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Climate-Smart PPPs: Further Reading and Resources

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Climate-Smart PPPs: Further Reading and Resources

Toolkits

- [Climate Toolkits for Infrastructure PPPs](#), PPIAF, GIF and IFC 2022 - The public sector alone will not be able to fill in the infrastructure gap without mobilizing private sector expertise, innovative thinking, investment capacity, and finance. Public-private partnerships (PPPs) are therefore key to promote investment in climate-smart infrastructure. At the same time, they can be a challenge because climate change creates uncertainty and it is hard to play with uncertain moving pieces within the framework of PPPs, which require a certain degree of predictability to attract investment and finance. This toolkit aims to address this precise challenge by embedding a climate lens and approach into upstream PPP advisory work and structuring. If structured correctly, PPPs can increase climate resilience offering innovative solutions to address both mitigation and adaptation challenges. PPPs are

able to provide well-informed and well-balanced risk allocation between partners offering long-term visibility and stability for the duration of a contract (often 25 or 30 years, sometimes even more), compensating climate change uncertainty through contractual predictability.

- [Climate & Disaster Risk Screening Tools](#) - the official website of the World Bank's Climate and Disaster Risk Screening Tools. The Climate and Disaster Risk Screening Tools developed by the World Bank, provide a systematic, consistent, and transparent way of considering short- and long-term climate and disaster risks in project and national/sector planning processes.

PPPs, Performance-Based Contracts, Infrastructure & Climate Change

- [From Risk to Resilience: Helping People and Firms Adapt in South Asia](#) - This resource explores how governments in South Asia with limited fiscal space can strengthen economic and social resilience by making markets work better, removing barriers to adaptation, and complementing market solutions with targeted public investments and adaptive social protection.
- [Climate Resilient Infrastructure Officer Handbook: Knowledge Module on Public-Private Partnerships for Climate-Resilient Infrastructure](#), Global Center on Adaptation (GCA) September 2021 - This Handbook was developed by the GCA with financial support from the Ministry of Infrastructure and Water Management of the Netherlands with input from many other partners. It is part of the Knowledge Module on Public-Private Partnerships (PPPs) for Climate-Resilient Infrastructure, which has been developed by the GCA and its partners to provide PPP practitioners with the tools and knowledge required to structure investment programs that incorporate climate resilience into infrastructure PPPs. The Handbook intends to promote climate-resilient infrastructure to PPP practitioners, ensuring that new and existing projects account for physical climate risks, are able to adapt to future climate, socio-economic and technological change scenarios, and harness the potential of Nature-based Solutions (NbS) across the infrastructure lifecycle.
- [Climate Resilient Public Private Partnerships: A Toolkit for Decision Makers](#), Inter-American Development Bank (IDB) May 2020 - The toolkit has captured several instruments already used to address climate change issues in the context of infrastructure production that could be integrated in the typical structure of a PPP process from project identification to contract management, identifying options for a low-cost and seamless implementation in a resilient PPP model.
- [Improving Climate Resilience in Public Private Partnerships in Jamaica](#), IDB May 2020 – The report examines Jamaica's PPP policy framework, practices and projects as well as emerging practices at the intersection of PPPs and climate change to understand what could be done. Includes an Action Plan with short, medium- and long-term steps Jamaica could take to better include climate resiliency aims in their planning process. See also the companion toolkit with practical guidelines and solutions to identify, assess, and mitigate climate-related risks.
- [Green Climate Fund Climate Resilient Infrastructure: Unlocking Projects' Pipeline](#) - The presentation on Green Climate Fund Climate Resilient Infrastructure: Unlocking Projects' Pipeline, delivered by Katarzyna Dziamara-Rzucidlo.
- [Nature-based Solutions: Scaling Private Sector Uptake for Climate Resilient Infrastructure in Latin America and the Caribbean](#): this document outlines emerging findings from the work and provides initial recommendations for infrastructure project developers, financial institutions, and policy makers, to create a more enabling environment for NbS.
- [Incorporating Climate Risk in PBC Contracting Recommendations Task 5 Report](#), Final Draft, World Bank Group 2018 - Report aims to provide a risk assessment framework that will allow governments to properly assess the risks and impacts of climate change and assign these risks to the party best able to manage them within the performance-based contract (PBC) strategy.
- [Climate change adaptation of major infrastructure projects](#) - A stock-taking of available resources to assist the development of climate resilient infrastructure, European Commission 2018. This study reviewed the availability of resource materials that can support infrastructure project developers to take into account climate change adaptation. It provides an overall stock-taking of available resources that contribute to the preparedness of all member states with regards to applying the climate change

requirements of the European Structural and Investment Funds programming period 2014-2020 and identifies some of the ongoing good practices of member states in adapting to climate change.

- [Draft Guiding Principles on People-First Public-Private Partnerships \(PPPs\) for the United Nations Sustainable Development Goals \(UN SDGs\), Part II](#), UNECE 2018- The UNECE is currently elaborating the Guiding Principles on People-First Public-Private Partnerships (PPPs) for the UN Sustainable Development Goals (SDGs). Principle No 7 refers specifically to resilience and climate change.
- [Resilient Infrastructure Public-Private Partnerships \(PPPs\): Contract and Procurement – The Case of India](#), World Bank, 2018 – Country report initiated by the World Bank (Global Infrastructure Facility - GIF), the Tokyo Disaster Risk Management (DRM) Hub, and the Public-Private Advisory Facility (PPIAF) on how disaster risk management and climate change impacts are being addressed in PPP frameworks and projects. The report is based on a review of PPP policies, legislation and contracts as well as lessons learned and recommendations for further measures.
- [Climate-Resilient Infrastructure, OECD 2018](#) – Policy Paper outlines a framework to achieve a coordinated policy response to ensure that new and existing infrastructure networks are resilient to climate change based on the experiences in OECD and G20 countries. It shows how governments and businesses can collaborate to mobilize investment for climate-resilient infrastructure.
- [Low-Carbon Infrastructure - Private Participation in Infrastructure \(PPI\) 2002-H1 2017](#), The World Bank 2018 - This report documents and analyzes trends in low-carbon infrastructure investments in low- and middle-income countries, particularly with respect to private-sector investments in infrastructure projects as recorded by the Private Participation in Infrastructure (PPI) database. The report focuses particularly on “low-carbon” PPI in the energy and land-transport sectors, including railway investments that have the potential to take carbon-emitting trucks and other cargo carriers off the road; urban-transport projects (mass rapid transport) that have the potential to promote reduced usage of cars; and renewable energy projects in the solar, wind and hydropower sectors. Conventional energy projects include energy projects that rely on non-renewable energy sources, and projects in infrastructure sectors that generally increase carbon emissions, such as roads that allow increased vehicular traffic. The data set is analyzed for the last 15 years, covering the period from 2002 to H1 2017 (first half of 2017).
- [Resilient Infrastructure Public-Private Partnerships \(PPPs\): Contracts and Procurement – The Case of Japan](#), World Bank 2017 - Country report initiated by the World Bank (GIF), the Tokyo Disaster Risk Management (DRM) Hub, and PPIAF on how disaster risk management and climate change impacts are being addressed in PPP frameworks and projects. The report is based on a review of PPP policies, legislation and contracts as well as lessons learned and recommendations for further measures.
- [Making Safeguards Work for Investors, Governments and Communities: PPPs for Infrastructure Development in Asia, Workshop Report](#), World Bank Group September 2016 - Report of a two-day workshop held in Bangkok, Thailand in September 2016 on making safeguards work for investors, government and communities with regard to public-private partnerships (PPPs) for infrastructure development in Asia. The workshop traversed the diverse and dynamic landscape of PPP investment in infrastructure development with a focus on the East Asia Pacific (EAP) region. It explored the business imperatives and upfront costs in proactive environmental and social risk management, and the subsequent costs and other business risks associated with not following a proactive approach. The workshop examined different perspectives on environmental and social risk management ranging from being part of the development space to mainstreaming it in the private sector. The workshop also considered the role of governments, financiers, investors, academia, consultants, civil society, and donors in managing environmental and social risks to support the mobilization of private sector capital into infrastructure investments. The key questions explored by the workshop are covered in this report.
- [Climate change and Disaster Resilience: Pacific Possible](#) - This background paper considers adaptation for a range of sectors and situations, including infrastructure and buildings, coastal protection, the water sector, and agriculture.
- [Ensuring New Infrastructure is Climate-Smart](#), James Rydge, Michael Jacobs and Ilmi Granoff, The New Climate Economy – The Global Commission on the Economy and Climate, Working Paper,

2016. The working paper was written as a supporting document for the 2015 report of the Global Commission on the Economy and Climate, [Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate](#). It reflects the research conducted for Section 2.6 of the full report and is part of a series of working papers. It also reflects the recommendations made by the Global Commission.

- [Climate Risks and Resilience in Infrastructure PPPs: Issues to be Considered](#) - Satheesh Sundararajan and Nuwan Suriyagoda, PPIAF 2016
- [How to Make Infrastructure Climate-Resilient](#), Alan Miller, Stacy Swann EMCompass no. 14, IFC 2016. In emerging markets, climate change threatens infrastructure that is critical for development. Because private companies and investors in emerging markets often manage infrastructure projects through public-private partnerships (PPPs), they will now need to address climate change risks when planning and building these projects. The note explains how new tools and approaches, including insurance, are helping PPPs better respond to climate risks.
- [Meeting the Challenge of Sustainable Infrastructure: The Role of Public Policy](#), Zia Qureshi, Brookings June 2016
- [Building Resilience to Climate Change: Investing in Adaptation](#) - This paper presents the methodology for climate resilience audits, which provide a basis to identify, propose and discuss technical and investment solutions with the client.
- [A framework for mainstreaming climate resilience into development planning](#), International Institute for Environment and Development (IIED), November 2013 - This publication presents the concepts of climate resilience mainstreaming and provides a practical instrument for government planners to think through the integration of climate-resilient responses into policy.
- [Emerging Trends in Mainstreaming Climate Resilience in Large Scale, Multi-sector Infrastructure PPPs](#), PPIAF 2016
- [Infrastructure, Resilience and Public-Private Partnerships](#), MIF - Multilateral Investment Fund (FOMIN - Fondo Multilateral de Inversiones) 2016, Panel discussion on how the need for climate resilience affects infrastructure deals, the challenges to modelling and apportioning climate risks, as well as new developments in PPPs that incorporate climate resilience, among other topics. Links to session video and documents.
- [Seizing the Global Opportunity: Partnerships for Better Growth and a Better Climate](#), The Global Commission on the Economy and Climate, 2015. The report makes the case for all parties to forge new and improved strategic partnerships for economic growth and a better climate. The first part of the report focuses on new opportunities and challenges for low-carbon growth and international cooperation, examining recent trends and developments, and international cooperation. Part two then identifies key areas for international and multi-stakeholder action. The commission recommends that in the key economic systems where growth and emissions are concentrated
- [Smart Mobility PPPs in Latin America and the Caribbean](#), The Economist Intelligence Unit (EIU) and the Multilateral Investment Fund (MIF) 2015– This report looks at the state of smart mobility in Latin America and focuses on new methods to manage mobility and innovative means of transport, and will examine the viability of using public-private partnerships (PPPs) to advance smart mobility solutions in the region.
- [Public-Private Partnerships and Infrastructure Resilience - How PPPs Can Influence More Durable Approaches to U.S. Infrastructure](#) Eric Boyer, Rich Cooper, and Janet Kavinoky - This paper investigates how a PPP approach to infrastructure delivery influences the potential for a facility to become more resilient to natural disasters or terrorist attacks. Conclusions suggest that even though PPPs are not at a panacea for improving infrastructure resilience, they provide a number of structural conditions and incentives that, if properly leveraged, can influence the overall resilience and economic return of U.S. infrastructure facilities
- [The Climate-Resilient City](#), by Zachary Kaplan and Del McCluskey, DAI 2013
- [Adapting Infrastructure to Climate Change](#), Commission Staff Working Document, European Commission 2013 - This paper presents the contribution of the European Union to climate change adaptation in selected infrastructure sectors. It covers energy and transport infrastructure as well as

buildings in the EU. The paper also discusses the instruments and financing provided by the European Union to make Europe's infrastructure more climate resilient.

Infrastructure & Climate Change by Sector

Energy

- [Guidelines for climate proofing investment in the energy sector: Energy infrastructure projects](#), ADB 2013 - This publication provides a step-by-step methodological approach to help project teams assess and incorporate climate change adaptation measures into energy investment projects. While the focus of the guidelines is at the project level, an improved understanding of climate change impacts should also be used to incorporate climate change considerations into energy planning and policy at the country level.
- [Hydropower Sector Climate Resilience Guide](#), International Hydropower Association, May 2019 - The Hydropower Sector Climate Resilience Guide offers a methodology for identifying, assessing and managing climate risks to enhance the resilience of hydropower projects. It responds to the need for international industry good practice on how to incorporate climate resilience into hydropower planning, design, and operations. The Guide was developed with the financial and technical support of the European Bank for Reconstruction and Development, the World Bank Group and its Korea Green Growth Trust Fund.
- [Toward Climate-Resilient Hydropower in South Asia](#), P. Karki; L Bonzanigo; H. O. Haruhisa; S. Pahuja, World Bank Group 2016. The knowledge note explains a cost effective, scientifically sound, replicable, and transparent method for demonstrating the robustness of a development project in the face of the risks posed by climate change, natural hazards, and other factors (“decision tree”). The framework is most effective when a wide range of risks must be considered, as is typically the case with high-value hydropower investments.

For more information on [Renewable Energy](#) see also [Biomass](#), [Geothermal](#), [Hydropower](#), [Solar](#), and [Wind](#).

Transport

- [Guidelines for climate proofing investment in the transport sector: Road infrastructure projects](#) ADB 2011 - This publication provides a step-by-step methodological approach to help project teams assess and incorporate climate change adaptation measures into energy investment projects. While the focus of the guidelines is at the project level, an improved understanding of climate change impacts should also be used to incorporate climate change considerations into energy planning and policy at the country level.

Water

- [Confronting climate uncertainty in water resources planning and project design: The Decision Tree Framework](#), by Patrick A. Ray and Casey M. Brown, World Bank, 2015

Climate Change Frameworks, Data & Tools

- [World Bank Group’s Climate Change Knowledge Portal \(CCKP\)](#) - Hub for climate-related information, data, and tools. The Portal provides an online platform for access to comprehensive global, regional, and country data related to climate change and development.
- [People in a Changing Climate: From Vulnerability to Action](#) - To identify opportunities and priorities for aligning development and climate change action and objectives at the country level, the World

Bank Group introduced the Country Climate and Development Reports (CCDRs) in 2022. This report presents a selection of key findings from the first three years of CCDRs, with 58 reports covering 72 countries and economies published by November 2024.

- [Copernicus Climate Data Store \(CDS\)](#) - Platform intends to support adaptation and mitigation policies by providing free access to climate data based on the best available science and tools for interpreting that data. This platform is a one-stop shop for information about the climate: past present and future. It provides easy access to a wide range of climate datasets via a searchable catalogue. Includes “CDS infrastructure” which is designed to provide a single entry point for users to discover and process data and products from distributed data repositories.
- [European Climate-Adapt Platform](#) - Platform developed by the European Commission and European Environment Agency to provide comprehensive, reliable data to inform adaptation decisions. It includes data on projected climate change impacts, adaptation case studies, EU Sector Policies, as well as adaptation support tools for assessing, identifying, and managing climate change impacts.
- [FAST-Infra initiative \(Finance to Accelerate the Sustainable Transition-Infrastructure initiative\)](#) - founded in early 2020 as a collaboration of the Climate Policy Initiative (CPI), HSBC, the International Finance Corporation (IFC), OECD and the Global Infrastructure Facility (GIF) under the auspices of President Macron’s One Planet Lab. The platform aims to propose practical and inclusive solutions aimed at establishing sustainable infrastructure as an asset class, while embedding sustainability across the life cycle of projects and expanding the pipeline of bankable projects. FAST-Infra is developing a label for sustainable infrastructure and is also working on four market mechanisms that have the potential further to mobilize private capital.
- [Argentina’s Climate Risks Map System \(SIMARCC\)](#): Interactive website developed by the Argentinian government’s National Climate Change Office that provides risk maps covering different scenarios of threats and vulnerabilities related to climate change. This platform combines georeferenced data on the potential hazards from climate change with data on social vulnerabilities. This tool was designed to be useful for decision makers in the public and private sectors
- [Brazil’s AdaptaClima Platform](#): the AdaptaClima platform intends to support the dissemination of information and material on climate change to decision makers. It is an interactive and collaborative space for sharing tools, studies and methodologies. The development of the platform was coordinated by the Brazilian Ministry of Environment.

Useful Links

Asian Development Bank (ADB)

- [Climate Change and Disaster Risk Management](#)

African Development Bank (AfDB)

- [Climate Change](#)

Columbia Center on Sustainable Investment

- [Climate Change](#)

European Bank for Reconstruction and Development (EBRD)

- [Sustainable Energy Initiative](#)

European Investment Bank (EIB)

- [Climate Action](#)
- [Climate and Environmental Sustainability](#)

Inter-American Development Bank (IDB)

- [IDB Climate Change](#)
- [NDC Invest - Climate Change](#)

World Bank Group

- [Climate Change](#)
- [Climate Change Knowledge Portal \(CCKP\)](#) - CCKP provides an online tool for access to comprehensive global, regional, and country climate-related information, data and tools.
- [Climate Business](#) - International Finance Corporation (IFC)

United Nations

- [United Nations Climate Change](#)
- [United Nations Development Program - Climate Change](#)

United States Agency for International Development(USAid)

- [Global Climate Change Strategy](#)

Related Content

- [Climate-Smart PPPs](#)
- [Climate-Smart PPP Legal and Regulatory Framework](#)
- [Preparing, Procuring and Implementing Climate-Smart PPPs](#)
- [?Sector-Specific Content on Climate-Smart](#)
- [Renewable Energy](#)

Additional Resources

- [Sub-national and Municipal PPPs](#)
- [Public-Private Partnerships for Transport](#)
- [Power and Renewable Energy PPPs](#)
- [Renewable Energy](#)

Partner Resources



[Renewable Energy Project Resource Centre \(REPRC\)](#)

[hosted by Energypedia](#)

Wiki-based library of energy project resources. Includes sample terms of references, procurement documents, economic analyses and case studies (success factors and lessons learned).

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