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COMPENDIUM OF POLICY GOOD PRACTICES FOR QUALITY INFRASTRUCTURE INVESTMENT

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Compendium of Policy Good Practices for Quality Infrastructure Investment

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Acronyms and abbreviations

CC	Competition Committee
CDEP	Committee on Digital Economy Policy
CERT	Committee on Energy Research and Technology (IEA)
CFA	Committee on Fiscal Affairs
CGC	Corporate Governance Committee
CMF	Committee on Financial Markets
CSSP	Committee on Statistics and Statistical Policy
DAC	Development Assistance Committee
DEV GB	Governing Board of the Development Centre
DWG	Development Working Group
EPC	Economic Policy Committee
EPOC	Environment Policy Committee
ERC	External Relations Committee
ESG	Environmental, Social and Governance
IC	Investment Committee
IEA	International Energy Agency
IPPC	Insurance and Private Pensions Committee
ITF	International Transport Forum
IWG	G20 Infrastructure Working Group
MCM	OECD Council at the Ministerial Level
MDB	Multilateral Development Bank
NDC	Committee for Technical and Economic Studies on Nuclear energy Development and the Fuel Cycle (NEA)
NEA	Nuclear Energy Agency
PGC	Public Governance Committee
QII	Quality Infrastructure Investment
RBC	Responsible business conduct
RDPC	Regional Development Policy Committee
RPC	Regulatory Policy Committee
SDG	Sustainable Development Goal
TC	Trade Committee
TRC	Transport Research Committee (ITF)

WB	World Bank Group
WGB	Working Group on Bribery in International Business Transactions

Introduction

Context and background

1. It is well-established that the right infrastructure investments, implemented through appropriate delivery mechanisms, and managed efficiently over their life cycle, can contribute to economic development, and serve as enablers for achieving environmental, social and governance (ESG) objectives and the Sustainable Development Goals (SDGs). In fact, goal 9 of the SDGs explicitly calls for the development of “quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.”

2. Yet when scarce resources are spent on weak projects that fail to deliver net benefits to society, when poor governance results in cost overruns and delays, or when projects lead to environmental degradation or human rights abuses, infrastructure investments can undermine social and economic development, increase exposure to climate risk and air pollution, and reduce trust in government and institutions. Given the inherent high cost and long-term nature of infrastructure, such effects can be locked-in over long periods. Quality infrastructure investment is therefore vital to ensuring that infrastructure fulfils its potential as a catalyst for growth and sustainable development. Achieving quality infrastructure investment depends largely on how it is planned, managed, financed and implemented at all levels of government.

3. Efforts to define and promote quality infrastructure investment have been made in various international fora, starting with the G7 Leaders endorsement in June 2016 of the *G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment*. This was reinforced by the Leaders statement at the G20 Hangzhou Summit in September 2016 that affirmed the concept of quality infrastructure investment.

4. At the 2017 meeting of the OECD Council at the Ministerial level (MCM), Ministers confirmed the importance of promoting quality infrastructure with open and fair access and encouraged the OECD to elaborate guidelines and good practices in this area, giving appropriate consideration to the principles for quality infrastructure and related issues agreed by international fora. The issue of quality infrastructure is also central to a major OECD horizontal project launched in 2019 on “Strategic Policies for Sustainable Infrastructure”.¹

5. Further, the development of quality infrastructure is a key dimension of the [G20 Roadmap to Infrastructure as an Asset Class](#) endorsed by G20 Finance Ministers and Central Banks Governors in 2018, and as such, its overall objective is to increase private infrastructure investment and reduce the infrastructure financing gap. It is also an

¹ The OECD approach to sustainable/quality infrastructure is comprehensive and incorporates features and concepts such as usefulness, openness, efficiency, stability, financial sustainability, integrity, governance, transparency, resilience, connectivity, environmental, social and governance (ESG) objectives, and SDGs. It is also fully consistent with G7, G20 and APEC approaches including the *G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment* (2016), the *G20 Roadmap to Infrastructure as an Asset Class* (2018), the *G20 2016 Leaders declaration*, and the *G20 Principles for Quality Infrastructure Investment* (2019).

element of the [G20 High Level Principles on Sustainable Habitat through Regional Planning](#) developed in 2018.

6. The [G20 Principles for Quality Infrastructure Investment \(QII\)](#), including the elements of maximising the positive impact of infrastructure to achieve sustainable growth and development, raising economic efficiency in view of life cycle costs, integrating environmental and social considerations in infrastructure investment, building resilience against natural disasters, and strengthening infrastructure governance, developed under the Japanese G20 Presidency and endorsed by G20 Leaders in 2019, provide a voluntary framework to assist countries in pursuing investments that maximise the economic, social, environmental and development impact of infrastructure. The OECD has supported the G20 Principles by contributing a number of inputs including an *OECD Reference Note on Environmental and Social Considerations in Quality Infrastructure*; an *OECD/IMF Reference Note on the Governance of Quality Infrastructure Investment*; and a *G20 Compendium of Good Practices for Promoting Integrity and Transparency in Infrastructure Development*. Following the endorsement of the G20 Principles, it is important to promote their implementation, as well as their dissemination to non-G20 economies.

7. This Compendium of Policy Good Practices for Quality Infrastructure Investment responds to these various converging initiatives and instruments including thus the mandate of the OECD MCM, the OECD Horizontal Project on “Strategic Policies for Sustainable Infrastructure”, and the *G20 Principles for Quality Infrastructure Investment*.

8. The Compendium also clearly addresses the 2020 G20 priorities on infrastructure, developed under the Saudi Arabia G20 Presidency. In particular, the sections on “Raising economic efficiency in view of the life cycle cost” and on “Building resilience against natural disasters and other risks” are highly related to the G20 priority on the Infratech Agenda, while the section on “Mobilising financing and managing associated liabilities” matches the other main G20 priority on promoting the role of private sector investment and addressing the related challenges. Beyond matching these G20 priorities as expressed in the “finance track” and, in particular, in the G20 Infrastructure Working Group, the Compendium responds to a 2019 call from the Development Working Group² to promote a shared understanding of quality infrastructure investment in non-G20 countries, which has been renewed in 2020.

9. The Compendium can also serve to support country responses under the [G20 Action Plan – Supporting the Global Economy through the COVID-19 Pandemic](#), where G20 countries have committed to re-double their efforts to promote quality infrastructure investment and accelerate efforts to mobilise private sources of infrastructure financing, aimed at raising productivity, lifting growth, and promoting job creation.

² While the Compendium responds to a request from the MCM in 2017, it also aims to support the dissemination of the *G20 Principles for Quality Infrastructure Investment* as suggested by the G20 Development Working Group (DWG) which agreed on “cooperating with IOs, such as the OECD and MDBs, to reach out to non-G20 countries, to promote a shared understanding on quality infrastructure investment, including through providing a compendium of good practices” (mentioned in 5.2 of G20 Development Working Group (DWG) Key Elements of Quality Infrastructure for Connectivity Enhancement towards Sustainable Development).

Purpose of the Compendium

10. The purpose of this Compendium of Policy Good Practices is to compile and provide a unique set of **existing integrated and multidisciplinary international good practices for policymakers and practitioners in both developed and developing economies to use to the extent possible, depending on circumstances and on a voluntary basis, and which promote a shared understanding of the elements needed to support quality infrastructure investments in accordance with international standards.**

11. The Compendium also provides a timely guide for developing infrastructure that supports a strong, resilient, inclusive and green recovery from the COVID-19 crisis. In addition, it offers guidance on making infrastructure more resilient to natural disasters and other threats such as pandemics.

12. The Compendium brings together relevant OECD good practices (more than 340) drawn from across a wide range of OECD standards as well as other guidance included in policy-relevant work, implementation reports or evidence-based analysis developed across more than 20 substantive committees and their subsidiary bodies (Table 1). They represent a compilation, consolidation and distillation of the collective knowledge of the OECD on quality infrastructure.

Table 1. Committees of the OECD and of other entities whose work is represented in the Compendium

OECD Committees	Related Directorates
The Committee on Financial Markets (CMF) and its subsidiary body the Task Force on Institutional Investors and Long-term Financing	Directorate for Financial and Enterprise Affairs (DAF)
The Committee on Fiscal Affairs (CFA)	Centre for Tax Policy and Administration (CTP)
The Committee on Statistics and Statistical Policy (CSSP)	Statistics and Data Directorate (SDD)
The Committee on Digital Economy Policy (CDEP)	Directorate for Science, Policy and Innovation (STI)
The Competition Committee (CC)	Directorate for Financial and Enterprise Affairs (DAF)
The Corporate Governance Committee (CGC)	Directorate for Financial and Enterprise Affairs (DAF)
The Development Assistance Committee (DAC)	Development Cooperation Directorate (DCD)
The Economic Policy Committee (EPC)	Economics Directorate (ECO)
The Environment Policy Committee (EPOC)	Environment Directorate (ENV)
The Governing Board of the OECD Development Centre (DEV GB)	Development Centre (DEV)
The Insurance and Private Pensions Committee (IPPC)	Directorate for Financial and Enterprise Affairs (DAF)
The Investment Committee (IC)	Directorate for Financial and Enterprise Affairs (DAF)
The Public Governance Committee (PGC) and its subsidiary bodies the Working Party of Senior Budget Officials (SBO), Network of Senior Infrastructure and PPP Officials, and the Leading Practitioners on Public Procurement (LPP)	Public Governance Directorate (GOV)
The Regional Development Policy Committee (RDPC)	Centre for Entrepreneurship, SMEs, Regions and Cities (CFE)
The Regulatory Policy Committee (RPC) and its subsidiary body the Network of Economic Regulators (NER)	Public Governance Directorate (GOV)
The Trade Committee (TC)	Trade and Agriculture Directorate (TAD)
The Working Group on Bribery in International Business Transactions	Directorate for Financial and Enterprise Affairs (DAF)
Committees of other entities	Entities
The Transport Research Committee (TRC)	International Transport Forum (ITF)
The Committee for Technical and Economic Studies on Nuclear Energy Development and the Fuel Cycle (NDC)	Nuclear Energy Agency (NEA)
The Committee on Energy Research and Technology (CERT)	International Energy Agency (IEA)

13. It will be an important tool for creating awareness of and disseminating existing OECD standards and other guidance that relate to quality and sustainable infrastructure. While the Compendium draws on a number of key OECD standards that are in whole or in part relevant for quality infrastructure, it is in no way a substitute to those standards, which will remain the applicable legal and policy framework in their respective domains with their implementation supported as appropriate by the responsible committees.

14. The Compendium's good practices aim to support economies seeking to implement quality infrastructure investments, in alignment with the *G20 Principles for Quality Infrastructure Investment*, and taking into account national circumstances, using all relevant dissemination tools. The Compendium reflects the six dimensions addressed by the G20 Principles. In addition, the Compendium includes a section on *Mobilising Financing and Managing Associated Liabilities* in view of the critical importance of mobilising financial resources to support the delivery of quality infrastructure investment, particularly at scale, and in light of considerable OECD guidance in this area (Figure 1).

Figure 1. Structure of the Compendium

Possible follow-up to the Compendium

15. Through bringing together more than 340 good practices and measures, and building on over 50 OECD standards and reports, the Compendium offers a unique global reference for countries seeking to develop quality and sustainable infrastructure. However, in light of the fact that it is not fully exhaustive, and recognising that infrastructure is a field that is constantly advancing and rife with innovation, the Compendium will evolve and adapt over time to capture new and changing practices, and to fill gaps. This will also ensure that the Compendium adapts to changes to underlying OECD standards and other guidance as these may be subject to periodic review and adjustment.

16. It may be noted within the context of the OECD project on “Strategic Policies for Sustainable Infrastructure” that the deliverables for 2020, in addition to the Compendium, will include an *Implementation Handbook for Quality Infrastructure Investment*. While the Compendium is a policy guidance tool, the Handbook is an analytical and operational tool, focusing on selected major issues and challenges for quality infrastructure investment, and providing implementation solutions through concrete examples and case studies.

17. While the current phase of the Compendium focuses on OECD standards and other guidance, a follow-up phase could include, in addition, good practices developed by other international organisations and non-OECD economies, as well as case studies (such as those collected by the Global Infrastructure Hub). The ultimate objective may therefore be for the Compendium to be a dynamic tool that is updated on a regular basis to reflect changes to international instruments, the latest in good practices, and to gradually extend its coverage to include other economies. In this follow-up phase of development, and pending the availability of resources, the Compendium could be expected to be further enhanced through one or more of:

- developing a dedicated user-friendly web-based version that will support the dissemination of the good practices to a wider audience of stakeholders, and that will be regularly updated and expanded;

- consider integrating the Compendium into the multilateral project preparation platform SOURCE (www.sif-source.org) led and funded by the Multilateral Development Banks;
- enlarging the collection of good practices to include those from other international organisations and non-OECD economies, including from the G20, APEC and developing economies;
- developing tools to facilitate the voluntary implementation of these good practices such as a checklist, including possibly, global, thematic and regional versions;
- integrating work from other International Organisations such as the Global Infrastructure Hub (GIH), in particular related to case studies;
- providing a forum for collecting inputs from various communities, including asset managers and owners, applying such good practices;
- offering dedicated policy-oriented assistance and capacity building, through for instance policy reviews and seminars, for interested economies.

How to use the good practices

18. The good practices contained in the Compendium represent a selection of practices that are considered relevant for applying quality infrastructure investment, and are drawn primarily from a diverse range of OECD standards and other guidance developed within different committees of the OECD or related entities³. The good practices also draw on complementary documents produced specifically for the G20⁴. The Compendium therefore constitutes a uniquely comprehensive source of practices and related measures that can be considered by countries seeking to implement quality infrastructure investment to the extent possible, depending on circumstances and on a voluntary basis, in a manner consistent with international declarations and principles⁵.

19. In some cases, where more detailed OECD standards or other guidance is available, the good practices are supplemented with specific measures to support their implementation or tailor their use in specific sectors. While the majority of the good

³ The substantive committees that are responsible for a specific good practice or measure are identified by their acronyms in brackets alongside the good practice or measure. These will be removed upon publication.

⁴ Such as the *G20 Compendium of Good Practices for Promoting Integrity and Transparency in Infrastructure Development* developed by the G20 Anti-Corruption Working Group with support from the OECD; the *OECD Reference Note on Environmental and Social Considerations in Quality Infrastructure*; the *OECD/IMF Reference Note on the Governance of Quality Infrastructure Investments*; the *G20/OECD High-Level Principles of Long-term Investment Financing by Institutional Investors*, the *G20/OECD Guidance Note on Diversification of Financial Instruments for Infrastructure and SMEs*, and the Multilateral Development Banks' Reference Note, *Translating Quality Infrastructure Investment (QII) Principles into Procurement Practices*.

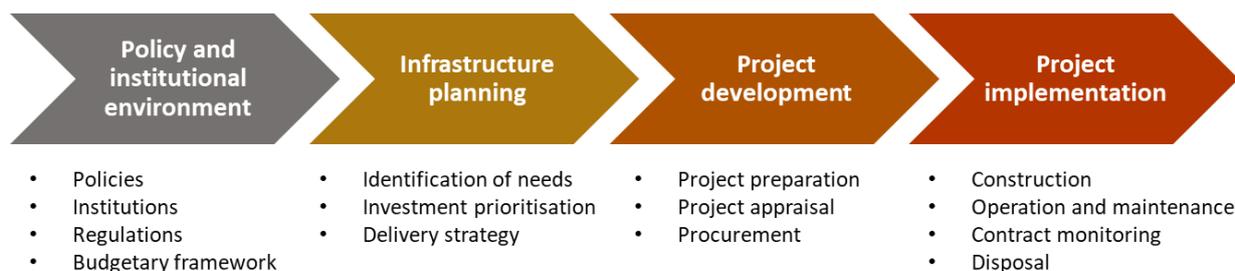
⁵ Including the *G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment*, the *G20 Roadmap to Infrastructure as an Asset Class* and the *G20 Principles for Quality Infrastructure Investment*.

practices apply to national and sub-national governments, a number of them are especially relevant for donors and development partners given the importance of implementing quality infrastructure investment in developing countries.

20. The good practices cover the full life cycle of infrastructure, from creating an appropriate policy and institutional environment through the infrastructure planning and project development phases to project implementation (Figure 2). Most of the good practices are structured according to the phase of the life cycle to which they relate.

21. However, not all stages of the life cycle are represented within each dimension, and certain elements of the G20 Principles may not yet be fully reflected within the Compendium. This partly reflects the unique nature of each dimension as well as the organic character of the Compendium which is built from existing good practices. As the Compendium evolves over time, it is expected that aspects with relatively less guidance will be reinforced as committees or other bodies develop standards or other guidance in these areas.

Figure 2. The infrastructure life cycle



22. Within each section, the good practices are preceded by a preamble that provides a degree of background and context, and ensures a good linkage with the relevant G20 Principle. The language used for the good practices, in the majority of cases, is consistent with that used in the underlying instrument. However, in some cases, very similar good practices have been developed by different OECD committees. In order to avoid excessive duplication, the Compendium incorporates drafting used by one of the committees, or adopts a hybrid version that combines the language of different committees (while mentioning all the committees that developed guidance consistent with the good practice in question).

23. Certain good practices are present across multiple dimensions of quality infrastructure investment, sometimes in slightly modified form. This occasional repetition is a reflection of the interdependence across the seven dimensions and should reinforce their relevance. It also enables the readers focusing on just one dimension to obtain a fuller view of salient good practices.

24. Given the nature of the Compendium and its role in supporting the dissemination and implementation of existing OECD standards, and its expected evolution as a dynamic tool, it is published under the responsibility of the Secretary-General.

Maximizing the Positive Impact of Infrastructure to Achieve Sustainable Growth and Development

(Corresponding to Principle 1 of the [G20 QII Principles](#), see Annex)

The aim of pursuing quality infrastructure investment is to maximise the positive economic, environmental, social and development impact of infrastructure, and create a virtuous circle of economic activities, while ensuring sound public finances.

Quality infrastructure contributes to human well-being and social and economic development by supporting inclusive and sustainable growth, job creation, and access to essential services. The economic benefits of quality infrastructure investments extend beyond the immediate economic stimulus and the direct creation of jobs to encompass spill-over effects on the wider economy and productivity improvements that enhance long-term economic growth. Crucially, in order to deliver overall positive benefits, public investments should be developed with a view to generating high returns to society (normally measured as high benefit/cost ratios in socioeconomic analyses).

The facilities and services of infrastructure should have sustainable development at their core and need to be broadly available, accessible, inclusive and beneficial to all. Moreover, by enhancing accessibility to, and national, regional, and global connectivity of, infrastructure, based on consensus among countries, quality infrastructure investment can help to achieve a virtuous circle of economic activities. Quality infrastructure is a foundation for inter alia:

- Providing access to clean drinking water and sanitation which are fundamental for health and economic productivity.
- Mitigating flood risks and improving access to water through improved storage for multiple water uses, such as irrigation, manufacturing and hydro-power.
- Improving access to clean and low-emission electricity.
- Providing reliable and accessible low-emissions transport - a key contributor to improving livelihoods and economic productivity.
- Expanding Internet access and telecommunication services that give rise to increasing connectivity and generate economic opportunities.
- Delivering social services such as health, education and affordable housing, that are essential for human development and the reduction of inequalities.
- Building sustainable, inclusive and liveable cities.
- Improving cross-border connectivity which is essential for supporting trade, integration into regional and global value chains, and inclusive growth.
- Ensuring sustainable use of natural resources, and low-carbon and environmentally responsible societies.

To achieve such positive outcomes, infrastructure investment should be guided by a sense of shared, long-term responsibility for the planet consistent with the 2030 Agenda

for Sustainable Development, national and local development strategies, and relevant international commitments, and in the spirit of extensive consultation, joint efforts and shared benefits. Domestic resource mobilisation is critical to addressing the infrastructure financing gap. Assistance for capacity building, including for project preparation, should be provided to developing countries with the participation of international and regional organisations and development institutions and agencies.

Infrastructure planning

Long-term investment strategies and plans

1.1 Developing and publishing long-term investment plans, consistent with a sound fiscal framework (including transparency of off-balance sheet public debt and fiscal risks of projects), after carrying out a suitable impact assessment and cost-benefit analysis of projects. [CMF/IPPC]

The following measures may complement this good practice:

- Ensure that investment plans and their associated regulatory, judicial, and tax environment are transparent and consistent, and that they contribute to sustainable development and growth. [CMF/IPPC]
- Identify, assess and manage prudently longer-term sustainability and other fiscal risks, through clearly identifying, classifying by type, explaining and, as far as possible, quantifying fiscal risks, including contingent liabilities, so as to inform consideration and debate about the appropriate fiscal policy course adopted in the budget. [PGC]
- Future-proof long-term infrastructure investment decisions against uncertainty and disruptive change (e.g. technological change, climate change) by applying strategic foresight methods such as scenario planning. [ITF/TRC]

1.2 Aligning infrastructure plans with objectives of the Paris Agreement and Nationally Determined Contributions (NDCs)⁶, embedding the Sustainable Development Goals (SDGs) in infrastructure development plans, and ensuring coherence with the government's national economic and development strategies, and overall SDG strategy. [DAC, EPOC, PGC, IC, RDPC].

The following measures may complement this good practice⁷:

- Consider the following outcomes when planning infrastructure:
 - creation of new jobs during construction, operation and maintenance of infrastructure, as well as positive spillover effects that stimulate the economy and lead to more demand for jobs;

⁶ This applies to the Parties of the Paris Agreement.

⁷ This illustrative list of measures is exceptionally directly taken from the G20 QII principles while further work is currently developed at the OECD to identify related dedicated good practices.

- voluntary transfer of advanced technology and know-how on mutually agreed-upon terms;
 - better allocation of resources, enhanced capacities, skills upgrade and improvement of productivity for local economies;
 - improved potential for economic growth, leading to widening of the investor base, crowding-in more private investment, and resulting in further improvement in economic fundamentals; and
 - facilitation of trade, investment, and economic development.
- Promote sustainable development and connectivity, including through:
 - infrastructure investment which takes into account economic, environmental and social, and governance aspects, and is guided by a sense of shared, long-term responsibility for the planet consistent with the 2030 Agenda for Sustainable Development, national and local development strategies, and relevant international commitments, and in the spirit of extensive consultation, joint efforts and shared benefits;
 - facilities and services of infrastructure which have sustainable development at their core and need to be broadly available, accessible, inclusive and beneficial to all;
 - a virtuous circle of economic activities which is further secured through enhancing accessibility to, and national, regional, and global connectivity of, infrastructure, based on consensus among countries;
 - domestic resource mobilization which is critical to addressing the infrastructure financing gap;
 - assistance for capacity building, including for project preparation, which is provided to developing countries with the participation of international organizations; and
 - quality infrastructure investment which also needs to be tailored to individual country conditions and consistent with local laws and regulations.

1.3 Designing and implementing investment strategies tailored to the place the investments aim to serve. [RDPC]

Joint efforts and consultation

1.4 Seeking complementarities and reducing conflicts among sectoral strategies. [RDPC]

The following measures may complement this good practice:

- Pursue mutually reinforcing impacts in the form of policy complementarities in order to make the most of public investment. [RDPC]
- Use strategic frameworks for public investment to align objectives across ministries and levels of government. [RDPC]

- Minimise administrative barriers through co-ordination mechanisms such as, but not limited to, inter-ministerial committees and programmes, and harmonisation of programme rules. [RDPC]
- Establish joint investment funds that pool monies across public agencies/ministries to encourage consideration of a broader set of priorities. [RDPC]

1.5 Engaging with public, private and civil society stakeholders in the design and implementation of public investment strategies to enhance social and economic value, and to ensure accountability. [RDPC, PGC, IC]

The following measures may complement this good practice:

- At all levels of government, meaningfully involve stakeholders in needs assessment and the design of an investment strategy at an early stage in the investment cycle, and, at later stages, in feedback and evaluation. [RDPC]
- Expose information on public investment plans, expenditures and results to some level of public scrutiny to promote transparency and accountability. [RDPC]
- Ensure early and meaningful stakeholder engagement with affected communities according to recognised international standards. Where infrastructure projects involve separate jurisdictions, including at the regional level, special caution is warranted to ensure that project objectives are widely shared and underpinned by formal agreements and dispute resolution mechanisms. [IC]
- Engage with new types of stakeholders such as property developers and long-term institutional investors. [RDPC]

Key standards and other sources

OECD Recommendation on Effective Public Investment Across Levels of Government [[OECD/LEGAL/0402](#)]

OECD Recommendation on the Governance of Infrastructure [[OECD/LEGAL/0460](#)]

OECD (2017) Getting Infrastructure Right: A framework for better governance, OECD Publishing, Paris, <https://doi.org/10.1787/9789264272453-en>

Report on the Implementation of the Recommendation on Effective Public Investment across Levels of Government [[C\(2019\)14/REV3](#)]

G20/OECD High-level Principles on Long-term Investment Financing by Institutional Investors (2013), <https://www.oecd.org/finance/principles-long-term-investment-financing-institutional-investors.htm>

OECD Recommendation on the Policy Framework for Investment [[OECD/LEGAL/0412](#)]

OECD Recommendation on the Assessment of Projects, Plans and Programmes with Significant Impact on the Environment [[OECD/LEGAL/0172](#)]

OECD Declaration on International Investment and Multinational Enterprises [[OECD/LEGAL/0144](#)]

OECD Decision on the OECD Guidelines for Multinational Enterprises [[OECD/LEGAL/0307](#)]

OECD Recommendation on the OECD Due Diligence Guidance on Responsible Business Conduct [[OECD/LEGAL/0443](#)]

OECD/The World Bank/UN Environment (2018), Financing Climate Futures: Rethinking Infrastructure, OECD Publishing, Paris, <https://doi.org/10.1787/9789264308114-en>

OECD (2017), Investing in Climate, Investing in Growth, OECD Publishing, Paris, <https://doi.org/10.1787/9789264273528-en>

OECD (2019), Reference Note on Environmental and Social Considerations in Quality Infrastructure, <https://www.oecd.org/g20/summits/osaka/OECD-Reference-Note-on-Environmental-and-Social-Considerations.pdf>

Raising Economic Efficiency in View of Life cycle Cost

(Corresponding to Principle 2 of the [G20 OII Principles](#))

Infrastructure has the potential to deliver long-term improvements in welfare to society on the condition that investments represent an efficient use of public and private resources over the life cycle of projects. Infrastructure that is poorly planned, executed and maintained can represent a waste of resources that yields little or no positive benefit. Infrastructure investment that is economically efficient over its life cycle must represent value for money for both users and taxpayers, while taking into account both positive and negative externalities.

The economic efficiency of infrastructure needs to be underpinned by a stable and predictable legal and regulatory framework that reduces investment risks and enables economic actors to make sound decisions. Where applicable, appropriate pricing mechanisms can encourage more efficient use of existing infrastructure as well as help determine appropriate levels of provision. At the project planning stage, rigorous project appraisal that privileges economic efficiency criteria along with environmental and social sustainability throughout the project life cycle (planning, investment, operation and maintenance, and disposal) should underpin project selection. Projects should also include strategies to mitigate the risks of delays and cost overruns.

Competitive procurement processes that are designed to improve the intensity and effectiveness of competition are key success factors in the provision of quality infrastructure. Furthermore, considering life cycle costs or total cost of ownership in project preparation and procurement is critical for ensuring that infrastructure projects achieve an optimal combination of quality and cost. Consideration of social and environmental costs and risks is appropriate in this regard. In addition, effective operation, monitoring and maintenance including through using innovative technologies is essential for ensuring that economic efficiency is maintained during the operational phase of projects. Inadequate maintenance, in particular, can result in a rapid deterioration of asset quality, require costly rehabilitation, and, lead to the interruption of essential services. Finally, renegotiations can add costs, potentially undermining value for money, and should therefore be avoided as far as possible.

Policy and institutional environment

Competitive business environment

2.1 Promoting a competitive business environment and a level-playing field to foster cost effective infrastructure through subjecting activities to appropriate commercial pressures, dismantling unnecessary barriers to entry, and implementing and enforcing adequate competition laws. [IC]

The following measures may complement this good practice:

- Where privately-owned infrastructure providers coexist with state-owned incumbents, measures to maintain a level playing field may be needed as well

as measures to reduce the scope for ad hoc interventions and irregular practices. Strong corporate governance standards that impose a clear separation between the state's ownership function and other state functions are important in this respect. In addition, all relevant laws and regulations applicable to private companies should also apply to state-owned enterprises. [IC, CGC]

- Adopt the regulatory asset base model where competition is absent or demand not strongly endogenous. [ITF/TRC]
- Reform and liberalise the regulatory environment for physical infrastructure services, such as construction, architecture and engineering services. [TC]

The following measures that apply specifically to the **broadband sector** may complement this good practice:

- Promote effective competition and continued liberalisation in infrastructure, network services and applications in the face of convergence across different technological platforms that supply broadband services and maintain transparent, non-discriminatory market policies. [CDEP]
- Implement policies that lower barriers for investment and increase regulatory certainty. These policies include simplifying licensing requirements, lifting foreign investment restrictions, ensuring effective and efficient interconnection among the different actors, simplifying and harmonising rights-of-way acquisition and encouraging network sharing and co-investment. [CDEP]
- Promote technologically neutral policy and regulation among competing and developing technologies to encourage interoperability, innovation and expand choice, taking into consideration that convergence of platforms and services requires the reassessment and consistency of regulatory frameworks. [CDEP]

2.2. Carefully considering, when appropriate, private sector participation in infrastructure provision. [IC]

The following measures may complement this good practice:

- Introduce a transparent public accounting standard that makes value for money the primary motive for pursuing private investment. [ITF/TRC]
- Mobilise private actors and financing institutions to diversify sources of financing and strengthen capacities while ensuring that public actors have sufficient information and capacity to provide effective oversight of private sector operators. Involving private actors and financing institutions in the investment should be a way to strengthen the capacity of government at different levels and bring expertise to projects through better ex-ante assessment, improved analysis of the market and credit risks, and achieving economies of scale and cost effectiveness. [RDPC]

The following measure that applies specifically to the **broadband sector** may complement this good practice:

- Recognise the primary role of the private sector in the expansion of coverage and the use of broadband, with complementary government initiatives that take care not to distort the market. Governments should assess the market-driven

availability and diffusion of broadband services in order to determine whether government initiatives are appropriate and how they should be structured. [CDEP]

Open access to essential network facilities

2.3 Guaranteeing access to essential network facilities to all market entrants on a transparent and non-discriminatory basis. [CC]

Sustainable pricing mechanisms

2.4 As relevant, using appropriate and flexible pricing for infrastructure services (e.g. user charges, congestion prices) to encourage more efficient use of infrastructure and to help decide on appropriate levels of infrastructure provision. [CFA, EPC, ITF/TRC]

The following measure may complement this good practice:

- Efficient demand management can be an alternative to investment in new assets. It is important, particularly in a fiscally constrained environment, for decision-makers to consider how demand for scarce infrastructure can be efficiently managed. [ITF/TRC]

The following measures that apply specifically to the **water sector** may complement this good practice:

- Consider diversifying revenue streams and tapping into new sources of capital, where needed and in line with policy objectives. A first step could be to combine revenues from water tariffs, transfers from public budgets and transfers from the international community (i.e. the 3Ts) to recover the costs of investment, operation and maintenance of water infrastructure as much as possible and where efficient. [EPOC]
- Consider establishing pricing instruments where appropriate and applicable in combination with other instruments (e.g. regulatory, voluntary or other economic instruments), to manage water resources (in particular water conservation), phase out negative externalities (e.g. overuse, pollution), and improve the financial sustainability of water infrastructures and water services. [EPOC]

Project development

Rigorous project appraisal and selection, based on cost-benefit analysis

2.5 Investing in rigorous project appraisal and selection processes that privilege socioeconomic efficiency (taking into account economic, social, fiscal and environmental costs and benefits including externalities) and consider not only initial costs, but the full life cycle costs of projects (planning, design, finance, construction, operation and maintenance (O&M), and possible disposal). [PGC, ITF/TRC, IC, RDPC]

The following measures may complement this good practice:

- Systematically perform ex-ante cost-benefit analyses of infrastructure projects that account for all positive and negative impacts of potential investments, including but not limited to, economic, environmental, displacement of people, health, accident and maintenance costs and benefits. [EPC, ITF/TRC, EPOC, RDPC]
- Adopt decision-making processes and criteria that favour projects with high social returns over projects with high visibility. [EPC]
- Subject project documentation to an independent and impartial review to verify key assumptions, and ensure that spending and revenue projections are realistic. [PGC, EPC]
- Consider wider economic benefits in project appraisal for those projects that are expected to be significant (and not across the board). Guidelines on project appraisal should be expanded to include methodologies on estimating wider economic impacts. [ITF/TRC]
- Systematically publish ex-ante and ex-post cost-benefit analyses to enable review by external stakeholders. [EPC, ITF/TRC]
- Consider multiple options when appraising projects with a view to minimising current or future financing needs while addressing trade-offs and exploiting synergies between policy objectives and between short and long-term challenges. [EPOC]
- Set up an independent review of efficiency and cost-effectiveness of investments. [EPOC]

Value for money assessment

2.6 Carefully evaluating different procurement modes on the basis of value for money with respect to life cycle costs. [PGC, ITF/TRC, IC]

The following measures may complement this good practice:

- Use specific methodologies for assessing value for money, which include creating an analytical tool for comparative assessment of service delivery options, and assessing whether projects have appropriate scale and duration, are innovative, have appropriate legal basis, better integration of design, relevant risk transfers and financial design, and construction and operational requirements. [IC]
- Pursue private financing of infrastructure on the merits of improved value for money with respect to life cycle costs. [ITF/TRC]
- Stimulate innovation through early contractor involvement or alliancing. [ITF/TRC]
- Compare advantages and weaknesses of PPPs versus other forms of private capital involvement in infrastructure projects. [ITF/TRC]

Competitive tendering process focused on defined measurable outcomes

2.7 Using competitive tendering, maximising participation of all qualified suppliers, and limiting the use of exceptions and single-source procurement. [PGC, CC, IC]

The following measures may complement this good practice:

- Avoid favouring specific bidders by ensuring that the design of tender documents and eligibility criteria is not too restrictive or tailored. [PGC, CC, IC]
- The awarding of infrastructure contracts or concessions should be designed to guarantee procedural fairness, non-discrimination and transparency. [CC, IC]
- When implementing transparency requirements applicable to public tenders, carefully consider which information is published and avoid disclosing competitively sensitive information as this can facilitate the formation of bid-rigging schemes. [CC]
- Ensure that tender evaluation and contract award decisions considers the life cycle costs of proposals, including planning, design, construction, operation and maintenance, and disposal. [MDB]
- Use transparent award criteria mixing price, including life cycle costs, and quality elements to ensure value for money in delivery and operation stages of infrastructure. [PGC]
- Establish procedures to identify and manage abnormally low tenders. [MDB]
- Specify contracts in terms of output-based services to be provided to the public and publicise decisions in terms of careful and verifiable references to those criteria, which can add transparency and help to prevent corruption, besides encouraging companies to propose more innovative and efficient solutions. [IC, CC]
- Include reputation and demonstrated competence in selection criteria for a PPP. [ITF/TRC]

Efficient and transparent risk allocation

2.8 Ensuring a transparent and appropriate allocation of risks in the structuring of projects. [CMF/IPPC, PGC, ITF/TRC]

The following measures may complement this good practice:

- Establish dedicated procedures for identifying and clearly allocating risks between public and private parties. [PGC]
- When using public-private partnerships to deliver infrastructure, ensure that risks are transferred to those that can manage them best. [PGC]
- Avoid transferring demand risk to public-private partnerships when it is mainly dependent on exogenous factors and cannot be managed well by a private operator (e.g. if service levels do not strongly impact demand). [ITF/TRC]

- Recognise the trade-offs that exist between certainty in delivery (fixed price/fixed deadline contracts) and the cost of delivery. Seeking certainty across the board is inefficient and will result in higher costs of infrastructure. [ITF/TRC]
- Where appropriate, bundle and cross-fund public-private partnerships to reduce demand risk. [ITF/TRC]
- Invest more into upfront preparation of projects to reduce inefficient risk pricing by suppliers. [ITF/TRC]
- Pursue targeted measures for reducing uncertainty for suppliers through providing more data and information, and adopting processes that reduce uncertainty (e.g. competitive dialogue). [ITF/TRC]

Project implementation

Effective monitoring and management of assets

2.9 Optimising life cycle costs and asset quality through ensuring effective monitoring, operation and maintenance. [PGC]

The following measures may complement this good practice:

- Develop monitoring frameworks that include performance indicator systems, data collection, and reporting requirements for infrastructure networks and PPPs at both national and subnational levels. [PGC, RDPC]
- Empower regulatory authorities in charge of infrastructure networks to collect data on asset conditions and maintenance needs, and set performance indicators accordingly to ensure that service levels do not deteriorate over time and sufficient funding is assigned to maintenance and replacement activities. [PGC]
- Take stock of existing assets, maintain them, and look for efficiency gains. [PGC]
- Informing decision-making on affordability⁸ of new projects and minimising debt sustainability risks by measuring and disclosing multi-year spending commitments, including running and maintenance costs. [PGC]

The following measure that applies specifically to the **water sector** may complement this good practice:

- Improve the information system, flow monitoring and the use of performance indicators in the management of water networks. [RDPC]

⁸ Throughout the Compendium, *affordability* should be considered taking into account the entire life cycle costs of infrastructure projects; from a government's perspective it means that projects can be accommodated within the government's current and future budget constraints; from the end-users perspective it refers to the ability and willingness to pay the tariffs or other user charges associated with the access and use of the infrastructure asset (from OECD Recommendation on the Governance of Infrastructure).

Re-negotiations

2.10 Limiting recourse to re-negotiations in public-private partnerships, and if unavoidable, establishing predictable frameworks and strategies for handling them. [ITF/TRC, PGC, IC]

The following measures may complement this good practice:

- Establish predictable frameworks, including at the contract level, governing the circumstances under which re-negotiations can be considered, and that can help ensure the flexibility needed for the success of long-term infrastructure contracts. [IC, PGC]
- Prepare strategies to manage re-negotiations. [PGC]
- Ensure that re-negotiations are conducted transparently and subject to the ordinary procedures of Public-Private Partnership approval. [PGC]
- Consider to task an independent body (designate a PPP arbiter) with determining when re-negotiation of a PPP is legitimate. [ITF/TRC]

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Integrating Environmental Considerations in Infrastructure Investments

(Corresponding to Principle 3 of the [G20 OII Principles](#))

Quality infrastructure investment is vital to achieving the SDGs and environmental, social and governance (ESG) objectives, including pursuing the transformational changes required to limit climate risks in line with the Paris Agreement⁹, ensuring water and food security, and safeguarding terrestrial and marine biodiversity and ecosystem services. Getting fundamental climate policies right is essential to aligning incentives, including accelerating reform of inefficient fossil-fuel subsidies that encourage wasteful consumption. More specifically, as urban populations are expected to account for over 70% of the world population by 2050, quality infrastructure investments will be needed to expand and renew urban infrastructure, particularly in clean energy, sustainable transport, green buildings, water and sanitation.

Decisions on the location, type, design and timing of infrastructure developments can have profound implications for the environment, with poor quality infrastructure contributing to air pollution, climate change, changes in water quality and quantity, biodiversity loss and the degradation of ecosystems. Environmental considerations should therefore be integrated in key decisions relating to infrastructure planning, project selection and design, and procurement, and the effects of projects on the environment should be monitored and mitigated over their life cycle. Infrastructure investment plans that take into account environmental goals, and ensure a visible pipeline of bankable and sustainable projects that internalise positive and negative externalities over the lifetime of infrastructure are important measures to maximise the positive impact of investments while preventing or mitigating negative ones, and to stimulate the development of sustainable infrastructure.

It is also important that governments promote responsible business conduct that guards against the adverse impacts of investments on society and the environment. At the same time, the environmental impact of infrastructure investment should be made transparent to all stakeholders, through improving disclosure of environment-related information.

Policy and institutional environment

Alignment of incentives and policies

3.1 Aligning incentives for quality infrastructure that take account of externalities and country circumstances, and encouraging investment in low-carbon, resilient infrastructure through greater use of market-based instruments as well as public procurement. [EPOC, IEA/CERT, NEA/NDC, ITF/TRC, IC].

3.2 Ensuring that infrastructure and broader environmental policies enable the development of green infrastructure systems, such as sustainable transport

⁹ This applies to the Parties of the Paris Agreement.

infrastructure, low-emission electricity, climate resilient and energy and resource efficient infrastructure. [IC]

3.3 Examining spatial planning policies, technical standards, and economic policies and regulation to ensure that they are conducive to adapting to climate change. [EPOC]

Effective safeguards for multilateral lending¹⁰

3.4 Enhancing the effective implementation of environmental and social safeguard systems by international financial institutions and in developing countries. [DAC]

The following measures may complement this good practice:

- Support and guide development banks and development finance institutions (DFIs) in building capacities for environmental and social risk management. [DAC]
- Support and guide development banks and DFIs in applying country systems where possible, raising awareness for needed reform and providing technical assistance to strengthen country systems. [DAC]
- Support and guide development banks in harmonising safeguards 'upwards', including with a view to commercial investors and emerging development finance providers. [DAC]
- Support and guide development banks and DFIs in monitoring safeguard compliance and environmental and social performance. [DAC]
- Promote implementation of responsible business conduct (RBC) principles and standards as a way to ensure a risk-based approach to infrastructure as related to environmental and social issues. [IC]

Infrastructure planning

Alignment of planning with environmental objectives

3.5 Rethinking planning at all levels of governments to align current infrastructure project plans with long-term climate and development objectives, as well as biodiversity and other environmental goals. [EPOC]

3.6 Integrating substantive environmental considerations into the development and implementation of public plans and programmes, including with regard to land use, at the national and sub-national levels, through strategic environmental assessment. These environmental considerations should be entrenched in the entire life cycle of infrastructure projects. [EPOC]

¹⁰ This topic is equally relevant to the social dimension; the good practices and measures are therefore replicated in the section on Integrating Social Considerations in Infrastructure Investments. The environmental and social dimensions are treated jointly since international financial institutions (IFIs) group environmental and social safeguards as an integrated package of measures.

3.7 Aligning investment strategies with long-term environmental goals, and improving the transparency of infrastructure project pipelines. [EPOC]

The following measure may complement this good practice:

- Where possible, consider fast-tracking suitable infrastructure project investment that helps reduce the carbon and energy intensities of economies to target levels, prioritising the deployment of “high-value” and strategically important projects and sectors. [EPOC]

3.8 Integrating environmental criteria, including external costs and benefits, into project selection and prioritisation. [EPOC, ITF/TRC]

Assessment and mitigation of adverse environmental impacts

3.9 Co-ordinating the scope and procedures for the appropriate and time-bound assessment of the environmental impact as an input to the planning and decision-making process, thus ensuring early consideration of measures to avoid, minimise or mitigate environmental impacts and enhance environmental quality. [EPOC]

3.10 Managing infrastructure impacts on biodiversity and ecosystems in accordance with the mitigation hierarchy: 1. Avoid, 2. Minimise, 3. Restore, and 4. Offset. [EPOC]

Role of natural ecosystems in delivering valuable infrastructure services

3.11 Considering and supporting the role of natural ecosystems (nature-based solutions) such as wetlands, forests and coral reefs in delivering infrastructure services as an alternative or complement to ‘hard’ / civil-engineered infrastructure. [EPOC]

Project development

Environmental assessments for projects

3.12 Using environmental assessment as part of the planning and decision-making process for all projects having a potentially significant impact on the environment. [EPOC]

The following measures may complement this good practice:

- Incorporate alternative solutions in the assessment of environmental impact, so that thorough analyses of projects, plans and programmes can be made with a view to arriving at the best environmental options. [EPOC]
- Consider instituting, as appropriate, environmental assessment procedures for projects, plans and programmes that might have significant transboundary effects. [EPOC]
- Implement, where appropriate, practical measures for informing the public and for enabling the participation by those who may be affected at suitable stages of decision-making on projects, plans and programmes. [EPOC]

- Making the results of environmental assessment transparent to investors to further promote green financial markets. [EPOC]

The following measure that applies specifically to the **water sector** may complement this good practice:

- Identify, assess and endeavour to mitigate risks associated with investments that negatively affect the natural integrity of rivers, lakes, aquifers and wetlands, their hydro morphological conditions, the natural water retention capacity of the basins or ecosystem functioning. [EPOC]

Procurement and indirect spending to support climate and other environmental objectives

3.13 Leveraging public procurement practices and indirect spending through state-owned enterprises, development finance institutions, export credit agencies and public investments to align infrastructure investments with environmental objectives. [EPOC]

3.14 Integrating environmental performance as a competing factor in procurement processes. [RDPC, PGC]

The following measures may complement this good practice:

- Include environmental criteria in tender evaluation procedures (e.g. carbon intensity of bids, projected impact on local air pollution or biodiversity). [PGC, RDPC]
- Incorporate identified environmental risks and impacts into qualification and selection criteria, technical specifications, standards, KPIs, and contractual obligations. [MDB]
- Require tenderers / proposers to submit, as part of their tender, environmental, social, health and safety management strategies and thorough implementation plans to manage the key risks of the project. The suitability of these strategies and plans should be assessed as part of the tender evaluation, addressed during pre-contract discussions, as appropriate, and become part of the contractor's environmental and social management plan. [MDB]
- When possible, select key contractors and consultants that have environmental and sustainability credentials, including international certification and a good track-record, and demonstrate ongoing compliance with relevant environmental laws, regulations, guidelines and standards. [MDB]

Efficient use of resources

3.15 Applying a circular economy approach to designing infrastructure in order to favour the efficient use of resources and their reuse, while increasing resilience of vulnerable areas. [RDPC]

Project implementation

Compliance frameworks and the monitoring of environmental impacts

3.16 Developing transparent and streamlined compliance frameworks to contain environmental and social costs. [EPC]

3.17 Introducing practical measures for monitoring the effects on the environment of projects, plans and programmes that have been subject to environmental impacts assessment or strategic environmental assessment procedures. [EPOC]

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Building Resilience against Natural Disasters and Other Risks

(Corresponding to Principle 4 of the [G20 OII Principles](#))

Ensuring that infrastructure is resilient to extreme weather, natural disasters, pandemics, and other risks will help to reduce direct losses and reduce the indirect costs of disruption. Furthermore, with the increasing frequency and intensity of extreme weather events around the globe, enhancing the resilience of infrastructure is critical for preserving development gains, protecting lives, and achieving the objectives of the 2030 Agenda for Sustainable Development. Efforts to enhance infrastructure resilience will need to be tailored to local circumstances given that weather and geographical conditions differ significantly across regions and countries. Other human-induced threats such as terrorism and cyber-threats can also debilitate critical infrastructure networks, causing major disruptions to supply chains and jeopardising the health and safety of citizens.

Adapting infrastructure to these risks by sound disaster risk management can help to reduce the loss of lives, physical damages and interruptions in critical socio-economic services. It also helps to reduce poverty, achieve greater energy security and preserve natural assets that are essential for realising long-term economic benefits. Infrastructure protection programmes should encourage cooperation between governments and actors involved in operating critical infrastructure, and focus on minimising the disruption to infrastructure systems caused by hazards.

‘Preventive’ investments are particularly important for enhancing resilience since they can reduce total cost and loss. Promoting ecosystem-based approaches can also help enhance resilience, and can provide additional benefits that conventional approaches to building the resilience of infrastructure may not.

Policy and institutional environment

Enabling environment for policies that promote resilience and risk reduction

4.1 Creating an enabling policy environment for climate and disaster resilient infrastructure by supporting the adoption of public policies and regulations that can promote climate resilience by influencing the choices of private actors in various sectors, such as building codes and regulations, spatial planning frameworks, and incentives for early warning systems. [EPOC, DAC]

The following measures may complement this good practice:

- Ensure that decision-makers have access to high quality information, consistent data and the capacity to use this information to inform planning. Relevant uncertainties should be clearly communicated, and guidance provided on how to incorporate these into decision-making. [EPOC, DAC]

- Encourage the adoption of tools for mainstreaming resilience in critical policy areas and encourage investments in resilient infrastructure, including: (i) spatial planning frameworks; (ii) infrastructure project and policy appraisals, including Strategic Environmental Assessment and Environmental Impact Assessment; and (iii) regulatory and economic standards (such as building codes). [EPOC, DAC]
- Promote physical climate risk disclosure that is tailored to national circumstance in order to help raise awareness of and encourage efforts to reduce climate-related risks to infrastructure. [EPOC, DAC]
- Engage stakeholders at all stages of the infrastructure cycle for ensuring resilience. Participatory decision making with community members (e.g. local, indigenous, remote coastal and small island communities), can enhance overall resilience in vulnerable areas. [RDPC].

4.2 Integrating climate impacts and disaster risks into policies for the planning, budgeting, design, construction (including retrofitting and reconstruction), operation and maintenance of public infrastructure. [EPOC, DAC]

The following measures may complement this good practice:

- Provide access to information (e.g. climate data and projections) to support decision-making. [EPOC]
- Ensure that relevant actors (including state-owned utilities, professional associations and regulators) have sufficient capacity to understand and manage climate and disaster risks, and facilitate partnerships between sectors to better understand and address infrastructure interdependencies. [EPOC]
- Take into account potential climate and disaster risks when making public sector investments. [EPOC, PGC]
- Assess the need to retrofit or manage existing infrastructure differently, given climate change, such as raising the height of bridges or protecting or enhancing natural drainage systems. [EPOC, DAC]
- Consider ecosystem-based approaches, including natural infrastructure, as a complement or substitute for traditional built (or “grey”) infrastructure, as a means of building resilience to the adverse effects of climate change. [EPOC]
- Review infrastructure management measures and approaches to help build resilience, for example by changing maintenance schedules or adopting adaptive, forward-looking management approaches. [EPOC]

The following measure that applies specifically to the **nuclear energy sector** may complement this good practice:

- For existing nuclear facilities, consider the possibility of extreme weather events resulting from climate change as a necessary requirement of Long Term Operation (LTO) licensing; for new facilities, these type of events are generally already taken into account at the design and siting stages. Given the long operating life for which these nuclear facilities are designed, long term safety

and resilience considerations are inherently integrated at all steps of the design, licensing, construction and operation. [NEA/NDC]

Disaster risk financing

4.3 Establishing a strategy for managing the financial impacts of disasters that fosters an integrated approach to the financial management of disaster risks across all levels of government, provides sufficient resources for the assessment of disaster risks, ensures co-operation and co-ordination across organisations in the public and private sectors, and assesses the appropriate levels of risk retention and risk transfer. [IPPC]

4.4 Promoting comprehensive risk assessment processes that allow for the estimation of exposures and the identification of financial vulnerabilities. [IPPC]

The following measure may complement this good practice:

- Ensure that data on assets, structural vulnerabilities, hazards and past losses necessary for the quantification of potential exposures are produced, collected, shared and made publicly available. [IPPC]

4.5 Supporting the effective management of the financial impacts of disasters by all segments of the population and economy and encouraging the development of risk transfer markets for disaster risks. [IPPC]

The following measure may complement this good practice:

- Implement a financial sector regulatory and supervisory framework that ensures a sound, open and efficient financial sector with sufficient financial capacity to absorb disaster risks, including by enabling the use of risk transfer to national and international (re)insurance and capital markets. [IPPC]
- Ensure that disaster insurance and compensation arrangements encourage public and private risk reduction. [IPPC]

4.6 Donors and development partners should consider actions that support small-island developing states (SIDS) in enhancing resilience to climate change and natural disasters through facilitating access to innovative financing and risk transfer mechanisms such as insurance, contingency funds, or contingent credit lines. [DAC]

Infrastructure planning

Cooperation arrangements to manage risks and ensure continuity of critical infrastructure

4.7 Establishing a critical infrastructure¹¹ protection (CIP) programme to assist owners and operators of critical infrastructure systems to co-operate with the government to manage all hazards that pose critical risks. [PGC]

The following measures may complement this good practice:

- Set-up a multi-sector governance structure for critical infrastructure resilience. [PGC]
- Seek to understand complex interdependencies and vulnerabilities across infrastructure systems to prioritise resilience efforts, and adopt methodologies and metrics to identify the critical functions, systems and assets that should be prioritised for investments in building resilience. [PGC]
- Establish trust between government and operators by securing risk-related information-sharing, including through establishing information-sharing platforms between governments and operators of critical infrastructure for a comprehensive and shared understanding of risks and vulnerabilities with attention to security and confidentiality of information shared. [PGC]
- Build partnerships and establish an ongoing dialogue between governments and critical infrastructure operators from the public and private sectors to agree on a common vision and achievable resilience objectives. [PGC]
- Define the policy mix to prioritise cost-effective resilience measures across the life cycle, and to incentivize operators' investments in resilience and achieve resilience objectives, informed by cost-benefit analysis. [PGC]
- Monitor implementation of critical infrastructure resilience policies and evaluate progress in attaining resilience objectives, with a clear accountability framework for operators. [PGC]
- Consider co-operating with neighbouring countries on critical infrastructure resilience policies, where appropriate, if those have trans-boundary dimensions. [PGC]

The following measure that applies specifically to the **critical information infrastructure sector** may complement this good practice:

- Develop a national strategy for managing critical information infrastructure that gains commitment from all those concerned. [CDEP]

¹¹ Critical infrastructure are systems, assets, facilities and networks that provide essential services for the functioning of the economy and the safety and well-being of the population (source: OECD Policy Toolkit on Governance of Critical Infrastructure Resilience).

Assessment of vulnerabilities and resilience of infrastructure systems

4.8 Assessing vulnerability of critical infrastructure assets and networks to threats such as extreme weather, cyber-attacks, earthquakes, flooding, tsunamis, wildfires, pandemics and terrorism. [ITF/TRC, CDEP]

The following measures may complement this good practice:

- Adopt new decision-support tools (such as scenario planning and real-options analysis) to test the robustness of critical infrastructure systems and to account for uncertainty in asset appraisal. [ITF/TRC]
- Establish a continuous systematic and cyclical process for assessing digital security risk that evaluates the potential consequences of threats combined with vulnerabilities on the economic and social activities at stake, and informs the decision making process for treating the risk. [CDEP]

4.9 Focusing on system resilience, not just on designing robust infrastructure assets, by considering how the potential consequences of an asset becoming unavailable can be minimised. [ITF/TRC]

The following measures may complement this good practice:

- Develop service continuity plans in the event of disruption of critical infrastructure assets. Robust service continuity plans for such scenarios should be in place and include re-routing, use of other modes and plans to rapidly bring the asset back online. [PGC, ITF/TRC]
- Based on digital security risk assessment, adopt a preparedness and continuity plan to reduce the adverse effects of digital security incidents, and support the continuity and resilience of economic and social activities. The plan should identify measures to prevent, detect, notify, respond and recover from digital security incidents. [CDEP]

The following measure that applies specifically to the **transport sector** may complement this good practice:

- Re-evaluate thinking on redundant transport infrastructure. Any assessment of network robustness should consider operation during a crisis as well as recovery from failure of critical links. It should also account for lack of alternative routes and demand-weighted importance of each link. [ITF/TRC]

Project development

Disaster risk management in project design

4.10 Factoring in sound disaster risk management when designing infrastructure investments. [PGC]

The following measures may complement this good practice:

- During project preparation, identify the types of risks that need to be considered as part of project design, and those that could jeopardize implementation. Once

identified, analyse the likelihood of occurrence and the magnitude of impact, and develop risk strategies and plans. [MDB]

- Establish a comprehensive disaster risk management plan that is linked to the design of infrastructure and ongoing maintenance. [PGC]
- Seek to avoid or mitigate risks through good project design. This may involve the actual design of the facility, the method of construction, or selection of the most suitable site. [MDB]

Project implementation

Regular and comprehensive risk reporting

4.11 Establishing regular and comprehensive risk reporting that is used as the basis for assessing risk management performance and holding the parties to account. [MDB]

Key standards and other sources

OECD Recommendation on the Governance of Critical Risks [[OECD/LEGAL/0405](#)]

OECD (2018), Climate-resilient Infrastructure, OECD Environment Policy Papers, No. 14, OECD Publishing, Paris, <https://doi.org/10.1787/4fdf9eaf-en>

OECD (2018), Innovative Approaches to Building Resilient Coastal Infrastructure, OECD Environment Policy Papers, No. 13, OECD Publishing, Paris, <https://doi.org/10.1787/9c8a13a0-en>

OECD Recommendation on the Governance of Infrastructure [[OECD/LEGAL/0460](#)]

OECD (2017), Getting Infrastructure Right: A framework for better governance, OECD Publishing, Paris, <https://doi.org/10.1787/9789264272453-en>

OECD (2019), Good Governance for Critical Infrastructure Resilience, Chapter 5: Policy Toolkit on Governance of Critical Infrastructure Resilience, OECD Reviews of Risk Management Policies, OECD Publishing, Paris. <https://doi.org/10.1787/02f0e5a0-en>

OECD and World Bank (2016), Climate and Disaster Resilience Financing in Small Island Developing states, OECD Publishing and The International Bank for Reconstruction and Development/The World Bank, Paris and Washington D.C, <https://doi.org/10.1787/9789264266919-en>

OECD (2018), Resilient Infrastructure for a Changing Climate, Input Document for the G20 Climate Sustainability Working Group, http://www.g20.utoronto.ca/2018/oeecd_-_resilient_infrastructure_for_a_changing_climate.pdf

OECD (2019), Reference Note on Environmental and Social Considerations in Quality Infrastructure, <https://www.oecd.org/g20/summits/osaka/OECD-Reference-Note-on-Environmental-and-Social-Considerations.pdf>

OECD/The World Bank/UN Environment (2018), Financing Climate Futures: Rethinking Infrastructure, OECD Publishing, Paris, <https://doi.org/10.1787/9789264308114-en>

OECD (2019), Financing climate objectives in cities and regions to deliver sustainable and inclusive growth. <https://doi.org/10.1787/23097841>

ITF (2016), Adapting Transport to Climate Change and Extreme Weather: Implications for Infrastructure Owners and Network Managers, ITF Research Reports, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789282108079-en>

NEA (forthcoming), Climate Change: assessment of the vulnerability of nuclear power plants and cost of adaptation.

OECD Recommendation on Digital Security Risk Management for Economic and Social Prosperity [[OECD/LEGAL/0415](#)]

OECD Recommendation on Digital Security of Critical Activities [[OECD/LEGAL/0456](#)]

OECD Recommendation on Disaster Risk Financing Strategies [[OECD/LEGAL/0436](#)]

African Development Bank et al (2019), Multilateral Development Banks' Reference Note, Translating Quality Infrastructure Investment (QII) Principles into Procurement Practices, https://www.mof.go.jp/english/international_policy/convention/g20/annex6_3.pdf

Integrating Social Considerations in Infrastructure Investment

(Corresponding to Principle 5 of the [G20 QII Principles](#))

Done properly, infrastructure investments can bring positive benefits to local communities as sources of good quality employment, new skills, and access to improved services. On the other hand, infrastructure projects are often the source of health, safety and environmental risks typically associated with large engineering works, as well as potential socioeconomic risks related to community resettlement and human rights abuses. These issues are often more acute in developing and emerging economies where people tend to rely more on their local environment for their livelihoods. Unless properly managed, and preferably avoided, these impacts can be detrimental, particularly for vulnerable and marginalised groups, including Indigenous Peoples, that have less access to systems where their concerns can be voiced. In this regard, the *OECD Reference Note on Environmental and Social Considerations for Quality Infrastructure* (which has been drafted by the OECD and has benefited from input from the World Bank, drawing upon the World Bank's Environmental and Social Framework (ESF)), proposes possible measures to strengthen social outcomes and rights as part of quality infrastructure investment.¹²

Quality infrastructure investments should seek to maximise positive impacts of investments while preventing or mitigating negative ones. They should be respectful of the health, safety, rights and needs of workers that contribute to building the infrastructure, and to the communities that are affected by it (and not just those that they intend to benefit). All workers should have equal opportunity to access jobs created by infrastructure investments, develop skills, be compensated and treated fairly, with dignity and without discrimination. It is also crucial that governments promote responsible business conduct that guards against the adverse impacts of investments on society and the environment.

Furthermore, the benefits of quality infrastructure should be inclusive and accessible to everyone, in particular vulnerable and underserved groups such as women and children, the elderly and people with disabilities. Open access to infrastructure services should be secured in a non-discriminatory manner for society, through meaningful consultation and inclusive decision-making with affected communities. There is also a need to integrate a gender perspective in the strategic planning, prioritisation and management of infrastructure projects.

¹² The good practices extracted from the Reference Note are identified with the acronym "OECD" in the following sections while the contributions from The World Bank to that note are indicated through the addition of the acronym "OECD/WB".

Policy and institutional environment

Social goals in infrastructure policy framework

5.1 Developing policy frameworks for infrastructure development that integrate social and environmental considerations, including addressing interactions (trade-offs and complementarities) between different goals to ensure policy coherence. [PGC, EPOC]

Responsible business conduct

5.2 Establishing and enforcing an adequate legal and regulatory framework that protects the public interest and supports the implementation of responsible business conduct (RBC) standards throughout the entire infrastructure project life cycle, including in the areas related to human and labour rights, environment and anti-bribery measures. [IC]

The following measures may complement this good practice:

- Require private participants, as well as state-owned enterprises that participate in infrastructure projects, to follow internationally-accepted RBC standards so that a more comprehensive picture of risk and impact is considered, as environmental and social risk in infrastructure projects is often under-estimated. [IC]
- Promote risk-based due diligence, a process through which businesses identify, prevent and mitigate their actual and potential negative impacts and account for how those impacts are addressed. [IC]
- Make available effective, secure, adequately funded and publicly accessible legal processes for investors as well as for persons and communities who are negatively impacted by infrastructure projects, along with the provision of non-judicial mechanisms for conflict resolution. [IC]

Affordable and inclusive access

5.3 Establishing regulatory frameworks and fiscal mechanisms that support affordable price setting in order to serve low-income populations for ensuring fair access and inclusiveness for public use of infrastructure. [DEV GB, IC, CDEP, EPOC]

The following measures may complement this good practice:

- Balancing affordability and cost-recovery in price-setting is key to maximising the contribution of infrastructure investment to development. Where cost-recovery prices have been possible and politically acceptable, investment has often substantially increased. When affordability is low, public subsidisation may be necessary. [IC]
- When public subsidies are required, the effectiveness and duration of such subsidies, as well as their weight on the public purse, should be regularly assessed taking into account the performance and efficiency of providers. [IC]

- Develop strategic financial plans that match financial resources with policy objectives, and ensure affordability for vulnerable segments of society, including through ad hoc targeted measures. [EPOC]

The following measures that apply specifically to **telecommunications services**, including the **broadband sector** may complement this good practice:

- Promote access to high-quality communication services on fair terms and at competitive prices to all communities, irrespective of location, in order to realise the full benefits of broadband services. [CDEP]
- Government charges such as taxation contribute to raising the ultimate cost of broadband services and ICT devices. Consider measures that contribute to lowering costs and maximising adoption of broadband services such as developing simpler, more transparent and neutral tax regimes; not imposing unreasonable burdens on any party; avoiding sector-specific taxes; and setting administrative fees close to real costs of providing the services. [CDEP]
- Consider, as necessary, establishing assistance and subsidised service programmes to close the affordability of communications gap for low-income populations. [CDEP]

Effective safeguards for multilateral lending¹³

5.4 Enhancing the effective implementation of environmental and social safeguard systems by international financial institutions and in developing countries. [DAC]

The following measures may complement this good practice:

- Support and guide development banks and development finance institutions (DFIs) in building capacities for environmental and social risk management. [DAC]
- Support and guide development banks and DFIs in applying country systems where possible, raising awareness for needed reform and providing technical assistance to strengthen country systems. [DAC]
- Support and guide development banks in harmonising safeguards 'upwards', including with a view to commercial investors and emerging development finance providers. [DAC]
- Support and guide development banks and DFIs in monitoring safeguard compliance and environmental and social performance. [DAC]
- Promote implementation of responsible business conduct (RBC) principles and standards as a way to ensure a risk-based approach to infrastructure as related to environmental and social issues. [IC]

¹³ This topic is equally relevant to the environmental dimension; the good practices and measures are therefore replicated in the section on Integrating Environmental Considerations in Infrastructure Investments. The environmental and social dimensions are treated jointly since international financial institutions (IFIs) group environmental and social safeguards as an integrated package of measures.

Well-being of workers and communities

5.5 Promoting good labour conditions and safe and healthy working environments for infrastructure workers. [OECD]

The following measures may complement this good practice:

- Adhere to international standards for Occupational Safety and Health, and promoting health and safety in the workplace. [OECD]
- Promote the fair treatment, non-discrimination and equal opportunity of project workers. [OECD/WB]
- Protect project workers, including vulnerable workers such as women, persons with disabilities, migrant workers, contracted workers, community workers and primary supply workers, as appropriate. [OECD/WB]
- Prevent the use of all forms of forced labour and child labour. [OECD/WB]
- Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law. [OECD/WB]
- Provide project workers with accessible means to raise workplace concerns. [OECD/WB]

5.6 Protecting health and safety, and contributing to the well-being and development of local communities. [OECD]

The following measures may complement this good practice:

- Consult meaningfully with communities from the inception of the project, in line with international standards. [OECD]
- Where feasible, draw on local labour forces to develop infrastructure projects. [OECD]
- Ensure that local communities enjoy access to infrastructure services. [OECD]
- Ensure that affordable social housing infrastructure is targeted at the groups that need it most in the tightest markets, and framed by rules that facilitate geographical and social mobility. [OECD]
- Co-ordinate the development of housing and infrastructure services. [OECD]
- Anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and non-routine circumstances. [OECD/WB]
- Promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams. [OECD/WB]
- Avoid or minimise community exposure to project-related traffic and road safety risks, diseases and hazardous materials. [OECD/WB]
- Have effective measures in place to address emergency events. [OECD/WB]
- Ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimises risks to the project-affected communities. [OECD/WB]

Benefits for women and girls, people of different ages, and people with disabilities

5.7 Ensuring infrastructure benefits women and girls through providing equal access to well-paying jobs, ensuring access to services, and mitigating safety-related risks. [OECD]

The following measures may complement this good practice:

- Integrate the gender dimension into infrastructure strategies, policies and projects throughout the project life cycle. [OECD]
- Develop a better understanding of women’s infrastructure needs and preferences, as well as trends, such as urbanisation, changes in women’s participation in the labour force, the growth of part-time employment, the trend to single parent households, and migration. [OECD]
- Engage in gender impact assessments to determine how infrastructure projects will affect women’s access and use of infrastructure assets and contribute to their economic empowerment and well-being. [OECD]
- Mitigate safety-related and other risks of using infrastructure that women are particularly exposed to. [OECD]
- Ensure the participation of women in the design of infrastructure strategies and plans, and in implementation, including by increasing their presence in decision-making positions. [OECD]
- Consider the well-being of female employees along the infrastructure supply chains. [OECD]
- Ensure that consultation processes engage women from different socio-economic backgrounds. [OECD]
- Expand data collection in order to obtain a gender perspective of access to and use of infrastructure (broadly defined) across and within countries as well as on the implications of infrastructure development for women’s health and the environment. [OECD]

5.8 Accommodating differences in age and people with disabilities. [OECD]

The following measures may complement this good practice:

- Enforce quotas or guidelines with regard to the employment of people with disabilities on infrastructure projects. [OECD]
- Apply universal design principles to ensure that infrastructure is usable for people of all ages and abilities. [OECD]
- Ensure that consultation processes engage people of different age groups and people with disabilities. [OECD]

The rights and interests of Indigenous Peoples

5.9 Protecting the rights and interests of, and promoting benefits for Indigenous Peoples. [OECD]

The following measures may complement this good practice:

- Ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples. [OECD/WB]
- Protect access to land and other resources necessary for the livelihoods, well-being and heritage of Indigenous Peoples. [OECD]
- Avoid adverse impacts of projects on Indigenous Peoples, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts. [OECD/WB]
- Promote sustainable development benefits and opportunities for Indigenous Peoples in a manner that is accessible, culturally appropriate and inclusive. [OECD/WB]
- Improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the Indigenous Peoples affected by a project throughout the project's life cycle. [OECD/WB]
- Obtain the Free, Prior, and Informed Consent (FPIC) of affected Indigenous Peoples in the project circumstances where Indigenous Peoples may be particularly vulnerable. [OECD/WB]

Infrastructure planning

Distributive impacts and accessibility in planning

5.10 Considering the distributive impacts of potential investments and their impact on the economic disparities between regions. [ITF/TRC]

5.11 Including accessibility measures, defined as the ease of people's access to goods, services and activities, in transport planning and appraisal methodologies. [ITF/TRC]

Infrastructure implementation

Avoidance of population displacement

5.12 Avoiding involuntary resettlement, or when unavoidable, minimising involuntary resettlement for the purpose of land acquisition for infrastructure projects by exploring design alternatives. [OECD/WB]

The following measures may complement this good practice:

- Conduct meaningful consultation with affected communities. [OECD]
- Avoid forced eviction. [OECD/WB]

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- Mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: (a) providing timely compensation for loss of assets at replacement cost and (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. [OECD/WB]
 - Improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure. [OECD/WB]
 - Conceive and execute resettlement activities as sustainable development programmes, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant. [OECD/WB]
 - Ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected. [OECD/WB]

Key standards and other sources

OECD (2019), OECD Reference Note on Environmental and Social Considerations in Quality Infrastructure, <https://www.oecd.org/g20/summits/osaka/OECD-Reference-Note-on-Environmental-and-Social-Considerations.pdf>

OECD Declaration on International Investment and Multinational Enterprises [[OECD/LEGAL/0144](#)]

OECD Decision on the OECD Guidelines for Multinational Enterprises [[OECD/LEGAL/0307](#)]

OECD Recommendation on the OECD Due Diligence Guidance on Responsible Business Conduct [[OECD/LEGAL/0443](#)]

OECD Recommendation on Broadband Development [[OECD/LEGAL/0322](#)]

OECD (2019), Sustainable Connectivity: Closing the Gender gap in Infrastructure, OECD Environment Policy Paper No. 15, <https://doi.org/10.1787/6350ba66-en>

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ITF (2018), Strategic Investment Packages, <https://www.itf-oecd.org/strategic-investmentpackages>

OECD. (2016). Multi-dimensional Review of Peru: Volume 2. In-depth Analysis and Recommendations, OECD Development Pathways. Paris: OECD Publishing. Retrieved from <http://dx.doi.org/10.1787/9789264264670-en>

OECD/UN-ECLAC/CAF (2013), Latin American Economic Outlook 2014, OECD Publishing, Paris, <http://dx.doi.org/10.1787/leo-2014-en>

OECD/ECLAC (2011), Latin American Economic Outlook 2012: Transforming the State for Development, OECD Publishing, Paris, <http://dx.doi.org/10.1787/leo-2012-en>

OECD and IDB (2016), Broadband Policies for Latin America and the Caribbean: A Digital Economy Toolkit, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264251823-en>

OECD (2018), Bridging the Digital Gender Divide: Include, Upskill, Innovate, OECD, Paris. <http://www.oecd.org/going-digital/bridging-the-digital-gender-divide.pdf>

OECD (2018), Bridging the rural digital divide, OECD Digital Economy Papers, No. 265, OECD Publishing, Paris, <https://doi.org/10.1787/852bd3b9-en>

Strengthening Infrastructure Governance

(Corresponding to Principle 6 of the [G20 QII Principles](#))

Quality infrastructure depends on making appropriate choices regarding what type of infrastructure to build and how best to deliver it. Good governance in both the public and private sectors is thus an essential pre-condition for quality infrastructure through ensuring that infrastructure investments are aligned with key policy objectives, address social and economic needs, take into account stakeholder concerns, avoid negative environmental, fiscal and social impacts, and deliver value for money for users and taxpayers. Conversely, poor governance is a major reason why infrastructure projects fail to meet their timeframe, budget, and service delivery objectives.

Good governance hinges on having in place the necessary institutions, processes, norms of interaction, and monitoring tools, to ensure that infrastructure decision-making is guided by evidence and accountability considerations. Sound, responsive and co-ordinated governance frameworks during the whole delivery cycle, from design to construction and operation, are critical to ensuring that expected benefits assessed at the project selection phase materialise at the delivery stage. Access to adequate information and data should be secured in order to support investment decision-making, project management and evaluation. The *OECD Recommendation on the Governance of Infrastructure* [[OECD/LEGAL/0460](#)] helps ensure that countries invest in the right projects, in a way that is cost effective and fiscally transparent, represents value for money, and is and trusted by investors, users and citizens.

As a result of the extent of public officials' discretion over the investment decision, the large sums of money involved, and the multiple stages and stakeholders implicated in the process, infrastructure investments are particularly prone to fraud and corruption with considerable integrity risks arising at each stage of the investment life cycle. Fraud and corruption in infrastructure result in elevated economic and social costs including through misappropriated resources, excessive costs, poor quality, inadequate services, and health and environmental damages, and can undermine citizens' trust in government. Governments therefore need to guard against integrity risks at every stage in the life cycle of infrastructure investments including through anti-corruption efforts combined with enhanced transparency. Since integrity risks are particularly prevalent during the procurement phase, openness and transparency of procurement should be secured to ensure that infrastructure projects represent value for money and are safe and effective, and so that investment is not diverted from its intended use.

While quality infrastructure investments bring major economic and social benefits they need to be transparent and sustainable for public budgets. High levels of sovereign debt incurred to finance infrastructure can result in excessive financing costs, divert resources away from social spending, and become a source of economic and financial instability. Governments, donors and lenders, both public and private, should therefore ensure that government debt incurred to finance infrastructure investments, including through private financing with PPP contracts, is sustainable and that government contingent liabilities are fully assessed and do not result in excessive fiscal risks. Well-designed and well-functioning governance institutions should be in place in order to achieve these objectives.

Cities and regions are responsible for almost two thirds of public investment in OECD countries on average, and for close to 40% for the world as a whole. Subnational governance of infrastructure in cities and regions is therefore an important lever for delivering quality infrastructure investment, and raises some specific challenges with regard to co-ordination and capacity. The *OECD Recommendation on Effective Public Investment across Levels of Government* [[OECD/LEGAL/0402](#)] provides practical guidance in this regard.

Finally, infrastructure development, financing and delivery often involve some degree of private sector participation. The involvement of private participants and state-owned enterprises should be conditioned on the adoption of standards for responsible business conduct (RBC), and organisations involved in financing infrastructure should perform RBC due diligence. Furthermore, institutional investors and corporations engaged in infrastructure financing and development should adopt appropriate governance practices.

A whole-of-government framework for the governance of infrastructure¹⁴

Long-term strategic vision for infrastructure

6.1 Grounding a strategic vision for infrastructure upon shared ambitions for national and subnational development, enhancing the economic, natural, social and human capital which underpins well-being, sustainable and inclusive growth, competitiveness and public service delivery. [PGC]

6.2 Informing a strategic vision for infrastructure by a rigorous assessment of current and future infrastructure needs at the national and subnational levels, and presenting a plan on how these needs should be prioritised and addressed. [PGC]

6.3 Ensuring the strategic vision for infrastructure is monitored, flexible and regularly updated to promote and take into account the impact of evolving technologies and infrastructure needs. [PGC]

6.4 Ensuring the strategic vision is fiscally sustainable, linked with budget allocations and other sources of financing, and aligned with the medium-term expenditure framework, which provides assurance to the relevant stakeholders of the stable, multi-year availability of resources. [PGC]

6.5 Defining a transparent, coherent, predictable, legitimate and accountable institutional framework for infrastructure, in which relevant institutions and levels of government are entrusted with clear and consistent mandates, ample decision making powers, right skills and competences, and sufficient financial resources. [PGC]

6.6 Ensuring the strategic vision is the product of a broad-based political consensus and stakeholder engagement process, based on clear assumptions, coordinated across

¹⁴ This section comprises the entire *OECD Recommendation on the Governance of Infrastructure* with only minor stylistic adjustments to ensure it is consistent with the style of the rest of the Compendium.

levels of government and across relevant line ministries and agencies taking into account synergies across sectors. [PGC]

The following complementary measures may be adopted:

- Co-ordinate infrastructure planning with spatial and land use planning, as well as other horizontal policy areas (e.g. housing, environment, industry, agriculture, water, energy, health) so that they are mutually reinforcing. [PGC, RDPC, EPOC]
- Ensure that policies and investments are integrated across different sectors of economic infrastructure and multiple policy areas (“strategic investment packages) in order to help unlock regional economic growth. [ITF/TRC]

6.7 Ensuring the strategic vision actively contributes to the achievement of sustainable and inclusive development in line with long-term policy objectives, including national and international commitments on environmental protection, climate resilience and low greenhouse gas emissions, human rights, social inclusion, gender equality, regional disparities and urban-rural connectivity, among others. [PGC]

Fiscal sustainability, affordability, and value for money

6.8 Developing a robust transparent and accountable capital budgeting framework, identifying, measuring, regularly updating and reporting infrastructure annual and multi-annual expenditure in relation to both development of new infrastructure, and maintenance, renovation, adaptation to changing needs and decommissioning of existing assets. [PGC]

6.9 Ensuring that the overall infrastructure investment envelope is sustainable in the medium and long-term, considering the overall debt level and policy objectives, measuring, disclosing and monitoring multi-year spending commitments, including off-balance sheet commitments and contingent liabilities resulting from infrastructure projects. [PGC]

6.10 Informing decision-making on value for money and ensuring affordability of new infrastructure projects for the public budget and users, and minimising sustainability risks by measuring, disclosing and taking into account the total cost over the entire asset life cycle.

6.11 Applying rigorous project appraisal and selection processes that pays due consideration to social and economic efficiency at the national and sub-national levels (taking into account economic, social, fiscal, environmental and climate-related costs and benefits) and takes into account the full cycle of the asset, noting that for projects that exceed a high investment threshold it is especially important to provide a transparent, independent and impartial expert assessment to test project costing, fiscal sustainability, time planning, risk management and governance. [PGC]

6.12 Selecting the delivery mode (i.e. the way in which the infrastructure asset will be provided and financed) grounded in value for money and optimal allocation of risk between the parties, with no institutional, procedural, fiscal, or accounting biases for any particular delivery mode. [PGC]

6.13 Ensuring a transparent and appropriate allocation of risks in the structuring of the project, along with a comprehensive and agreed plan for managing, monitoring and mitigating risks during the asset life cycle. [PGC]

Efficient and effective public procurement of infrastructure projects

6.14 Using open, neutral, competitive, and transparent procurement processes for infrastructure, and limiting the use of exceptions and single-source procurement, including for associated professional services. [PGC]

6.15 Promoting competition, sustainability and responsible supply chains by selecting contractors based on criteria combining qualitative and financial elements and including, where relevant, an assessment of costs, benefits and impacts incurred throughout the life cycle of the asset. [PGC]

6.16 Implementing a risk-based approach across the whole procurement cycle of projects, developing, where possible, standardised tools to document progress, identify risks of all sorts and bring them to the attention of relevant personnel, providing an intervention point where risk prevention or mitigation is possible. [PGC]

6.17 Carefully evaluating available delivery modes against previously defined clear criteria based on projects' characteristics, optimal risks allocation and the use of value for money analytical tools to compare assessment of service delivery options. [PGC]

6.18 Ensuring that the procurement workforce has the capacity to continually deliver value for money efficiently and effectively by providing attractive, competitive and merit-based career options and providing tools to improve relevant skills and competencies for procurement officials. [PGC]

The following complementary measure may be adopted:

- Train procurement officials, auditors, and investigators at all levels of government on techniques for identifying suspicious behaviour and unusual bidding patterns which may indicate collusion. [CC]

6.19 Engaging in transparent and regular dialogues with suppliers and business associations to present public procurement strategies (including planning, scope, identified delivery mode, procurement method, requirements and award criteria) and to assure an accurate understanding of market capacity, while addressing possible risks and collusive practices. [PGC]

6.20 Implementing balanced contractual relationships, holding contractors accountable for project specification and professional standards, when applicable, and designing a robust and transparent process for contract re-negotiations and dispute resolution to account for evolving conditions. [PGC]

6.21 Integrating public procurement into overall public finance management, capital budgeting and services delivery processes. [PGC]

Transparent, systematic and effective stakeholder participation

6.22 Providing and taking proactive measures to disseminate information on infrastructure projects, including their potential short and long-term effects, and allow for continuous, inclusive, social and open dialogues that are broad-based, involving relevant stakeholders in planning, decision-making and oversight. [PGC]

6.23 Integrating consultation processes that are proportionate to the characteristics of the project (e.g. size, political sensitivity, environmental aspects, impacted population) and that take account of the overall public interest and of the views of the relevant stakeholders through a disciplined, upfront stakeholder mapping and analysis which can ensure engagement efforts cost-effectively include relevant groups in decision making. [PGC]

6.24 Ensuring meaningful stakeholder engagement with users and impacted communities to collaborate during the relevant phases of the project life cycle, ensuring debate and oversight on the main economic, fiscal, environmental and social impacts of the project. [PGC]

Co-ordinated infrastructure policy across levels of government

6.25 Designing and implementing investment strategies tailored to the place the investments aim to serve. [PGC, RDPC]

6.26 Adopting effective instruments for co-ordinating across national and sub-national levels of government, such as co-financing arrangements, contracts between levels of government, formal consultation processes, national agencies or representatives working together with sub-national areas, or other forms of regular intergovernmental dialogue and co-operation. [PGC, RDPC]

6.27 Providing incentives and/or seeking opportunities for co-ordination among regional and/or local governments to match public investment with the relevant geographical area, including through contracts, platforms for dialogue and co-operation, public investment partnerships, joint authorities, and regional or municipal mergers. [PGC, RDPC]

The following complementary measure may be adopted:

- Design platforms and incentives for cross-jurisdictional dialogue and co-operation, including cross-border mechanisms when necessary. [PGC, RDPC, DEVGB]

6.28 Strengthening capacities for public investment and promoting policy learning at all levels of government, ensuring adequate financial resources, professional skills, and a sound institutional framework to ensure effective vertical and horizontal co-ordination. [PGC, RDPC]

Coherent, predictable and efficient regulatory framework

6.29 Identifying policy goals, and evaluating whether regulation is necessary and how it can be most effective and efficient in achieving those goals. [PGC]

6.30 Considering means other than regulation and identify the trade-offs of the different approaches analysed to identify the best approach. [PGC]

6.31 Supporting co-ordination between supranational, national and subnational regulatory frameworks. [PGC]

6.32 Providing evidence-based tools for regulatory decisions, including stakeholder engagement, economic, fiscal, social and environmental impact assessment, audit and ex-post evaluation. [PGC]

6.33 Conducting systematic reviews of existing regulation relevant to infrastructure, including consideration of costs and benefits, to ensure that regulations are up to date, cost justified, cost effective and consistent, and that they deliver the intended policy objectives. [PGC]

6.34 Promoting good governance of regulatory agencies in order to ensure sustainable tariff setting, overall regulatory quality, and greater confidence from the market and contribute to the overall achievement of policy goals (e.g. independence; transparency; accountability; scope of action; enforcement; capacity and resourcing). [PGC]

Whole of government approach to managing threats to integrity

6.35 Ensuring integrity risk management includes a risk-based approach to identify, mitigate and address fraud, collusion, abuse, corruption, undue influence and capture risks at each stage of the infrastructure project life cycle to develop tailored control mechanisms. [PGC]

6.36 Providing an adequate degree of transparency throughout the project life cycle, by offering accessible, joined-up, and high-quality open data and free tools, to ensure that disclosure of relevant information is timely and available to the public. [PGC]

6.37 Promoting the integrity of public officials and bidding companies, providing capacities and guidance, including clear rules and guidelines on preventing and managing conflict of interest. [PGC]

The following complementary measure may be adopted:

- Member countries' laws and regulations should permit authorities to suspend, to an appropriate degree, from competition for public contracts or other public advantages, including public procurement contracts and contracts funded by official development assistance, enterprises determined to have bribed foreign public officials in contravention of that Member's national laws and, to the extent a Member applies procurement sanctions to enterprises that are determined to have bribed domestic public officials, such sanctions should be applied equally in case of bribery of foreign public officials. [WGB]

6.38 Ensuring control and oversight throughout the project life cycle with effective and efficient risk management, internal control activities and independent audit. [PGC]

6.39 Ensuring effective enforcement mechanisms with adequate investigation and sanction capacities that provide clear procedures to report wrongdoing, protect whistle-blowers, and ensuring that reporting mechanisms and protection is available to all stakeholders, public and private sector employees, and citizens. [PGC]

6.40 Ensuring that the understanding of integrity risks is comprehensive, by integrating responsible business conduct and risk-based preventive due diligence into the infrastructure project life cycle. [PGC]

Evidence informed decision making

6.41 Defining and clearly allocating institutional responsibilities for data consolidation, dissemination, analysis, evaluation and ensuring adequate financial resources and professional skills for the implementation and use of digital technologies and data analytics. [PGC]

6.42 Putting in place systems that ensure a systematic collection, storage and management of relevant data over the entire life cycle of the infrastructure asset. [PGC]

6.43 Using open data in infrastructure, disclosing relevant information to the public in a standardised, accessible, reusable, understandable and machine-readable format, in a periodic timely fashion, and making sure to effectively communicate and engage stakeholders to promote dialogue and learning. [PGC]

6.44 Harnessing digital technologies and data analytics to reduce administrative burdens, increase transparency, understand performance, inform decision-making, and take preventive actions to respond to identified risks and adapt control activities. [PGC]

6.45 Encouraging the production of data at the right national and subnational scale and ensure integration to inform investment strategies and produce evidence for decision-making. [PGC]

Performance of asset throughout its life

6.46 Optimising life cycle costs and asset quality through ensuring effective price and quality regimes, project design, budgeting, monitoring, operation, upgrade, maintenance and decommissioning, regularly integrating changing needs and techniques. [PGC]

6.47 Monitoring asset performance against predefined service delivery targets and expected outcomes. [PGC]

6.48 Reviewing regularly the value and depreciation of assets, and their impact in the accounts. [PGC]

6.49 Preparing and effectively managing the end of infrastructure contracts (e.g. public procurement, PPP and concession contracts) and the transition to any new arrangement, ensuring that audit and ex-post value for money evaluation are carried out and the results are used in the decision-making process. [PGC]

Critical infrastructure resilience

6.50 Setting-up a cross-sector and multi-level governance structure for critical infrastructure resilience, monitoring implementation and progress in attaining resilience objectives, and defining an accountability framework for critical infrastructure operators. [PGC]

6.51 Adopting methodologies and metrics to understand complex interdependencies and vulnerabilities across infrastructure systems and prioritise resilience efforts. [PGC]

6.52 Establishing trust between government and operators by securing risk-related information-sharing. [PGC]

6.53 Building partnerships to agree on a common vision and achievable resilience objectives. [PGC]

6.54 Defining the policy mix to prioritise cost-effective resilience measures across the life cycle. [PGC]

6.55 Addressing transboundary dependencies in critical infrastructure systems by coordinating policies with neighbouring countries and beyond.¹⁵ [PGC]

6.56 Developing requirements and specifications to promote resilient infrastructure to all-hazards, including climate related risks. [PGC]

Subnational governance of infrastructure in cities and regions

Assessment of local needs

6.57 Linking infrastructure planning to an assessment of local needs in cities and regions. [RDPC]

The following measures may complement this good practice:

- Ensure infrastructure investment choices are linked a development strategy based on assessment of regional (or local) characteristics, competitive advantages, growth, innovation, and job creation potential, and considerations of equity and environmental sustainability. [RDPC]
- Ensure investment strategies are results-oriented (with clearly defined policy goals), realistic and well-informed (based on evidence that points to the region's or locality's ability to make fruitful use of investments), and forward-looking (with investments that can position regions and localities for competitiveness and sustainable development in the context of global trends). [RDPC]

¹⁵ With the same understanding as set out in paragraphs 10 and 18 above.

Vertical and horizontal coordination

6.58 Strengthening vertical and horizontal coordination to invest at the relevant scale. [RDPC]

The following measures may complement this good practice:

- Strengthen multi-level governance arrangements to ensure alignment of investment strategies and priorities across national and sub-national governments. [RDPC]
- Foster integrated cross-sectoral investment strategies at the local level to benefit from complementarities across sectors. [RDPC]
- Provide formal incentives to foster cross-jurisdictional cooperation, notably in metropolitan areas and functional areas. [RDPC]
- Seek to mutualise resources, both financial and human, to invest at the relevant scale and thereby achieve economies of scale. Further, sub-national governments should seek to mutualise procurement and develop electronic-procurement, in particular in small municipalities and at the metropolitan level. [RDPC]

Capacities at the sub-national level

6.59 Identifying binding constraints and priorities to strengthen the capacities of cities and regions. [RDPC]

The following measure may complement this good practice:

- Focus on sub-national capacity building for infrastructure investment, especially the use of complex financial tools, through a differentiated approach targeting different needs in different types of regions and localities. [RDPC]

Planning and budgeting in cities and regions

6.60 Fostering greater linkages between planning and budgeting in cities and regions. [RDPC]

The following measures may complement this good practice:

- Encourage the development of medium-term expenditure frameworks at the subnational level and foster greater connection between planning and budgeting. [RDPC]
- Assess operations and maintenance costs of infrastructure investment and plan for future financing. Consider the full life cycle of infrastructure investment when designing the project. [RDPC]
- Better connect monitoring and evaluation to budgeting and policy-making. [RDPC]

Results-oriented and evidence-based investment strategies

6.61 Focusing on results and promoting learning from experience. [RDPC]

The following measures may complement this good practice:

- Encourage the production of data at the relevant sub-national scale to inform investment strategies and produce evidence for decision-making. Such data may be collected by statistical agencies but also from administrative records, other data sources, and citizens themselves. [RDPC]
- Clarify the outcomes to be achieved through infrastructure investment and pursue mechanisms to achieve them. Those mechanisms can include results-oriented investment strategies with clearly defined policy goals, well-designed tendering procedures, effective monitoring systems, high-quality *ex-post* evaluation, regular reflection on and upgrading of investment choices, active exchange of information and on-going and mutual learning among actors involved in public investment. [RDPC]

Responsible business conduct (RBC) and private sector governance for quality infrastructure investments

RBC due diligence for managing social and environmental impacts

6.62 Enhancing responsible business conduct (RBC) and managing environmental and social impacts at all stages of the process, from project conception to delivery. [IC]

The following measures may complement this good practice:

- Require RBC due diligence and ensuring meaningful stakeholder engagement with communities and impacted peoples from the inception of projects. [IC]
- Integrate RBC due diligence in the financing of infrastructure, including in procurement processes. [IC]
- Facilitate a more comprehensive assessment of environmental and social risk – often underestimated in infrastructure projects – by requiring private participants and state-owned enterprises to follow RBC standards. [IC]
- Ensure the availability of effective, secure, adequately funded and publicly accessible remedy processes, including judicial and non-judicial mechanisms for conflict resolution, for communities that may be negatively impacted by infrastructure projects. [IC]

Governance of institutional investors and their investment strategy

6.63 The governing body of an institutional investor should ensure that the investment strategy of the institution takes into account the profile and duration of its liabilities and follows a prudent approach. [CMF/IPPC]

The following measures may complement this good practice:

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- The governing body of an institutional investor should collectively have adequate skills to design, assess, monitor, and review its investment strategy, including the allocation to long-term assets. [CMF/IPPC]
 - The governing body of an institutional investor should ensure that the investment management personnel and any external asset managers have the necessary capability to implement the investment strategy and manage those investments in line with the institution's objectives. [CMF/IPPC]
 - The governing body of an institutional investor should ensure that the institution can properly identify, measure, monitor, and manage the risks associated with long-term assets as well as any long-term risks – including environmental, social and governance risks - that may affect their portfolios. [CMF/IPPC]
 - The governing body of an institutional investor should ensure that conflicts of interest that may affect their decisions and those of the persons or entities involved in the management of investments, including any long-term assets, are identified and adequately addressed. [CMF/IPPC]
 - The governing body of an institutional investor should observe its fiduciary duties towards the ultimate owners or beneficiaries of the assets they oversee. [CMF/IPPC]
 - Regulatory and supervisory authorities overseeing institutional investors and other actors within the investment management chain should monitor the governance, agency relationships, remuneration, and risk management mechanisms underpinning long-term investment and take prompt and adequate measures when relevant. [CMF/IPPC]

Key standards and other sources

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OECD Recommendation on Principles for Public Governance of Public-Private Partnerships [[OECD/LEGAL/0392](#)]

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ITF (2017), Strategic Infrastructure Planning: International Best Practice, <https://doi.org/10.1787/4142787d-en>

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OECD Recommendation on the Assessment of Projects, Plans and Programmes with Significant Impact on the Environment [[OECD/LEGAL/0172](#)]

OECD Recommendation on Water [[OECD/LEGAL/0434](#)], including the OECD Principles on Water Governance

OECD Recommendation on Broadband Development [[OECD/LEGAL/0322](#)]

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Mobilising Financing and Managing Associated Liabilities

The infrastructure required to support future demographic growth, economic development and the transition to a low-carbon, climate-resilient future will require staggering levels of investment. Traditionally, the bulk of infrastructure investment has been provided through public budgets. However, while governments will play a key role in guiding the development of quality infrastructure, the scale of the resources required surpasses the public sector's financing capacity in most countries.

The contribution of private financing will therefore be vital to delivering the necessary investment on the condition that value for money can be established and transparent accounting standards are applied. In 2017, within the OECD area alone, institutional investors comprising pension funds, insurance companies, and public pension reserve funds, held USD 63.7 trillion in assets (OECD 2019). The key obstacle is therefore not the availability of financing, but the ability to channel it into quality infrastructure investments.

At the same time, it should be recognised that recourse to private financing may result in long-term liabilities (as a consequence of contractual payments to private infrastructure providers or the provision of subsidies), or in fiscal risks (as a result of the contingent liabilities resulting from government guarantees). It is therefore critical that these liabilities be properly assessed, disclosed in budget documentation, and monitored.

Policies to mobilise long-term savings and unlock their use for financing infrastructure investments by long-term institutional investors can contribute to bridging the financing gap. This needs to be accompanied by the development of capital markets and appropriate financial instruments for encouraging both debt and equity financing. Appropriate infrastructure delivery frameworks that facilitate private financing, such as PPPs, should be adopted. The adoption of appropriate risk allocation and risk mitigation instruments can contribute to reducing the cost of infrastructure financing. Through blended financing and co-financing approaches, governments and development finance institutions can also leverage their own resources in a targeted manner in order to mobilise larger amounts of private capital. Governments should also be proactive in attracting private investors by providing a credible pipeline of bankable projects and ensuring the availability of adequate risk mitigation instruments.

Policy and institutional environment

Sound framework conditions and policies for long-term investment

7.1 Establishing framework conditions including sound macroeconomic policies, consistent and effective enforcement of the rule law, as well regulatory and supervisory frameworks that are favourable to long-term investment financing. [CMF/IPPC¹⁶]

¹⁶ While the Committee for Financial Markets (CMF) and the Insurance and Private Pensions Committee (IPPC) are referenced here, the source of the good practices and measures in this section is the G20 OECD Task Force on Long-term Investment, a subsidiary body to the CMF and IPPC.

The following measures may complement this good practice:

- The financial regulatory framework - including valuation rules, any risk-based capital requirements and other prudential measures - for institutional investors should reflect the particular risk characteristics of long-term assets, including infrastructure, appropriately. The framework should also consider the investment horizon and typical holding period of these investors, while promoting their soundness and solvency as well as broader financial stability and consumer protection. [CMF/IPPC]
- The tax environment and policies should remain stable and avoid creating impediments to long-term investment by institutional investors, including cross-border investment. [CMF/IPPC]
- Review the efficiency of tax policies for infrastructure finance, noting the tax treatment of debt and equity in the capital structure. [CMF/IPPC]

7.2 Adopting policies that enable long-term institutional investors to channel financing for quality infrastructure. [CMF/IPPC]

The following measure may complement this good practice:

- Promote the development of long-term savings through savings mobilisation policies. Such policies may consider the use of default mechanisms such as automatic enrolment as well as, where appropriate, mandatory arrangements. [CMF/IPPC]
- Where applied, restrictions on long-term investment by institutional investors should be consistent with diversification and financial regulation objectives. They should be reviewed regularly and, where appropriate, they should be eased subject to necessary safeguards being in place, such as strong governance and risk management mechanisms, effective supervision, and appropriate diversification. [CMF/IPPC]

7.3 Promoting the development of local currency capital markets (including equity, bonds and derivative markets), and their integration with their international counterparts. [CMF/IPPC]

Investors' rights and dispute resolution mechanisms

7.4 Protecting core investor rights through the investment regime, including by guaranteeing access to timely and fair compensation in cases of expropriation, and allowing access to dispute settlement mechanisms while preserving the government's right to regulation in the public interest. [CMF/IPPC]

7.5 Establishing dispute resolution mechanisms through which disputes arising at any point in the lifetime of an infrastructure project can be handled in a timely and impartial way. [CMF/IPPC]

Public intervention to support long-term investment by institutional investors

7.6 Encouraging the formation of investment platforms and partnerships where government, National Development Banks (NDBs) and Multilateral Development Banks (MDBs) can leverage private sector investment. [CMF/IPPC]

The following measures may complement this good practice:

- Establish the necessary regulatory framework for pooled investment vehicles and securities channelling financing for long-term investment in a sound and sustainable manner. [CMF/IPPC]
- In markets with limited participation by institutional investors, governments, national development banks, and multilateral development agencies should consider the need for establishing and promoting pooled vehicles for long-term investment, and supporting other instruments for long-term investment such as project bonds or securitised assets, and risk mitigation policies. [CMF/IPPC]
- Foster collaborative mechanisms between investors and the pooling of capital especially for smaller institutional investors and between investors and other stakeholders such as banks and MBs and NDBs. [CMF/IPPC]

7.7 Considering the provision of risk mitigation to long-term investment projects where it would result in more appropriate allocation of risks and their associated returns (such risk mitigation mechanisms may include credit and revenue guarantees, first-loss provisions, public subsidies, and the provision of bridge financing via direct loans). [CMF/IPPC]

Diversification and innovation in financing instruments and channels

7.8 Encouraging diverse channels of debt financing for infrastructure projects, in particular through non-bank channels, including syndication of bank loans through capital markets, the development of a robust project finance market, revival or innovative use of local currency infrastructure project bonds and of sub-sovereign bonds, securitisation and the formation of lending consortia. [CMF/IPPC]

The following measure may complement this good practice:

- Promote the development of project infrastructure bonds to mobilise further financing by institutional investors. [CMF/IPPC]

7.9 Facilitating the establishment of robust unlisted infrastructure equity markets. [CMF/IPPC]

The following measure may complement this good practice:

- Review the ability of equity funds to access infrastructure assets in the local market, including the suitability of greenfield assets for existing business models, and also the local laws that govern such vehicles. [CMF/IPPC]

7.10 Encourage the formation of transparent and robust secondary market for infrastructure, and the development of specific products to improve access to capital market financing for infrastructure, including new vehicles to foster investors'

participation (equity or debt, public and private) in infrastructure projects and recycling of capital through securitisation. [CMF/IPPC]

7.11 Facilitating channels for private investment in low-carbon, resilient infrastructure assets by encouraging investment channels, through existing and new investment instruments (e.g. green bonds, transition bonds), institutions, partnerships, and capacity building in direct investment. [EPOC, RDPC]

Appropriate legal frameworks, funding mechanisms and risk mitigation instruments

7.12 Establishing an appropriate legal and institutional framework for the implementation of public-private partnerships (PPPs) as a mechanism for delivering infrastructure investments. [CMF/IPPC, PGC]

7.13 Developing innovative governance and frameworks (including, possibly, innovative forms of Public-Private Partnerships (PPP) and Islamic sukuk financing¹⁷), to enable infrastructure sustainability and facilitate private financing. [CMF/IPPC]

7.14 Considering innovative approaches to fund and finance infrastructure, such as asset recycling, land value capture, special assessment districts, and tax increment financing. [CMF/IPPC, RDPC]

7.15 Promoting a reliable long-term funding¹⁸ basis for infrastructure projects (including through relevant cash-flow structures) so as to ensure the flow of revenue streams is adequate to attract private investment. [CMF/IPPC]

7.16 Promoting blended finance mechanisms that leverage a limited amount of public development finance in order to mobilise large amounts private capital. [CMF/IPPC, DAC]

7.17 Ensuring the availability of adequate risk mitigation instruments either through market-based instruments (e.g. insurance), multilateral support, or, as appropriate,

¹⁷ Sukuk, the Islamic equivalent of bonds, are similar to asset-backed securities and differ from conventional bonds in a number of ways. Whereas a conventional bond is a promise to repay a debt with a specified interest rate, Sukuk have to be structured in a manner that ensures that there is an underlying asset, the principal amount is not guaranteed and the return to investors is linked to the performance of the underlying assets. Sukuk resemble Public Private Partnership financing whereby investors finance the assets, and then own them which leads to real securitization and, finally, transfer them at maturity to the government (source: IMF (2017), “Islamic Finance Factsheet”, <https://www.imf.org/external/themes/islamicfinance/>)

¹⁸ *Funding* of a PPP project refers to how investment and operational costs are repaid over time to compensate the private partner that provides the debt or equity for the project. Ultimately, public infrastructure can only be paid (1) by users of the infrastructure through direct user charges, such as tolls in the case of highways; or (2) by taxpayers through the government’s periodic payments to the private partner. *Financing* of a PPP project refers to raising money upfront to pay for the design, construction, and early operational phases of an infrastructure asset, whether through debt or equity instruments of a public or private nature (source: IMF (2019), “PPP Fiscal Risk Assessment Model, PFRAM 2.0”).

government-backed measures (e.g. guarantees) while assessing fiscal risks, including contingent liabilities, related to such measures. [CMF/IPPC, ERC, PGC]

7.18 Promoting co-operative, targeted and transparent risk allocation mechanisms amongst the various financial stakeholders active on the infrastructure spectrum, including MDBs and NDBs, banks, companies, institutional investors and governments, positioning the different actors depending on their risk profiles and institutional objectives and favouring joint actions, securitisation and balance sheet optimisation. [CMF/IPPC]

7.19 Reviewing the financing needs and instruments of small-scale infrastructure projects, which may be different from large-scale infrastructure. [CMF/IPPC]

The following measure may complement this good practice:

- Promote project pooling, social and development impact investment instruments, and build networks of investors with local authorities and partners. [CMF/IPPC]

Diversified financing sources in cities and regions

7.20 Mobilising private actors and financing institutions to diversify sources of financing and strengthen capacities of cities and regions. [RDPC]

The following measures may complement this good practice:

- Involve private actors and financing institutions in subnational infrastructure investment as a way to strengthen the capacity of government at different levels and bring expertise to projects through better ex-ante assessment, improved analysis of the market and credit risks, and achieving economies of scale and cost-effectiveness. [RDPC]

Systematic infrastructure data collection and disclosure

7.21 Promoting international infrastructure data collection, with the adoption of a template for a preferred set of information to be collected (macro and micro level), including quantitative data on historical cash flows and performance at the project level and qualitative data covering project characteristics and sustainability issues. [CMF/IPPC, CSSP]

The following measures may complement this good practice:

- Promote development of further break-downs of the existing data on investments and stocks of infrastructure-related capital, by type of asset, by industry, and by (institutional) sector. [CSSP]
- Pursue standardisation and harmonisation of project documentation, and of approaches to infrastructure valuation and analysis. [CMF/IPPC]
- Elaborate an internationally agreed definition of ‘infrastructure’. [CSSP]
- Institutional investors should be encouraged to report their recent allocation to and performance of different long-term assets following standardised classifications

and methods, while ensuring the confidentiality of any market-sensitive or proprietary information. [CMF/IPPC]

- Support initiatives to create infrastructure benchmarks which will in turn help to describe infrastructure as an asset class. Benchmarks should describe the investment characteristics and properties of infrastructure debt and equity instruments, helping investors complete their strategic asset allocation and liability benchmarking processes. [CMF/IPPC]

7.22 Encouraging more comprehensive disclosure of environmental information, including on climate, water, pollutants and biodiversity, by institutions involved in developing and financing infrastructure, including through their adoption of the recommendations of the Task Force on Climate-related Financial Disclosure (TCFD). [EPOC]

The following measure may complement this good practice:

- Where appropriate, institutional investors should disclose with sufficient granularity information on the extent to which their investment strategies are in line with their investment horizon and how they address long-term risks. [CMF/IPPC]

Infrastructure planning

Credible project pipelines

7.23 Establishing a credible pipeline of projects to help attract more investors and facilitate competition for the market, thereby allowing potential investors to build their strategies upon a sizeable portfolio of opportunities rather than on a project-by-project basis and to spread some of the costs associated with assessing infrastructure opportunities in the country. [CMF/IPPC, EPOC]

The following measures may complement this good practice:

- Use various selection criteria for deciding which projects are suitable candidates to undertake, including projects which have strong expected economic productivity benefits, match identified long-term priorities or established strategic goals, have developed alternative delivery options and options to encourage greater private sector involvement in the development and delivery of public infrastructure, satisfy the requirements of a socio-economic analysis including assessment of positive and negative externalities, have a well-defined purpose and feasibility of implementation, and have reliability of revenue sources and are accompanied by appropriate environmental reviews. [CMF/IPPC]
- Design sequenced packages of investment (pathways) that address interconnections and increase resilience in a way that cannot be achieved by looking at projects in isolation. [DAC]

Project development

Effective risk allocation and mitigation

7.24 Addressing and taking into consideration the nature of investment (greenfield/brownfield, domestic/foreign) and its risk/return characteristics in the identification of relevant financing and funding mechanisms. [CMF/IPPC]

7.25 Bundling assets to reach relevant scale, appealing to institutional investors, including consortia of small-scale PPP projects. [CMF/IPPC]

The following measure may complement this good practice:

- In the case of PPPs, consider bundling within sectors or across jurisdictions to encourage economies of scale and attract operators, taking into account effects on competition, as well as, when appropriate, unbundling to encourage competition and benchmarking (e.g. dividing a large area, such as a city, into zones and arranging contracts for each area). [RDPC]

7.26 Ensuring a transparent and appropriate allocation of risks in the structuring of projects. [CMF/IPPC, PGC]

The following measures may complement this good practice:

- Investment de-risking should be used in a targeted fashion not to undermine the Value for Money objective of private investment. [ITF/TRC]
- De-risking should be applied without an ex ante commitment to private financing of an investment. The choice of private financing should be the result of procurement options evaluation and not the default option. [ITF/TRC]

7.27 Facilitating sustainable, quality infrastructure investment by mitigating risks, through guarantees and insurance products, public stakes and other forms of credit enhancement, or by enabling lower transaction costs through transaction enablers such as warehousing (pooling small transactions) while taking into account the fiscal risk impacts. [EPOC, RDPC]

Liabilities management

Transparency of privately-financed infrastructure projects

7.28 Including and explaining public programmes that are funded through non-traditional means – e.g. PPPs – in the context of the budget documentation, even where (for accounting reasons) they may not directly affect the public finances within the time frame of the budget document. [PGC]

7.29 Treating the project transparently in the budget process, and ensuring the budget documentation discloses all costs and contingent liabilities. [PGC]

The following measures may complement this good practice:

- Special care should be taken to ensure that budget transparency of Public-Private Partnerships covers the whole public sector. [PGC]

- All significant contingent liabilities should be disclosed in the budget, the mid-year report and the annual financial statements. [PGC]
- Where feasible, the total amount of contingent liabilities should be disclosed and classified by major category reflecting their nature; historical information on defaults for each category should be disclosed where available. In cases where contingent liabilities cannot be quantified, they should be listed and described. [PGC]

Affordability and sustainability of investments

7.30 Ensuring that the project is affordable and the overall investment envelope is sustainable. [PGC]

The following measures may complement this good practice:

- The investment planning framework should provide for the prudent assessment of (i) the costs and benefits of investments; (ii) affordability for public and/or users over the long term, including in light of recurrent costs; (iii) relative priority among various projects; and (iv) overall value for money. [PGC]
- Ensure the evaluation of investment decisions independently of the specific financing mechanism, i.e. whether through traditional capital procurement or a private financing model such as public-private partnership (PPP). [PGC]

7.31 Ensuring that providers of development finance use development finance instruments that help developing countries at risk of debt distress improve their debt situation, and avoid using financing mechanisms that can undermine debt sustainability. [DAC]

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Appendix: G20 Principles for Quality Infrastructure Investment

Preamble

- *Infrastructure is a driver of economic prosperity and provides a solid basis for strong, sustainable, balanced and inclusive growth and sustainable development, which are the key goals of the G20 and critical for promoting global, national and local development priorities. Nonetheless, the world still faces a massive gap in financing for investment in new and existing infrastructure, which could generate a serious bottleneck to economic growth and development or provision of secure and reliable public services. In this vein, the G20 has stressed the need to scale up infrastructure investment. Efforts have been made to find concrete ways to mobilize more private capital, such as the Roadmap to Infrastructure as an Asset Class (“Roadmap”) endorsed by Leaders in 2018.*
- *The G20 has also highlighted the importance of the quality of infrastructure investment, including in the Leaders’ Communiqué at the 2016 Hangzhou Summit, and in the Roadmap. In infrastructure, quantity and quality can be complementary. A renewed emphasis on quality infrastructure investment will build on the past G20 presidencies’ efforts to mobilize financing from various sources, particularly the private sector and institutional sources including multilateral development banks, thereby contribute to closing the infrastructure gap, develop infrastructure as an asset class, and maximizing the positive impacts of infrastructure investment according to country conditions.*

Principles for Promoting Quality Infrastructure Investment

- This document sets out a set of voluntary, non-binding principles that reflect our common strategic direction and aspiration for quality infrastructure investment.

Principle 1: Maximizing the positive impact of infrastructure to achieve sustainable growth and development

1.1 Setting off a virtuous circle of economic activities

- The aim of pursuing quality infrastructure investment is to maximize the positive economic, environmental, social, and development impact of infrastructure and create a virtuous circle of economic activities, while ensuring sound public finances. This virtuous circle can take various forms. New jobs are created during construction, operation and maintenance of infrastructure, while positive spillover effects of infrastructure stimulate the economy and lead to more demand for jobs. Advanced technology and know-how may be transferred voluntarily and on mutually agreed-upon terms. This can result in better allocation of resources, enhanced capacities, skills upgrade and improvement of productivity for local economies. This impetus would improve the potential for economic growth, leading to widening of the investor base, crowding-in more private investment, and resulting in further

improvement in economic fundamentals. This would facilitate trade, investment, and economic development. All these expected outcomes of the investment should be considered in the project design and planning.

1.2 Promoting sustainable development and connectivity

- Infrastructure investment should take into account economic, environmental and social, and governance aspects, and be guided by a sense of shared, long-term responsibility for the planet consistent with the 2030 Agenda for Sustainable Development, national and local development strategies, and relevant international commitments, and in the spirit of extensive consultation, joint efforts and shared benefits. The facilities and services of infrastructure should have sustainable development at their core and need to be broadly available, accessible, inclusive and beneficial to all. A virtuous circle of economic activities would be further secured through enhancing accessibility to, and national, regional, and global connectivity of, infrastructure, based on consensus among countries. Domestic resource mobilization is critical to addressing the infrastructure financing gap. Assistance for capacity building, including for project preparation, should be provided to developing countries with the participation of international organizations. Quality infrastructure investment also needs to be tailored to individual country conditions and consistent with local laws and regulations.

Principle 2: Raising Economic Efficiency in View of Life cycle Cost

Quality infrastructure investment should attain value for money and remain affordable with respect to life cycle costs, by taking into account the total cost over its life cycle (planning, design, finance, construction, operation and maintenance (O&M), and possible disposal), compared to the value of the asset as well as its economic, environmental and social benefits. Using this approach helps choose between repairing or upgrading an existing infrastructure or launching a new project. Project preparation, as set out in the *G20 Principles for the Infrastructure Project Preparation Phase* is crucial in this regard.

2.1 The life cycle costs and benefits of infrastructure investments should be taken into consideration in ensuring efficiency. Construction, O&M and possible disposal costs should be estimated from the onset of the project preparation stage. The identification of mechanisms to address cost overruns and cover ongoing O&M costs is critical to ensure financial sustainability at project level. Cost-benefit analysis should be used over the life cycle of infrastructure projects.

2.2 Infrastructure projects should include strategies to mitigate the risks of delays and cost overrun, and those in post-delivery phases. Necessary elements to achieve this objective can include: (i) broad stakeholder engagement throughout the project; (ii) expertise in planning, operations, and risk allocation/mitigation; and (iii) application of appropriate safeguards and instruments.

2.3 Innovative technologies should be leveraged through the life cycle of infrastructure projects, where appropriate, to raise economic efficiency for existing and new infrastructure. Advanced technologies are an important component for new and existing assets and can help to improve data availability to monitor infrastructure use, performance, and safety.

Principle 3: Integrating Environmental Considerations in Infrastructure Investments

Both positive and negative impacts of infrastructure projects on ecosystems, biodiversity, climate, weather and the use of resources should be internalized by incorporating these environmental considerations over the entire process of infrastructure investment, including by improving disclosure of these environment related information, and thereby enabling the use of green finance instruments. Infrastructure projects should align with national strategies and nationally determined contributions for those countries determined to implement them, and with transitioning to long-term low emissions strategies, while being mindful of country circumstances.

3.1 These environmental considerations should be entrenched in the entire life cycle of infrastructure projects. The impact on the environment of the development, operation and maintenance, and possible disposal of the infrastructure project should be continuously assessed. Ecosystem-based adaptation should be considered.

3.2 The environmental impact of infrastructure investment should be made transparent to all stakeholders. This will enhance the appreciation of sustainable infrastructure projects and increase awareness of related risks.

Principle 4: Building Resilience against Natural Disasters and Other Risks

Given the increasing number and heightened magnitude of natural disasters and slow onset of environmental changes, we face the urgent need to ensure long-term adaptability and build resilience of infrastructure against these risks. Infrastructure should also be resilient against human-made risks.

4.1 Sound disaster risk management should be factored in when designing infrastructure. A comprehensive disaster risk management plan should influence the design of infrastructure, the ongoing maintenance and consider the re-establishment of essential services.

4.2 Well-designed disaster risk finance and insurance mechanisms may also help incentivize resilient infrastructure through the financing of preventive measures.

Principle 5: Integrating Social Considerations in Infrastructure Investment

Infrastructure should be inclusive, enabling the economic participation and social inclusion of all. Economic and social impacts should be considered as an important component when assessing the quality of infrastructure investment, and should be managed systematically throughout the project life cycle.

5.1 Open access to infrastructure services should be secured in a non-discriminatory manner for society. This is best achieved through meaningful consultation and inclusive decision-making with affected communities throughout the project life cycle, with a view to securing non-discriminatory access to users.

5.2 Practices of inclusiveness should be mainstreamed throughout the project life cycle.

Design, delivery, and management of infrastructure should respect human rights and the needs of all people, especially those who may experience particular vulnerabilities, including women, children, displaced communities or individuals, those with disabilities, indigenous groups, and poor and marginalized populations.

5.3. All workers should have equal opportunity to access jobs created by infrastructure investments, develop skills, be able to work in safe and healthy conditions, be compensated and treated fairly, with dignity and without discrimination.

Particular consideration should be given to how infrastructure facilitates women's economic empowerment through equal access to jobs, including well-paying jobs, and opportunities created by infrastructure investments. Women's rights should be respected in labor market participation and workplace requirements, including skills training and occupational safety and health policies.

5.4 Safe and healthy occupational conditions should be put in place, both at the infrastructure site and in the surrounding communities.

Maintaining occupational safety and health conditions would also present a huge economic advantage worldwide.

Principle 6: Strengthening Infrastructure Governance

Sound infrastructure governance over the life cycle of the project is a key factor to ensure long-term cost-effectiveness, accountability, transparency, and integrity of infrastructure investment. Countries should put in place clear rules, robust institutions, and good governance in the public and the private sector, reflecting countries' relevant international commitments, which will mitigate various risks related to investment decision-making, thus encouraging private-sector participation. Coordination across different levels of governments is needed. Capacity building is also key in ensuring informed decision-making and effectiveness of anti-corruption efforts. In addition, improved governance can be supported by good private sector practices, including responsible business conduct practices.

6.1 Openness and transparency of procurement should be secured to ensure that infrastructure projects are value for money, safe and effective and so that investment is not diverted from its intended use.

Transparent, fair, informed and inclusive decision-making, bidding and execution processes are the cornerstone of good infrastructure governance. Greater transparency, including on terms of financing and official support will help ensure equal footing in the procurement process. A wide range of stakeholders such as users, local population, civil society organizations and private sector, should be involved.

6.2 Well-designed and well-functioning governance institutions should be in place to assess financial sustainability of individual projects and prioritize among potential infrastructure projects subject to available overall financing.

In addition to project-level financial sustainability, the impact of publicly funded infrastructure projects, and of possible contingent

liabilities¹⁹, on macro-level debt sustainability, needs to be considered and transparent, given that infrastructure investment can have significant impact on public finance. This will contribute to attaining value for money that considers life cycle cost, promoting fiscal sustainability, saving fiscal space for future potential projects, and crowding in more private investments. A functionally integrated and transparent decision-making framework for infrastructure investments that considers both O&M and new investments to ensure efficient resource allocation.

6.3 Anti-corruption efforts combined with enhanced transparency should continue to safeguard the integrity of infrastructure investments, which are potentially large-scale, complex, long-term, and with a wide range of stakeholders. Infrastructure projects should have measures in place to mitigate corruption risks at all project stages.

6.4 Access to adequate information and data is an enabling factor to support investment decision-making, project management and evaluation. Access to information and data needs to be available in-country to help undertake cost and benefit analyses, supports government decision-making and policy monitoring, and facilitates project preparation processes and management.

¹⁹ Contingent liabilities, as defined by the IMF 2019 revised Fiscal Transparency Code, are payment obligations whose timing and amount are contingent on the occurrence of a particular discrete/uncertain future event or series of future events.

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

