing and executing infrastructure projects.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o Ensures that projects developed under the PPP scheme adhere to the environmental and social criteria outlined by the Law on General Bases of the Environment and the Indigenous Law, thereby ensuring the rights and concerns of vulnerable populations are addressed. SEA: o Projects under the PPP model that have potential environmental and social impacts also require evaluation by the SEA to ensure that the needs of vulnerable groups are adequately considered. **Indigenous communities:** Indigenous Law (Law No. 19,253, 1993): o As with conventional infrastructure, PPP projects that affect Indigenous lands or rights also require consultation under this law. **Inclusion of vulnerable groups:** Concession contractual obligations: o PPP contracts often have clauses that mandate consideration for vulnerable groups, ensuring their needs are addressed throughout the project life cycle.

FEASIBILITY STUDY

Table C.20. Feasibility study: Clarification of the project's level of achievement

Criteria	Conventional Infrastructure	PPP Infrastructure
Is it stipulated that the project's level of achievement be clarified through the following elements? - Is the minimum required level stipulated in accordance with relevant laws and regulations? - Are specific levels of achievement identified using quantitative indicators?	**Regulation:** Regulations of the Law of Administrative Contracts for the Execution of Public Works (DL No. 75, 2004 – MOP): o Stipulates that the execution of public works, in terms of quality and compliance, must adhere to the technical specifications set out in the project. This assures that the minimum required levels, as per legal obligations, are met. **Institutional guidelines:** General Directorate of Public Works (DGOP): o It is common for this entity to specify quantitative indicators for the project's achievements, especially in terms of quality assurance, timely delivery and other technical parameters.	**Regulation:** Law on Public Works Concessions (Law No. 20,410, 2010): o The law requires that all public–private partnership (PPP) contracts specify the technical and quality standards that the private party must meet in the development of infrastructure projects. **Institutional guidelines:** Ministry of Public Works (MOP): o Within the context of PPPs, the MOP usually details in their tender documents the levels of achievement that a project must meet. This includes quantitative indicators like capacity levels, service standards, performance metrics and other benchmarks to gauge the project's success. **Feasibility studies:** Coordination of Public Works Concessions, MOP: o Feasibility studies conducted for PPP projects typically lay out both the minimum required standards and the quantitative indicators for assessing the project's level of achievement. These studies are vital for prospective bidders to understand the expectations and framework they need to work within.

Table C.21. Feasibility study: Stability/safety/resilience

Criteria	Conventional Infrastructure	PPP Infrastructure
Are resilience considerations incorporated into decision-making in an infrastructure project?	**Law and regulation:** Law on General Bases of the Environment (Law No. 19,300, 1994): o All major infrastructure projects need an environmental impact assessment (EIA) or a simpler environmental impact declaration (DIA), which requires considerations of resilience, especially in relation to climate change and potential natural disasters. **Guidelines**: Ministry of Public Works (MOP): o For conventional infrastructure projects, the MOP has guidelines that promote the inclusion of resilience considerations, especially for infrastructure prone to natural disasters such as bridges, dams, and highways.	**Law and regulation:** Law of Public Works Concessions (Law No. 20,410, 2010): o In the concession model, resilience considerations are mandatory. The concessionaire usually bears the risk of the infrastructure's operation, so resilience against natural disasters and other interruptions is a key factor in project feasibility. **Guidelines**: MOP: o The MOP ensures that PPP projects incorporate resilience in their design, construction and operation phases. This is especially crucial given that many of these projects operate under long-term contracts, making resilience against future uncertainties paramount.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Other relevant standards: Chilean Standards (NCh): o These are a set of standards developed for various industries and sectors, some of which pertain to the structural safety and resilience of infrastructures against earthquakes, floods and other natural events. Chile is in a seismic zone, so many of these standards are designed with resilience in mind.	**Other relevant institutions:** National Office for Emergency of the Ministry of the Interior and Public Security (ONEMI or SENAPRED): o ONEMI (or SENAPRED) provides guidelines and resources to enhance the resilience of both conventional and PPP infrastructure, particularly in areas prone to natural disasters.
Does the public agency consider resilience with a range of factors such as the robustness of a particular asset, e.g., sufficient access to infrastructure in the event of a shock, community preparedness and adequate financial strength?	**Regulation:** General Law of Urbanism and Construction (DL No. 458, 1975): o It establishes a set of regulations to ensure that infrastructure is developed with adequate standards of safety, robustness and resilience. o Sets the stage for various urban and infrastructural developments to consider factors like natural disaster risks, which indirectly address resilience. **Guidelines:** Technical Standard for Seismic Resistant Design and Construction (NCh 433.Of96 mod. 2009): o It mandates the consideration of the robustness of infrastructure against seismic events. o Ensures that structures have sufficient resilience to withstand earthquakes, given Chile's location in a seismic zone. **Institutional framework:** ONEMI or SENAPRED: o This entity provides guidelines on community preparedness and emergency response to ensure that the community can efficiently use infrastructure during and after a crisis.	**Regulation:** Law of Public Works Concessions (Law No. 20,410, 2010): o While the primary focus is on the financial and operational aspects of the concessions, there is an implicit expectation that the infrastructure developed under PPP is resilient and robust. o Concessionaires must guarantee the maintenance and proper functioning of the infrastructure throughout the concession period, which by default requires considerations of resilience against potential shocks. **Guidelines:** Technical Standard for Seismic Resistant Design and Construction (NCh 433.Of96 mod. 2009): o Just like in conventional infrastructure, PPP infrastructure must also adhere to these seismic resistance standards. **Institutional framework:** Coordination of Public Works Concessions, MOP: o This branch of the MOP ensures that the PPP contracts incorporate sufficient measures for the robustness, resilience and safety of the infrastructure. It also ensures that the private partner has adequate financial strength and guarantees in place to address any exigencies.

Table C.22. Feasibility study: Cost-effectiveness including LCC and utilisation of markets

Criteria	Conventional Infrastructure	PPP Infrastructure
Are life cycle costs (total cost of ownership to build, maintain, operate) over the anticipated life of an infrastructure	**Guidelines:** Social Project Evaluation Manual[54] from the Ministry of Social Development and Family: o This manual is a reference in Chile for the evaluation of public investment projects. It guides how to calculate the net	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law specifies that for infrastructure to be developed under a public–private partnership (PPP) model, a complete feasibility study must be presented which

[54] In Chile, the term 'social evaluation' is used to describe an economic cost–benefit analysis.

Criteria	Conventional Infrastructure	PPP Infrastructure
facility (including the direct financial costs and the environmental, social and economic costs) estimated?	present social value (VPS) of a project, which requires considering life cycle cost (LCC), including direct financial costs and indirect costs such as environmental and social impacts. **Institutions:** Budget Directorate (DIPRES): o It supervises the preparation and evaluation of public investment projects. DIPRES requires that all public projects, including infrastructure ones, present a feasibility study which should include LCC estimates. **Laws and regulations:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Requires an environmental impact assessment (EIA) for significant projects, which will often include estimations of environmental costs over the life of the project.	includes all foreseeable costs over the life of the concession. This inherently includes LCCs. Coordination of Public Works Concessions, Ministry of Public Works (MOP): o This unit under the MOP sets guidelines and templates for the preparation of feasibility studies for PPP projects, emphasising the importance of full LCC assessments. **Laws and regulations:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Even for PPP projects, if an infrastructure poses significant environmental impacts, it requires an EIA, which should factor in the environmental costs over the life cycle of the infrastructure.
Does the public agency implement affordability assessments including users' ability and willingness to pay in case the cost of the PPP may be fully or partly recovered by user charges?		**Guidelines:** Technical Secretariat for Transport Infrastructure (SECTRA): o SECTRA routinely conducts studies and assessments related to transport infrastructure. These assessments usually consider market demand and the willingness to pay, but they are often more general in their nature and focus on macro-level data. MOP: o For large-scale conventional infrastructure projects, while the primary focus is on budget allocation and feasibility, aspects of user charges and willingness to pay might also be taken into consideration especially when there is a partial recovery mechanism in place. **Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o The law outlines the overall structure of how PPPs operate in Chile. In the case of PPP projects, especially those related to transport infrastructure like roads and airports, an extensive feasibility study is conducted. This includes an analysis of user willingness and ability to pay, especially when the infrastructure is expected to recover its cost via user fees or tolls.

Criteria	Conventional Infrastructure	PPP Infrastructure
		SECTRA: o It plays a critical role in PPP transport projects, particularly for roads and airports. They conduct specific studies to gauge market demand and determine user willingness to pay. Their findings are pivotal in shaping the user fee structure for such projects. Ministry of Transport and Telecommunications: o This ministry might also be involved in certain PPP projects, particularly those related to transport infrastructure. They would typically work in tandem with SECTRA to ensure that the proposed user fees are in line with market demand and public affordability.
Is value-for-money of investment projects carefully assessed using a combination of quantitative (such as cost/benefit analysis) and qualitative tools that seek to establish the return on investment to investors and society?		**Guidelines:** MOP: o While the term 'value for money' might not be commonly used in the Chilean context for PPPs, the principle behind it is embedded in the evaluation process. The MOP, through the concessions system, ensures that PPP projects are not only financially viable for investors but also beneficial for the public. This evaluation is made through rigorous financial models and feasibility studies. Law on Public Works Concessions (Law No. 20,410, 2010): o It emphasises that PPP projects must provide benefits to both the private sector and the general public. This law implies that a project should not only be beneficial from a financial perspective but should also serve the broader interests of society.
Is cooperation with the multilateral development bank (MDB) and other development partners and mobilisation of private funds considered in order to use limited available equity effectively and with a high degree of leverage?		**Cooperation and guidelines:** MOP: o Under the PPP framework, Chile actively seeks cooperation with MDBs to leverage private investments. MDBs often provide project guarantees or act as transaction advisers to enhance the attractiveness of projects to private investors. The Law on Public Works Concessions (Law No. 20,410, 2010): o Encourages the leveraging of private investments. While it does not specifically mention MDBs, in practice, MDBs support comes in the form of risk mitigation, technical assistance or direct financing.

Criteria	Conventional Infrastructure	PPP Infrastructure
		Private fund mobilisation: Coordination of Public Works Concessions, MOP: o The unit is tasked with promoting PPP projects, and they often work in coordination with private funds, institutional investors and MDBs to ensure project viability and effective equity use.

Table C.23. Feasibility study: Fiscal soundness

Criteria	Conventional Infrastructure	PPP Infrastructure
Does the public agency ensure that funding is available in the budget throughout the project implementation phase?	Yes. Within the National System of Investments (and its Project Bank) (SNIP), projects must have a Certificate of Budget Availability before they can progress to the execution stage. This certificate ensures that funds are allocated and available in the public budget, aligning with annual budget laws that guarantee funding availability throughout the project implementation phase.	For PPP projects, the requirement is slightly different; the bidding documents must include a Commercial Closure clause that guarantees financing for the capital expenditure (CapEx) phases of the project. This ensures long-term funding commitments from private partners, necessary for the larger and often more complex financial arrangements inherent in public–private partnership (PPP) models.
Does the public agency verify the financial sustainability of the project by managing the long-term cash flow of the project in order to secure the fiscal soundness of the agencies in charge of implementation?	Financial sustainability is crucial and assessed via fiscal evaluation. Chilean budgets are annual, not multi-year, which means funding beyond the current budget year is not automatically assured. To mitigate this, a commitment letter and a management plan from the sponsoring agency are required. Full funding cannot be guaranteed upfront, and often the maintenance and conservation plans for infrastructure are overlooked, posing issues due to potentially unsecured future funding.	For PPP projects, financial management extends to monitoring both firm and contingent liabilities associated with all PPP projects. This is conducted by the Budget Directorate (DIPRES). DIPRES issues annual reports to ensure transparency and accountability. The total payments for liabilities of all PPP projects must not exceed 5% of GDP, and only up to a maximum of 7% with presidential authorisation. This fiscal rule is aimed at maintaining the economy's financial stability while fostering PPPs.

Table C.24. Feasibility study: Implementation of an environmental and social assessment

Criteria	Conventional Infrastructure	PPP Infrastructure
Is it stipulated that the following be considered in the environmental and social assessment? - Treatment of workers and working conditions - Environmental contamination prevention/ reduction and measures in case of contamination - Local community's sanitation/safety	**Treatment of workers and working conditions**: Labour Code (DFL No. 1, 2002): o Stipulates workers' rights, working hours, conditions and protections. **Environmental contamination prevention/reduction and measures in case of contamination:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Describes environmental impact assessment (EIA) procedures and provides measures for prevention and remediation of environmental damages.	**Treatment of workers and working conditions**: Same as for conventional infrastructure (Labour Code). **Environmental contamination prevention/reduction and measures in case of contamination:** Same as for conventional infrastructure (Law on General Bases of the Environment). Law on Public Works Concessions (Law No. 20,410, 2010): o Describes environmental considerations within PPP projects.

Criteria	Conventional Infrastructure	PPP Infrastructure
- Land acquisition and inhabitants' relocation - Conservation of biological diversity and sustainable control of natural resources - Respect for Indigenous people and protection of cultural heritage - Economic benefits (e.g., job creation for local residents), enhance resilience against disasters, building local residents' capacity	**Local community's sanitation/safety**: Sanitary Code (DL No. 725, 1967): o Regulations related to sanitation and community health. **Land acquisition and inhabitants' relocation**: General Law on Urbanism and Construction (DL No. 458, 1976): o Guidelines for land usage, including provisions for the potential relocation of residents. **Conservation of biological diversity and sustainable control of natural resources:** Protected Wild Areas Law (Law No. 18,362, 1984): o Aims to protect natural areas of importance. **Respect for indigenous people and protection of cultural heritage**: Indigenous Law (Law No. 19,253, 1993): o Provides rights and protections for indigenous communities. National Monuments Law (Law No. 17,288, 1970): o Protects domestic monuments and sites of cultural importance. **Economic benefits (e.g., job creation for local residents), enhance resilience against disasters, building local residents' capacity:** National Office for Emergency of the Ministry of the Interior and Public Security (ONEMI or SENAPRED): o Responsible for planning and coordinating actions to prevent and mitigate disasters.	**Local community's sanitation/safety**: Same as for conventional infrastructure (Sanitary Code). **Land acquisition and inhabitants' relocation**: Same as for conventional infrastructure (General Law on Urbanism and Construction). **Conservation of biological diversity and sustainable control of natural resources**: Same as for conventional infrastructure (Protected Wild Areas Law). **Respect for Indigenous people and protection of cultural heritage**: Same as for conventional infrastructure (Indigenous Law and National Monuments Law). **Economic benefits, enhance resilience against disasters, building local residents' capacity**: Same as for conventional infrastructure (ONEMI or SENAPRED).
Are there measurable performance indicators across a range of factors, including impact on local communities and the environment?	**Law and regulation:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Sets the framework for environmental assessments. All projects, including conventional infrastructure ones, need an environmental impact evaluation if they may produce environmental harm. The evaluation will depend on the project's characteristics and can be in the form of an environmental impact declaration (DIA), or an EIA. Both documents will require measurable indicators based on potential environmental impacts.	**Guideline:** Law on Public Works Concessions (Law No. 20,410, 2010): o While this law primarily governs how public works are to be concessioned, any infrastructure project, whether done via public–private partnership (PPP) or not, must adhere to environmental norms. Performance indicators would, therefore, be derived from environmental evaluations mentioned in the Law on General Bases of the Environment.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Environmental Assessment Service (SEA): o This institution evaluates environmental impacts and monitors compliance with environmental resolutions. They often outline specific performance indicators for projects to ensure they maintain their commitments to the environment and society. Indigenous Law (Law No. 19,253, 1993): o Form projects that may impact Indigenous lands or communities, there are requirements to consult and respect the rights of Indigenous people. The indicators in this case would be more on the social side, ensuring that the project does not negatively affect the local Indigenous community.	SEA: o As with conventional infrastructure, the SEA plays a crucial role in determining and overseeing the environmental performance indicators for PPP infrastructure projects. Ministry of Social Development and Family: o This ministry ensures that projects, especially large infrastructure ones, have a positive social impact and do not adversely affect local communities. They might set social performance indicators to be adhered to during the project's lifecycle.
What are the steps taken by the public agency and the private sector in order to continuously review social and environmental standards, especially the aspect of sustainability for future generations?	**Law and regulation:** Law on General Bases of the Environment (Law No. 19,300, 1994): o This law establishes the framework for environmental protection in Chile. The law dictates that every major infrastructure project should undergo an environmental evaluation, which considers both social and environmental impacts. **Guidelines:** Environmental Impact Assessment System (SEIA): o Under the purview of the SEA, the SEIA ensures that infrastructure projects consider environmental implications. Projects are categorised based on their potential environmental impact, and the corresponding assessment process is then determined. **Agency responsibilities:** Ministry of the Environment: o This institution continuously reviews and updates environmental standards and guidelines to ensure sustainability for future generations. **Monitoring and oversight:** Superintendency of the Environment (SMA): Responsible for monitoring, supervising and sanctioning in case of non-compliance with environmental regulations.	**Law and regulation:** Law on Public Works Concessions (Law No. 20,410, 2010): o While primarily focused on the legal framework for PPP projects, it also emphasises the necessity of environmental and social assessments, and the sustainability of the projects. **Guidelines:** SEIA: o Just like in conventional infrastructure, PPP projects also need to go through the SEIA to ensure environmental and social standards are met. **Agency responsibilities:** Ministry of Public Works (MOP): o While this ministry focuses on the implementation of infrastructure projects, it ensures that the PPP projects align with the environmental and social standards set by the Ministry of the Environment and other relevant agencies. **Monitoring and collaboration:** National Council for Urban Development (CNDU): o This council facilitates inter-sectoral collaboration to ensure that urban infrastructure projects, even those developed through PPP, are sustainable and meet the necessary social and environmental standards.

Criteria	Conventional Infrastructure	PPP Infrastructure
Does the public agency identify the risks of global warming and climate change that need to be considered as part of the project design?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o Stipulates that every project or activity susceptible to causing environmental harm, in terms of its location, characteristics, or magnitude, requires an EIA or a less extensive DIA. This includes the identification of risks related to global warming and climate change when relevant. **Regulation:** Regulation of the Environmental Impact Assessment System (DS No. 40, 2013): o Defines the methodology and criteria for conducting EIAs. Projects need to evaluate and present their potential impacts on the environment, including risks associated with global warming and climate change. **Agency:** SEA: o An agency responsible for managing and overseeing the EIA system. It reviews and assesses the risks presented in the EIAs, including those related to global warming and climate change.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o For PPP projects, the concessionaire is obligated to comply with all environmental norms, which includes identifying and mitigating the risks of global warming and climate change. **Regulation**: Regulation of the Environmental Impact Assessment System (DS No. 40, 2013): o Similar to conventional infrastructure, PPP projects also need to go through the environmental evaluation process, including the assessment of global warming and climate change risks. **Agency:** MOP: o Oversees the PPP infrastructure projects. In partnership with SEA, the MOP ensures that all environmental considerations, including those related to global warming and climate change, are adequately addressed in the project design and implementation.
In order to prevent the negative climate impacts of infrastructure development, do the public agency and the private sector consider using existing facilities, proactive rehabilitation and reinforcement?	**Law:** Law on General Bases of the Environment (Law No. 19,300, 1994): o This law sets out the basic principles, rights, duties and instruments for environmental management. It mandates that significant environmental impacts from infrastructure development be identified, assessed, and mitigated. **Regulation:** Regulation of the Environmental Impact Assessment System (DS No. 40, 2013): o It details the procedures to evaluate the environmental impacts of projects, including the necessity to consider alternatives to the projects, which might include using existing facilities, rehabilitation or reinforcement. **Institution:** SEA: o Responsible for managing the SEIA process, ensuring projects consider the least environmentally damaging alternatives, including the enhancement of existing infrastructure.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o Concessionaires under PPP schemes must adhere to the environmental principles and guidelines provided in the general environmental framework law and its regulations. This includes consideration of using existing facilities and proactive rehabilitation. **Regulation:** Regulation of the Public Works Concessions Law (DS No. 956, 1997): o This regulation details how concessions should address environmental considerations, which includes the evaluation of alternatives to new infrastructure and emphasises the importance of minimising environmental impact. **Institution:** MOP: o Oversees and ensures that PPP infrastructure projects adhere to environmental regulations, considering the optimal use of existing infrastructure, and prioritising rehabilitation over new

Criteria	Conventional Infrastructure	PPP Infrastructure
		construction when environmentally beneficial.

Table C.25. Feasibility study: Safety considerations

Criteria	Conventional Infrastructure	PPP Infrastructure
Are the following considered in terms of safety? - Appropriate construction management and maintenance, and operation management - Safety control for users and residents in neighbouring area - Resilience against disasters - Response in times of disaster or emergency - Safety control for terrorism - Safety control for cyber-attacks - Secure measures to promote recovery/restart of services in case of occurrence of unexpected incidents - Use of quality building materials	**Appropriate construction management & maintenance, and operation management**: Regulation: General Regulation of Works Inspections (DL MOP No. 300, 1996): o Outlines inspection standards, ensuring appropriate construction management and maintenance. **Safety control for users and residents in neighbouring area**: Regulation: General Law on Urbanism and Construction (DL No. 458, 1975) and its Ordinance (OGUC): o Mandates the protection of residents and neighbours, ensuring that construction does not pose a risk to them. **Resilience against disasters**: Institution: National Office for Emergency of the Ministry of the Interior and Public Security (ONEMI or SENAPRED): o Sets out standards for infrastructure to be resilient against natural disasters, such as earthquakes, which are frequent in Chile. **Response in times of disaster or emergency:** Regulation: Law on Structures Resistant to Earthquakes (Law No. 16,282, 1975): o Dictates how structures must be designed to respond during and after seismic events. **Safety control for terrorism and cyber-attacks:** Institution: National Intelligence Agency (ANI): o Provides guidelines on infrastructure security against potential acts of terrorism and cyber threats. **Secure measures to promote recovery/restart of services in case of occurrence of unexpected incidents:** Institution: Superintendent of Sanitary Services (SISS): o Regulates and supervises providers to ensure the continuity of services.	**Appropriate construction management & maintenance, and operation management**: Regulation: Law on Public Works Concessions (Law No. 20,410, 2010): o Ensures that private entities comply with the government's standards for construction management and operation. **Safety control for users and residents in neighbouring area**: Same as in Conventional Infrastructure, the General Law on Urbanism and Construction and the OGUC apply to public–private partnership (PPP) projects as well. **Resilience against disasters; response in times of disaster or emergency**: Both ONEMI (or SENAPRED) and standards under Law No. 16,282 are pertinent for PPP infrastructure. **Safety control for terrorism and cyber-attacks:** The Law on Public Works Concessions mandates that private partners adhere to domestic security standards set by institutions like the ANI. **Secure measures to promote recovery/restart of services in case of occurrence of unexpected incidents:** As these are public utilities under private operation, standards set by SISS and similar institutions are applicable. **Use of quality building materials:** NCh standards apply to ensure the usage of quality building materials in PPP projects.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Use of quality building materials: Norm: Chilean Standards (NCh): o Various NCh standards dictate the use and quality of building materials.	
Are there counter-mechanisms that are secured in order to provide safe infrastructure services that satisfy international standards?	**Standards:** NCh: o Chile adopts a range of technical standards (NCh) that align with international safety norms. These standards cover various aspects of construction, including materials, processes and design criteria. **Institutions:** Directorate of Hydraulic Works (DOH): o Supervises the safety of hydraulic infrastructure like dams and canals. General Directorate of Public Works (DGOP): o Supervises and approves various infrastructure projects, ensuring they adhere to local and international safety standards.	**Regulation:** Law on Public Works Concessions (Law No. 20,410, 2010): o Establishes that all infrastructure projects under PPP should adhere to international safety standards. The concessionaire is responsible for ensuring these standards during the design, construction, and operation phases. **Standards:** NCh: o For PPP projects as well, these standards are applied, ensuring that the infrastructure meets internationally accepted safety requirements. **Institutions:** Ministry of Public Works (MOP): o The MOP supervises PPP infrastructure projects and ensures they meet both local and international safety norms. Technical Concessions Panel: o An independent body within the MOP that reviews the technical aspects of PPP projects, including safety considerations.
Are the risks of energy security incorporated into decision-making in an infrastructure project?	**Law:** General Law of Electrical Services (DL No. 3,927, 1929): o Establishes the framework for the generation, transmission and distribution of electric power. Energy security risks are inherent in the design of the Chilean electrical grid and infrastructure. **Guidelines:** Ministry of Energy: o Through its strategic planning and roadmaps, the ministry has regularly emphasised the need for reliable, diverse and secure energy supply. Projects under their oversight, or those that impact domestic energy infrastructure, are reviewed with these criteria in mind. **Regulation:** Technical Standard of Electrical Installations Safety (NTSIE): o Outlines safety considerations for electrical installations, implicitly addressing some aspects of energy security by ensuring systems are robust, safe and reliable.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o While primarily detailing the legal framework for PPPs in Chile, any infrastructure related to energy production, distribution or consumption would inherently have to consider the economy's energy security. **Guidelines:** National Council of Concessions under the MOP: o It supervises PPP infrastructure projects, ensuring they align with domestic interests, including energy security. **Feasibility and risk analysis:** Environmental impact assessment (EIA): o All major infrastructure projects, whether conventional or PPP, must undergo an EIA. Part of this assessment is to gauge the impact on and potential risks to energy security, ensuring that any new infrastructure does not unduly jeopardise the economy's energy supplies or transmission capabilities.

Table C.26. Feasibility study: Job creation/capacity building and transfer of technologies

Criteria	Conventional Infrastructure	PPP Infrastructure
Is there an evaluation framework that applies reasonable, realistic and measurable performance indicators across a range of factors including skill transfer and local economic activities?	**Guidelines:** National System of Investments (and its Project Bank) (SNIP) governed by the Ministry of Social Development and Family: o The SNIP evaluates public investment projects based on efficiency, social profitability, and their alignment with the economy's strategic development priorities. o There are specific methodologies and guidelines for evaluating different types of projects, from infrastructure to education and health. Skill transfer and local economic activities might be considered as part of the broader social impact evaluation. **Regulations:** Law on Administrative Bases for Public Procurements (Law No. 19,886, 2003): o Requires that infrastructure projects consider local economic activities and, in some instances, employ local labour, ensuring skill transfer in the process.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010) and its regulations: o Establishes a framework for the evaluation of concession projects. This includes considerations about project feasibility, financial sustainability and potential impacts on local economic activities. o Requires concessionaires to provide regular performance reports, including aspects related to skill transfer and capacity building. Coordination of Public Works Concessions, MOP o This coordinating entity within the Ministry of Public Works (MOP) is responsible for overseeing the PPP projects. Their guidelines stress the importance of skill transfer, capacity building and promotion of local economic activities. **Other relevant institutions:** Production Development Corporation (CORFO): o Promotes technological transfer, innovation and local economic development in several sectors, including infrastructure.
Does the public agency satisfy factors such as job creation, capacity building and transfer of expertise and know-how to local communities when making investment decisions?	**Guidelines:** MOP: o As the main governmental body for public infrastructure, the MOP always considers the social impact of projects, including job creation. However, the specifics may vary depending on the project's nature and location. Employment Promotion Law (Law No. 20,744, 2014) and its modifications: o This law incentivises job creation through various mechanisms, and infrastructure projects often align with its provisions to stimulate local employment. **Capacity building and transfer of expertise:** Technical Training Centre: o Provides training to enhance the capacity of workers in various sectors, including infrastructure. Such initiatives can be more prevalent in projects where technology transfer or expertise sharing is required.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o Projects under this framework, besides the direct economic benefits, are evaluated on their potential socioeconomic impacts on local communities. Job creation, transfer of expertise and capacity building are vital aspects of this consideration. ChileCompra: o While its main function is to ensure transparency in public procurement, including for PPPs, it indirectly supports capacity building by providing resources and guidelines on procurement best practices. The training and tools offered facilitate a knowledge transfer to various public entities. **Capacity building and transfer of expertise:** Production Development Corporation (CORFO): o One of CORFO's missions is to promote Chilean innovation and entrepreneurship. In projects with foreign participation,

Criteria	Conventional Infrastructure	PPP Infrastructure
		there is often an emphasis on technology transfer, training, and the development of local capacities. It is worth noting that while there is an inherent emphasis on job creation, capacity building and technology transfer within Chile's regulatory framework for infrastructure, the exact provisions and how they are implemented can vary based on individual project contracts and the specifics of the project.
Are there any conditions and schemes on job creation for an infrastructure project?	**Law:** Labour Code (DL No. 1, 2002): o This code determines general conditions for job creation, employment contracts and workers' rights. While it does not specify conditions solely for infrastructure projects, all job creations in such projects must adhere to this legal framework. **Institutions:** National Service for Training and Employment (SENCE): o Provides job training programmes to enhance employability. For infrastructure projects, companies can collaborate with SENCE to provide specialised training for the required skills. **Guidelines:** MOP: o Conventional infrastructure projects might contain specific requirements regarding job creation and local employment within their tendering conditions or contracts, especially for projects financed by the government.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o While it primarily focuses on the legal framework for PPPs, it can indirectly affect job creation by fostering the development of infrastructure projects. Specific job creation conditions might be included in the concession contracts. **Institutions:** Chilean Copper Commission (Cochilco): o For infrastructure projects related to the mining sector, Cochilco offers guidelines and promotes best practices, which includes sustainable employment and workforce development. **Guidelines:** MOP: o In PPP projects, the MOP might include specific provisions in tender documents or contracts regarding job creation, local employment, and capacity building.
Are there mechanisms for capacity building and transfer of technology in the medium- to long-term, if skills of the local community are insufficient?	**Laws and regulations:** Advanced Human Capital Promotion Law (Law No. 20,911, 2016): o Fosters the training and education of high-skilled professionals, researchers and technicians by providing scholarships for postgraduate studies in areas of strategic importance for Chile. **Institutions:** CORFO: o CORFO, the Chilean economic development agency implements various programmes aimed at boosting technological capacities, innovation and skill development in key sectors. One of its roles is facilitating technology transfer by fostering collaborations between local businesses and international experts.	**Laws and regulations:** Law on Public Works Concessions (Law No. 20,410, 2010): o While the main objective is to promote private investment in public infrastructure, it indirectly promotes technology transfer as foreign companies, involved in PPP projects, bring advanced technologies and methodologies which then get assimilated by local counterparts. **Institutions and guidelines:** MOP: o Encourages the inclusion of capacity building and technology transfer components within PPP contracts, especially when international partners are involved.

Criteria	Conventional Infrastructure	PPP Infrastructure
	National Commission for Scientific and Technological Research (CONICYT): o Provides funds and scholarships for researchers, promoting the development of skills in science and technology and fostering international cooperation for technological transfer.	Regional Productive Development Committee: o Localised in each region of Chile, these committees often collaborate with private entities to ensure that PPP projects have a local impact, fostering both job creation and skill development.
Are there adequate provisions for all workers, particularly women, to have equal opportunity to access safe jobs created by infrastructure investment, without discrimination and harassment?	**Law:** Labour Inclusion Law (Law No. 21,015, 2018): o Mandates that companies with 100 or more workers must ensure that at least 1% of their workforce is comprised of persons with disabilities. **Guidelines**: Anti-discrimination Act 'Zamudio Law' (Law No. 20,609, 2012): o Seeks to establish measures against discrimination. This law is named after Daniel Zamudio, whose death motivated its creation. It serves to prevent and punish discrimination acts and ensures that all workers, regardless of gender, race or background, have equal job opportunities. Law on the Protection of Women's Rights (Law No. 20,480, 2010): o Ensures the protection of women's rights in the workplace, preventing any form of discrimination and guaranteeing the right to work under fair and favourable conditions. **Regulatory body:** Labour Directorate: o Supervises the application of labour laws and ensures that all workers, including women, have equal opportunities in the workplace.	**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o While the main focus is on the execution of public works, any project developed under this law must adhere to the general labour regulations of Chile, which includes ensuring equal opportunities for all workers. Anti-discrimination Act 'Zamudio Law' (Law No. 20,609, 2012) and Law on the Protection of Women's Rights (Law No. 20,480, 2010): o Both laws apply equally to projects developed under PPP. Ensuring non-discrimination and equal opportunity is essential for the legitimacy and social licence of PPP projects. **Regulatory body:** MOP and the Labour Directorate: o Both entities ensure that PPP projects adhere to labour standards and provide equal opportunities for all workers.

Table C.27. Feasibility study: Risk management

Criteria	Conventional Infrastructure	PPP Infrastructure
Are the following stipulated? - Appropriate identification of risks assumed for individual projects - Method for prioritising identified risks - Measures against identified risks	**Regulation:** Regulations of the Public Works Contract Law (DL No. 75, 2004): o Stipulates the administrative procedures, technical specifications, and conditions that must be met when carrying out public works contracts. While it does not provide specifics on risk identification and prioritisation, it does imply the need for comprehensive project planning and evaluation.	**Law:** Law on Public Works Concessions (Law No. 20,410, 2010); o This law governs the framework for public–private partnership (PPP) projects and mandates the clear identification of risks. It establishes that the risk distribution (between the public and private entities) must be clearly detailed in the concession contract. Risks not explicitly mentioned in the contract are assumed by the concessionaire.

Criteria	Conventional Infrastructure	PPP Infrastructure
	Guidelines: General Directorate of Public Works (DGOP): o It provides guidelines for public works projects, which includes provisions for risk management, although it does not detail methods for risk prioritisation. **Measures:** General risk management measures are implied in various contractual obligations. While the specific method for risk mitigation is usually determined based on project specifics, contractors are typically required to have insurance policies against possible damages or contingencies.	**Guidelines:** Coordination of Public Works Concessions, Ministry of Public Works: o This unit provides guidelines for the development of PPP projects. It emphasises the importance of risk identification, evaluation and mitigation during the feasibility study phase. **Measures:** Under the concession contract, specific measures against identified risks are stipulated. These may include insurance requirements, contingency plans, and specific protocols to handle unforeseen events or changes in circumstances. Additionally, the concessionaire may be required to establish reserve funds or provide guarantees to ensure the project's financial viability and mitigate financial risks.
In case of a PPP project, is the appropriate risk sharing between the public and private sectors stipulated?		**Law:** Law on Public Works Concessions (Law No. 20,410, 2010): o This law provides the regulatory framework for PPP projects in Chile. It mandates the creation of concession contracts, which are detailed agreements outlining risk-sharing between public and private sectors. The contracts define responsibilities for design, finance, operation, maintenance and potential transfer of the infrastructure. It also covers force majeure risks, construction risks, financial risks, operational risks and demand risks, stipulating which party – public or private – is best suited to manage each. **Institution**: DGOP: o The MOP is the main government agency responsible for creating, overseeing and enforcing concession contracts for PPP projects. Through the concessions system, they ensure that risks are clearly defined and allocated between public and private entities. **Guidelines:** Coordination of Public Works Concessions, MOP: o This unit produces guidelines and best practices for structuring PPP agreements. Among its responsibilities is ensuring that risk sharing is both equitable and in line with international best practices.

Table C.28. Feasibility study: Study on the private market

Criteria	Conventional Infrastructure	PPP Infrastructure
Is it stipulated that consideration be given to the competitive environment based on hearings conducted with private entities regarding the contents of the project?	**Laws and guidelines:** Law of Bases on Administrative Contracts for the Execution of Public Works (DL No. 1.305, 1976): o While this law mainly regulates the bidding process for public works, part of its preamble emphasises the importance of transparent competition. It does not specifically stipulate hearings with private entities but ensures a competitive bidding environment. **Institutional reference:** General Directorate of Public Works (DGOP): o This institution ensures the principles of fairness, competition, and transparency in conventional infrastructure projects. They may conduct consultations or hearings as part of their evaluation process, but it is not mandatory.	**Laws and guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o This legislation encourages a competitive environment for public–private partnership (PPP) projects. It mentions the process of consultation or public participation, which could potentially involve hearings with private entities, especially when defining the technical, financial, and operational terms of the concession. **Institutional reference:** Ministry of Public Works (MOP): o The MOP, under its PPP programme, often seeks to gather insights from the private sector before finalising the terms of a project. This is to ensure that the projects are attractive for private investors and also meet public needs effectively. **Other relevant guidelines:** Environmental Impact Assessment System (SEIA) under the Law on General Bases of the Environment (Law No. 19,300, 1994): o For projects that require environmental assessment, there is a phase of public participation where private entities, communities and other stakeholders can give their feedback. This system ensures that competitive considerations, as well as environmental and social impacts, are taken into account.

Table C.29. Feasibility study: Selection of the procurement method

Criteria	Conventional Infrastructure	PPP Infrastructure
Is it stipulated that review and selection of the project's procurement method be based on criteria such as value for money (VfM)?		**Guidelines:** Law on Public Works Concessions (Law No. 20,410, 2010): o For PPP projects, the primary goal is to optimise the life cycle cost (LCC) of public infrastructure projects, ensuring a balance between service quality, cost and risk transfer. While the exact term 'value for money' might not be used, the legislation emphasises achieving optimal value in PPP projects. **Institutional reference:** Ministry of Public Works (MOP): o The ministry plays a central role in ensuring that PPP projects are initiated with the right procurement methods. Part of the evaluation process considers the

Criteria	Conventional Infrastructure	PPP Infrastructure
		overall benefits and costs associated with private sector participation. **Tools and methods:** Though the tool known as the public–private comparator might not be commonly used in Chile, methodologies aligned with the principles of VfM are employed to evaluate PPP projects. This could involve comprehensive feasibility studies, risk assessment, financial modelling and more to ensure that a PPP is the best procurement method for a particular project.

PROCUREMENT

Table C.30. Procurement: Procurement in general

Criteria	Conventional Infrastructure	PPP Infrastructure
Is it stipulated that the quality aspects of the project are to be focused on in the procurement, such as output specifications and/or service level specifications?	**Tools and methods:** Public works contracts may include different aspects regarding quality and/or service level. This includes contracts for the construction of a project as well as contracts for maintenance of the infrastructure.	**Law:** The Law of Public Works Concessions defines 'conservation' as necessary repairs to maintain the service level specified in the contract. It also states that the private entity must dictate regulations that include quality standards. The government inspector needs to control the quality during the construction of the project and the service level during the operation. **Tools and methods**: Public–private partnership (PPP) contracts contain different clauses regarding quality and service level that the private sector needs to comply with.
Does the public agency apply a request for proposal (RFP) process, outcome/output or performance-based specifications allowing the private sector to present alternative solutions, leveraging cutting-edge expertise?	**Law:** There are two different types of contracts for public works. Traditional procurement stipulates that the contractor builds the project provided by the ministry. Decree No. 108, 2014 states the following: 'Payment on Receipt shall be understood as the lump sum bid, whose fixed price includes both the project and the execution of the work', that is, it is the contractor who is also responsible for the final design. **Tools and methods:** Depending on the type of contract, there is room for the contractor to suggest improvements on the project.	**Law:** The Law on Public Works Concessions states that 'any natural or legal person may apply to the Ministry of Public Works for the execution, repair or conservation of public works, in exchange for their exploitation, through the concession system'. 'In the case of public or private initiative projects that are multifunctional and have a high degree of complexity, such as prisons, hospitals, urban highways or others', 'the prequalification bases may contemplate a procedure and a period of time for the prequalified to propose to the Ministry of Public Works the improvements, additions or adjustments that they deem convenient to include in the design of the final project'.

Criteria	Conventional Infrastructure	PPP Infrastructure
		Tools and methods: PPP proposals usually leave the final design to the private sector so that it can define different aspects of the projects and provide some modifications.
Is the use of appropriate incentives for procurement stipulated, such as applying a performance-based approach to contracts (e.g., contingency fee)?	**Law:** Traditional procurement considers penalties for not complying of the conditions stipulates in the contract. Additionally, the DS No. 75 MOP stipulates that contactors are evaluated on his performance. Each qualification will be written in the contractor folder in the National Registry of Contractors.	**Law:** The Law on Public Works Concessions says: 'The bidding conditions must explicitly indicate the levels of service required for the operation stage, their respective indicators and penalties. The Ministry of Public Works will be responsible for inspecting and monitoring the concessionaire's compliance with its obligations, both in the construction and operation phases of the works. In case of non-compliance, the Ministry may impose on the concessionaire the sanctions and fines established by the regulations and the bidding conditions.'
Is consideration for an appropriate risk allocation in procurement specified?	**Tools and methods:** The Ministry of Public Works (MOP) can function under different types of contracts. Depending on the type of contract, for example, if the project is contracted on a lump-sum or unit-price basis, the risk allocation will be different.	**Tools and methods:** The General Directorate of Public Works Concessions prepares a risk matrix for each project, making sure that each risk is assigned to the one that is best prepared to assume or mitigate it. In addition, protection mechanisms against exchange rate variations or minimum income mechanisms are considered to protect the private or project financiers against high changes in these variables.
Do the laws and guidelines stipulate that the price not be the only basis of evaluation in tenders, but that the quality also be evaluated appropriately?	**Law:** DS No. 75 MOP establishes that the bidding process must include a technical proposal and an economic proposal. The technical proposal considers the experience of the contractor in similar projects, the work plan, the team that will work for the contractor and even can evaluate the equipment that will be available for the project. Both the technical and economic proposal will be considered for the decision. DS No. 108 MOP establishes that the bidding process must include a technical proposal and an economic proposal. The technical proposal considers: - General background: Construction planning and general construction schedules (50%) and organisational structure (25%) - Project qualification: General and detail drawings (35%), technical specifications (40%) and calculation memories (25%).	**Law:** The Law on Public Works Concessions considers a technical proposal. 'Given the diverse nature of the works that may be awarded in concession, the MOP will specify the content, aspects and weightings of the technical bid in the bidding conditions.'
Is there a standard form of an agreement to be executed; does it	**Law:** DS No. 108 and DS No. 75 establish the elements that a proposal for a public work	**Law:** DS No. 900, 1991 MOP regulates everything regarding the contracts for PPPs.

Criteria	Conventional Infrastructure	PPP Infrastructure
reflect best practices?	must contain and regulates the content of the two different types of contracts.	
Is it stipulated that a competitive dialogue, or similar procedures, is to be taken as appropriate?	**Law:** The contract can be modified by mutual agreement between the contractor and the MOP.	**Law:** DS No. 900 MOP considers a bidding process in one or more stages. In both public projects and unsolicited proposals, the private entity in the prequalification process may propose improvements or adjustments to the projects. It is also possible to improve or add elements to the contract during the construction phase as well as the operation stage.
In developing an evaluation method, are economic benefits (e.g., job creation for local residents), enhancing resilience against disasters and building local residents' capacity taken into account?	**Tools and methods:** In some projects, the proposals are evaluated according to the employment generated for residents of a specific area or if the company employs minorities (for example, people with disabilities). Other issues like resilience are usually considered during the preparation and design of the project.	**Tools and methods:** The evaluation methods do not consider economic benefits or resilience enhancement as variables for selection.
Is particular attention paid to harmonise anti-corruption procedures with all types of tenders and contracts related to infrastructure projects?	**Law:** Resolution 14 of the Office of the Comptroller General states that all direct contracts over UTM 10,000 (USD 750,000) or bidding contracts over UTM 15,000 (USD 1 million) must be approved by the Office of the Comptroller General.	**Law:** Resolution 14 of the Office of the Comptroller General states that all direct contracts over UTM 10,000 (USD 750,000) or bidding contracts over UTM 15,000 (USD 1 million) must be approved by the Office of the Comptroller General.
Does the public agency promote social inclusiveness in the tender process?	**Tools and methods:** In some projects the proposals are evaluated according to the company employing minorities (for example, people with disabilities).	**Tools and methods:** The evaluation methods do not consider social inclusiveness.

Table C.31. Procurement: Pre-qualification

Criteria	Conventional Infrastructure	PPP Infrastructure
Are the following items clearly stipulated in the evaluation criteria, to be evaluated/ confirmed? - Financial appropriateness - Track record in sufficiently similar projects - Keeping to construction schedule and appropriate cost control	**Law:** • Financial appropriateness: DS No. 108. The Contractor must prove the economic capacity of the bidder, which must be equal to or greater than the capital or working capital, as established in the Special Administrative Bases. • Track record in sufficiently similar projects: DS No. 108 – 'The study for the award of the proposals will be based on the weighting of the quality of the project presented, the experience and organization of the contractor and the execution period offered.'	**Law:** DS No. 900 and DS No. 956: • Financial appropriateness: The Ministry of Public Works (MOP) will prequalify those interested parties that comply with the requirements set forth in the prequalification bases, which may refer to requirements related to legal aspects, economic, financial, technical, aptitude or experience capacity, and may reject those that are not suitable under these criteria for a specific concession. • Track record in sufficiently similar projects: The MOP will prequalify those interested parties that comply

- Environmental impacts - Prevention of bribery (e.g., use of the World Bank Listing of Ineligible Firms and Individuals)	• Keeping to construction schedule and appropriate cost control: DS No. 108 – 'The study for the award of the proposals will be based on the weighting of the quality of the project presented, the experience and organization of the contractor and the execution period offered.' Both DS No. 75 and DS No. 108 considers fines for late deliveries. • Environmental impacts: DS No. 75 – 'Non-compliance by the contractor with the provisions contained in the environmental legislation and regulations in force and with the norms that regulate the effects on the environment will be specially considered by the tax inspector when issuing his reports that will serve as a basis for qualification.' • Prevention of bribery (e.g., the use of World Bank Listing of Ineligible Firms and Individuals): Only contractors registered in the National Registry of Contractors can bid in a process.	with the requirements set forth in the prequalification bases, which may refer to requirements related to legal aspects, economic, financial, technical, aptitude or experience capacity, and may reject those that are not suitable under these criteria for a specific concession. • Keeping to construction schedule and appropriate cost control: If, during the construction of the work, delays occur due to unforeseen circumstances or force majeure, the concession holder must submit a written justification to the tax inspector within 30 days of their occurrence and, in any case, within the term in force; after this period, no justification will be accepted. The DGC, after a report from the tax inspector, will analyse the reasons invoked by the concessionaire to justify the delay, and will decide whether to accept or reject the extension of the deadline. • During the construction stage, the fiscal inspector will supervise the development of the concession contract and will have all the functions and attributions indicated in the bidding conditions, with at least the following: (c) Oversee compliance with the work plan proposed by the concession company • Environmental impacts: The bidding for the concession work will be decided by evaluating the technically acceptable bids, according to the characteristics of the works, taking into account one or more of the following factors, according to the evaluation system established by the Ministry of Public Works in the Bidding Terms and Conditions: (k) environmental and ecological considerations, such as noise, scenic beauty in the case of the road layout, tree planting in the strips of the concessioned public roads, evaluated by experts and taking into consideration their cost in relation to the total value of the project. • Prevention of bribery (e.g., the use of the World Bank Listing of Ineligible Firms and Individuals): Not considered in law.

In confirming the above evaluation criteria, does the ordering party systematically use accumulated data of past records (preferable to have a database set up)?	**Law:** DS No. 75 MOP stipulates that contactors are evaluated on his performance. Each qualification will be written in the contractor folder in the National Registry of Contractors.	**Law:** The concessionaire's contractors must be registered in the MOP's Contractors' Registries.

Table C.32. Procurement: Proposal evaluation

Criteria	Conventional Infrastructure	PPP Infrastructure
Are there evaluation criteria in order to select the most advantageous bid/proposal that best meets the requirements and offers the best value for money?	**Law:** DS No. 75 1987 and DS No. 708, 2012 establish different criteria that the bidders must meet in order to win the contract.	**Law:** DS No. 956, 2017: The technical aspects to be evaluated by the Evaluation Committee shall be those indicated in the bidding conditions. For these purposes, each of its members will assign a score from 1 to 7, without decimals, to the aspects to be evaluated, according to its own criteria and based on a special form prepared by the General Directorate of Public Works Concessions (DGC). DS No. 900: The bidding for the work that is the subject of the concession will be decided by evaluating the technically acceptable bids, according to the characteristics of the works, taking into account one or more of the following factors, according to the evaluation system established by the Ministry of Public Works in the Bidding Terms and Conditions: a) tariff structure, b) concession term, c) Government subsidy to the bidder, d) payments offered by the bidder to the Government, in the event that the latter delivers goods or rights to be used in the concession, e) income guaranteed by the Government, f) degree of risk commitment assumed by the bidder during the construction or operation of the work, such as acts of God or force majeure, g) tariff readjustment formula and its revision system, h) total or partial score obtained in the technical qualification, as established in the bidding conditions, i) offer of the bidder to reduce the tariffs to the user, to reduce the term of the concession or to make extraordinary payments to the Government when the return on equity or assets, defined in the manner established in the

		bidding conditions or by the bidder, exceeds a pre-established maximum percentage. In any case, this offer may only be made in those bids in which the Government guarantees income in accordance with the provisions of letter e) above, j) qualification of other useful and necessary additional services, k) Environmental and ecological considerations, such as noise, scenic beauty in the case of road layout, tree planting on the strips of public roads under concession, evaluated by experts and taking into account their cost in relation to the total value of the project. Also, considerations regarding compliance with the provisions of the regional urban development plans, communal, intercommunal and metropolitan regulatory plans, and l) total revenues of the concession calculated in accordance with the bidding conditions. This bidding factor may not be used in conjunction with any of the factors indicated in letters a), b) or i) above.
In terms of the evaluation criteria, is the method for achieving the required service level stipulated?	**Tools and methods:** The service level is something that the projects need to comply with during the construction and operation. It is a requirement but is not stipulated in the evaluation criteria.	**Tools and methods:** The service level is something that the projects need to comply with during the construction and operation. It is a requirement but is not stipulated in the evaluation criteria.
In terms of the evaluation criteria, are keeping to construction schedule and appropriate cost control stipulated?	**Tools and methods:** Keeping to the construction schedule and appropriate cost control are requirements but are not stipulated in the evaluation criteria.	**Tools and methods:** Keeping to construction schedule and appropriate cost control are requirements but are not stipulated in the evaluation criteria.
In terms of the evaluation criteria, is environmental impact stipulated?	**Law:** DS No. 108, 2013: Non-compliance by the contractor with the provisions contained in the environmental legislation and regulations in force and with the norms that regulate the effects on the environment will be specially considered by the tax inspector when issuing his reports that will serve as a basis for qualification. Compliance of environmental regulations is a requirement but it´s not stipulated in the evaluation criteria.	**Law:** DS No. 900: The bidding for the work that is the subject of the concession will be decided by evaluating the technically acceptable bids, according to the characteristics of the works, taking into account one or more of the following factors, according to the evaluation system established by the Ministry of Public Works in the Bidding Terms and Conditions: Environmental and ecological considerations, such as noise, scenic beauty in the case of road layout, tree planting on the strips of public roads under concession, evaluated by experts and taking into account their cost in relation to the total value of the project.

In terms of the evaluation criteria, is appropriate risk management stipulated?	**Law:** DS No. 75: Compliance with risk prevention standards is one of the criteria that is evaluated in the proposals.	**Law:** DS No. 900: The 'degree of risk commitment assumed by the bidder during construction or operation of the project' is stipulated as a criterion that can be evaluated.
Is value for money assessed using a request for proposal (RFP) approach to market?	**Law:** Public Works Concessions Law (Law No. 20,530, 2011): The Ministry of Social Development and Family is in charge of '[evaluating] the investment initiatives that request financing from the State, to determine their social profitability, and to prepare a report thereon, in accordance with Article 19 bis of Decree Law No. 1,263 of 1975, Organic Decree of Financial Administration of the State. In compliance with the foregoing, it shall establish and update the criteria and methodologies applicable to the aforementioned evaluation. The determination of these criteria and methodologies shall consider, especially, the incorporation of objective and verifiable indicators regarding the development of the investment initiatives. The methodologies and evaluation criteria shall also be kept permanently available to the public on the website of the Ministry of Social Development and Family. In compliance with the above, it shall be responsible for ensuring that the investment initiatives that use State financing are socially profitable and respond to the economic and social growth and development policies determined for the economy and its regions. The Ministers of Social Development and Family and of Finance, jointly, shall establish guidelines based on the characteristics of the investment initiatives from which the report referred to in the preceding paragraph shall not be required, which shall be reviewed annually.'	**Law:** DS No. 900: Establishes that '[the] projects to be executed through the concession system must have, as an internal document of the Administration and prior to the call for bids, a report from the [domestic] planning agency, which must be based on a technical and economic evaluation that analyses its profitability'.

Table C.33. Procurement: Management of contract and monitoring

Criteria	Conventional Infrastructure	PPP Infrastructure
Are contract management and method of monitoring stipulated?	**Law:** DS No. 75: 'For all the purposes of these regulations, a public inspector shall be understood to be a professional civil servant, appointed by the competent authority, who has been directly entrusted with overseeing the proper execution of a work and, in general, the fulfilment of a contract.'	**Law:** DS No. 900: 'During the construction stage, the fiscal inspector will supervise the development of the concession contract and will have all the functions and attributions indicated in the bidding conditions.' 'During the exploitation stage, the fiscal inspector will supervise the concession contract and will have all the functions and

Criteria	Conventional Infrastructure	PPP Infrastructure
	It is the responsibility of the public inspector to monitor the development of the project and construction of the work.	attributions indicated in the bidding conditions.'
Are penalties and incentives stipulated for management of contract and monitoring?	**Law:** DS No. 75: 'If the contractor fails to deliver the fully completed work within the contractual term, including any extensions granted, he shall pay a daily penalty equal to the amount of the fine.'	**Law:** DS No. 900: 'The concessionaire is obliged to complete the works and put them into service on the dates and within the total or partial terms indicated in the bidding conditions or in those determined in its bid, as the case may be. The bidding conditions will indicate penalties and/or fines for the benefit of the MOP [Ministry of Public Works] for non-compliance, as the case may be.' 'The bidding conditions must explicitly indicate the levels of service required for the operation stage, their respective indicators and penalties. The Ministry of Public Works will be responsible for inspecting and monitoring the concessionaire's compliance with its obligations, both in the construction and operation phases of the works. In case of non-compliance, the Ministry may impose on the concessionaire the sanctions and fines established in the regulations and the bidding conditions.'
Are there provisions on the method for monitoring the financial status of the operator in case of a PPP project?		**Law:** DS No. 900: 'Without prejudice to the general accounting rules applicable to companies, the MOP may require from the concession companies, through the bidding conditions, the accounting information records deemed necessary to audit the concession contract and the concession company.'

Table C.34. Procurement: Maturity of a project

Criteria	Conventional Infrastructure	PPP Infrastructure
Is a business succession method specified at the time of maturity of a project?		**Law:** DS No. 900: 'Once the term of the concessions has expired, the works must be again delivered in concession by the Ministry of Public Works for their conservation, repair, expansion or exploitation, isolated, divided or integrated jointly with other works. The corresponding bidding process must be carried out with the necessary anticipation so that there is no solution of continuity between both concessions. In the event that the concession works have fallen into disuse or that for technical reasons it is inappropriate, inconvenient or detrimental to the Government of Chile to grant a new concession, the President of the Republic may so declare, by means of a well-founded decree, and exempt compliance with the provisions of the preceding paragraph.'

Table C.35. Ex-post evaluation

Criteria	Conventional Infrastructure	PPP Infrastructure
Is the method for ex-post evaluation stipulated?	**Law:** Ministry of Social Development and Family (MDSF): The MDSF elaborates on the process of the ex-post evaluation, both in the short and long term. The objective of the long-term ex-post evaluation is to analyse the operation and maintenance costs, supply and demand, and to check if the projections made during the ex-ante evaluation were accurate.	**Law:** MDSF: The MDSF elaborates on the process of the ex-post evaluation, both in the short and long term. The objective of the long-term ex-post evaluation is to analyse the operation and maintenance costs, supply and demand, and to check if the projections made during the ex-ante evaluation were accurate
Is it stipulated that objective data be accumulated in the project's ex-post evaluation to be used in the project of the next term?	**Law:** MDSF: It is not stipulated, and it must be considered that the MDSF elaborates on the ex-post evaluation of only a limited number of projects.	**Law:** DS No. 956: 'The concessionaire must carry out the controls, measurements and statistics required by the bidding conditions, being responsible for the veracity of the information. The concessionaire will allow access of authorized MOP inspectors to the premises where the statistical control systems are established, in order to check them, verify and control the results.'