A SUMMARY

Resilience Rating System

A methodology for building and tracking resilience to climate change



© 2021 International Bank for Reconstruction and Development / The World Bank 1818 H Street NW, Washington, DC 20433 Telephone: 202-473-1000; Internet: www.worldbank.org

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions—The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Attribution—World Bank Group. 2021. Resilience Rating System. A Methodology for Building and Tracking Resilience to Climate Change. A Summary. Washington, DC: The World Bank.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; email: pubrights@worldbank.org.

Cover design by Brad Amburn.

Acknowledgments

This methodological note for the Resilience Rating System was prepared by Stephane Hallegatte, Viviane Clement, Sundus Siddiqi, and Michelle Winglee. Economic analyses that include disaster and climate risks were performed by Rubaina Anjum, Paolo Avner, Ammara Shariq, and Michelle Winglee. The review and mapping of existing sectoral methodology was done by Elham Shabahat and Viviane Clement.

This methodology is based on the work of a working group on the Resilience Rating System, which is led by Stephane Hallegatte, Veronique Morin, and Vladimir Stenek, and includes input from experts from the sectors considered in this note: Suzana Abbott, Rubaina Anjum, Margaret Arnold, Fatima Arroyo, Paolo Avner, Simone Balog-Way, Fatima Barry, Garo Batmanian, Anush Bezhanyan, Christian Borja-Vega, Greg Browder, Ana Bucher, Jack Campbell, Karan Capoor, Debabrata Chattopadhyay, Narae Choi, Viviane Clement, Fiona Collin, Mark Deinert, Caroline Devadason, Stephen Dorey, Nathan Engle, Xavier Espinet, Gregory Felter, Erick Fernandes, Marc Forni, Ugo Gentilini, Christine Heumesser, Oscar Ishizawa, Anders Jensen, Pravin Karki, Oceane Keou, Nalin Kishor, Fabian Koehrer, Patricia Kristjanson, Ashok Kumar, Lisa Lau, Friederike Mikulcak, Ayah Mahgoub, Erkin Mamadaliev, Shomik Mehndiratta, Aurelio Menendez, Veronique Morin, Robert Mutyaba, Sean Nelson, Philippe Neves, Claire Nicolas, Samuel Oguah, Ninan Oommen, Angelica Parada, Karen Peffley, Leela Raina, Patrick Ray, Jun Rentschler, Kanta Rigaud, Julie Rozenberg, Ommid Saberi, Amy Schweikert, Sachin Shahria, Ammara Shariq, Manu Sharma, Sundus Siddiqi, Natalya Stankevich, Ioannis Vasileiou, Michelle Winglee, Yi Xu, Daniela Zingler, and Nkulumo Zinyengere.

Previous iterations of the methodology have benefited from comments from Timothy H. Brown, Barbara Buchner, June Choi, Joyce Coffee, Sarah Coll-Black, Fiona Collin, Mark Deinert, Willem Janssen, Ashok Kumar, Anne Kuriakose, Robert Lempert, Angelica Ospina Parada, Kanta Kumari Rigaud, Jennifer Solotaroff, and Asmita Tiwari.

As peer reviewers, Eric Dickson, Nathan Engle, Kulwinder Singh Rao, and Iain Shuker provided invaluable suggestions and comments.

Lucy Southwood was the production editor. Brad Amburn designed the report.

The report and underlying work benefited from the guidance of John Roome and Bernice Van Bronkhorst, directors of the World Bank Climate Change Group.

Introduction and objectives of the Resilience Rating System

Climate change and natural hazards cause economic losses that threaten development and long-term growth. Severe rainfall can cause mudslides and road washouts, while floods can contaminate water supplies. Higher temperatures can reduce the efficiency of electricity transmission and distribution, and place stress on grid networks from increased cooling demands. Droughts can harm livestock and crop productivity, while changes in rainfall patterns increase the risk of crop pest infestations that threaten food security. Resilience is the capacity to prepare for these types of disruption, recover from shocks, and grow from a disruptive experience.¹ Development agencies have committed to do more to boost the resilience of countries around the world. With the increase in attention to and investments in disaster risk management and climate change adaptation,² it becomes more important to track performance, progress, and development outcomes for resilience.

To better monitor adaptation and resilience-related action, the World Bank's Action Plan on Climate Change and Resilience committed to create a Resilience Rating System (RRS) to complement existing methodologies on tracking climate-related finance³ and increase ambition for climate-aligned development. The main objectives of the RRS are to:

- » Better inform decision makers, client countries, and other stakeholders. The RRS provides specific assessment and reporting criteria that can be used to track resilience, either by how a project is designed or how it provides the tools, institutions, and infrastructure needed to cope with climate change impacts and natural disasters. The RRS methodology can be applied to any investment, including private sector projects.
- » Create incentives for more and better climate adaptation. Enhanced transparency and standardized reporting can create financial incentives. Effectively communicating a project's climate resilience to potential investors can attract finance towards projects that are climate resilient or support climate resilience objectives.
- » **Identify best practice.** The rating system can help identify best practice, allowing quicker and better learning to be scaled up from the best projects and practices across sectors and countries, within and outside the World Bank Group.
- » **Provide guidance.** The RRS provides guidance on ways to incorporate appropriate risk reduction measures into project design and improve the quality of development projects. It also accommodates flexibility for different sectoral and country contexts.⁴

The RRS does not attempt to solve all challenges related to tracking and monitoring climate change action. Rather, it aims to guide institutions, private sector participants, and project

developers—especially in sectors that do not traditionally incorporate climate risk—that are looking to improve climate resilience in project design and outcomes. In parallel, the RRS helps streamline World Bank Group corporate climate commitments related to adaptation and resilience under one process.⁵ Specific implementation guidance for World Bank Group operations will be part of a separate note, and sector–specific versions of this methodology will be developed over time.

Beyond the World Bank Group, other financial actors and development institutions can apply the RRS as an input in decisions to finance and implement projects, or to monitor (and report on) how they include climate change in their decision making. The RRS can also be a building block for rating portfolios, companies, and countries—for example, by aggregating project ratings in a portfolio. There are, however, different ways of aggregating ratings and this question is not treated in this document.

The rest of the note provides a summary of the two dimensions for rating resilience, an overview of the rating criteria, and examples of sector methodologies that correspond to certain ratings. See the full RRS methodology note for additional guidance and project examples.

How is resilience rated?

The RRS evaluates the resilience of the project design and through project outcomes (figure 1).





Resilience of the project design (or simply, **resilience** of the project) is the extent to which a project's assets have considered climate and disaster risks in their design. This includes incorporating appropriate adaptation measures—for example, a road with improved drainage designed to prevent washouts—as well as accounting for climate and disaster risks in the economic and financial analysis demonstrating the viability and value of the project.

Resilience of the project can help characterize the confidence that investment outcomes will be achieved despite possible climate risks. Since acceptable risk levels vary across projects, sectors, and contexts, the resilience of project design does not provide a judgment on whether residual risks are acceptable. Instead, it measures how climate and disaster risks have been included in the assessment of the project value and performance.

Resilience *through* project outcomes (or simply, **resilience** *through* **the project**) reflects whether a project's objective is to enhance the targeted sector's and beneficiaries' climate resilience through its interventions—for example, project activities aimed at improving watershed management in a flood or drought-prone area.

While the lines between these two dimensions cross, the distinction is important for monitoring a portfolio of investments. All projects should be designed to manage climate risk and prevent maladaptation (resilience *of* the project). However, not every project needs to have activities or objectives aimed at increasing climate resilience (resilience *through* the project), as there are many other valid objectives.

These two dimensions are consistent with "double materiality", a concept for reporting on sustainability in the private sector. The concept of double materiality combines the effects of environmental, social, and governance considerations on profitability, with the non-financial value that these considerations bring.⁶

Rating overview

This section provides an overview of the criteria for rating the resilience *of* and *through* a project (figure 2).

Resilience of the project

Resilience *of* the project is the first dimension of the RRS. This rating, expressed in letter grades A+ to C, characterizes the confidence in the project's ability to avoid financial, environmental, and social underperformance (compared with what is expected). A high rating denotes higher confidence that an investment will achieve its expected rate of return and the project will remain beneficial, despite any possible negative impacts of climate change. A low rating means that possible impacts of disasters and climate change on project performance have not been fully explored, and the project may be at higher risk of underperformance or failing to achieve its development outcomes.



This metric provides guidance to ensure that the decision to proceed with the project has considered, reported, and accounted for climate risks.⁷ A high rating does not mean that a project does not face climate and disaster risks. Rather, it means that risks have been robustly assessed or addressed and do not threaten the project's viability and value. Note that a project may have significant risk and still be attractive and receive a high rating if the potential benefits are high enough, the residual risk is manageable or does not threaten the project's net gain, or the investor or decision maker considers the risk acceptable.⁸

The rating levels are defined on the next page and depicted in figure 3. Note that ratings build upon each other—for example, an A rating depends on meeting the criteria for ratings C and

B. See the full RRS methodology note for greater specifics and guidance. Table 1 contains some examples of rating the resilience *of* project design.

G: The project has conducted a basic climate and disaster risk screening. It has identified relevant short and long-term climate and disaster risks over its lifetime and provided a qualitative estimate of residual risks (high, moderate, or low) and a justification.⁹ All World Bank projects are at least here through their fulfillment of the corporate commitment for climate and disaster risk screening.

B: The project has conducted a multi-model risk assessment¹⁰ and identified, assessed, and considered adaptation options such as reinforced structures and improved maintenance. It also reports on identified threats, a qualitative level of residual risk, and a rationale for including or rejecting possible adaptation options.

The project's economic and financial analysis incorporates a stress test on the residual disaster and climate risks and reports on how these risks do not make the project economically or financially unviable.¹¹ The project reports identified threats to project performance, considering uncertainty around disaster risks and future climate change and scenarios that can make the project uneconomical (if any). It also incorporates risk management measures where necessary or provides a rationale for why residual risk may be acceptable.

The project explicitly discusses the possibility of unexpected impacts based on a systematic analysis of uncertainties and risks that informs contingent planning. The + provides additional confidence for an investor or decision maker that a project will remain economically beneficial despite the possibility of negative shocks. Projects can achieve the + rating if preparation and design follow sector best practice guidance in terms of climate change resilience and decision making under deep uncertainty (DMDU).¹² The + can be added to both the B and A ratings.¹³

Special circumstances: The rating system is to be applied even where data and models are not available—for example, in fragile, conflict and violence (FCV) contexts—which can lead to lower ratings. In these instances, decision makers may choose to accept a lower rating—for example, requiring a C rather than a B project rating. Other special ratings include:

- » NA (not applicable): The project is not exposed to climate change risks or a resilience rating is not relevant, based on the nature of project activities or types of outcome.
- » **NR (not rated):** The project is possibly exposed to climate change and disaster risks, but no information is available or the risks are unmanageable and threaten the project's economic viability.

FIGURE 3 • Decision tree for rating the resilience of the project

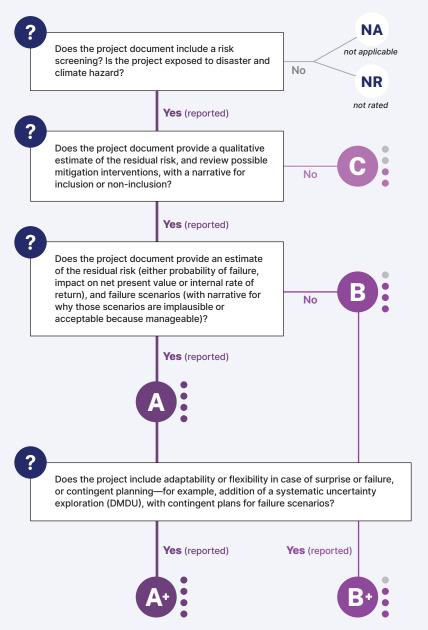


TABLE 1	•	Examples of rating resilience of the project
---------	---	--

Sector	Project examples	Rating
Transport	Project developers identify vulnerability to extreme precipitation, incorporate appropriate hydrological analysis (considering watershed management) into road design, and take natural and engineered measures to revegetate/stabilize slopes.	B
Water	Project developers identify vulnerability to drought at the project location and conduct a detailed assessment of precipitation patterns, surface water, and impacts of reduced water availability on the project. The task team incorporates water use efficiency at facilities, such as gray water recycling, and aquifer recharge to reduce risks from water scarcity.	B
Agriculture	Project developers identify risks from pest outbreaks, flooding and shifts in seasonal patterns on crop yields based on a multi-model risk assessment. The team conducts an economic analysis that incorporates a climate and disaster risk stress test to determine whether measures for pest and landscape management are enough to make the project economically viable, even in a worst-case scenario.	
Transport	Project developers identify the key risks to the project location—namely, floods and cyclones—and use flood likelihood maps to identify priority areas for enhancing road access and rehabilitation. The project's economic analysis uses DMDU methodology to capture different factors that may affect investment performance. Cost of failure and impacts on end users determine risk management measures, such as cleaning and repairing bridges and upgrading road culverts. The team creates a Geospatial Climate Resilience Tool to monitor changing climate conditions on roads and inform an adaptable implementation plan.	A •

Implementation arrangements

The steps required to achieve ratings C, B, B+, A, or A+ can correspond to different stages in the project development cycle:¹⁴

- » Screening (rating C) is best conducted at an early stage of project design (corresponding to the World Bank's "concept note" stage), so its results inform the project's development.
- » Assessment and adaptation options (rating B) correspond to activities and negotiations taking place during project preparation (for the World Bank Group, at "project preparation and appraisal" stage).
- » Residual risk stress testing (rating A) can be performed before a decision is made to implement the project (at the World Bank Group, before the project goes to the Board of Executive Directors for approval, with disclosure in the appraisal documents).

Although incorporating climate change and natural hazards into project design can correspond to basic stages in the project cycle, the process of identifying key risks, including adaption measures, stress testing, and revising project activities is an iterative one.

Some changes to the project during implementation—such as dropping a resilience-related activity or cancelling a planned risk analysis—can lead to a lower rating; others could lead to a rating increase. As the RRS primarily aims to support decision making, the rating is based on the information available when the decision to proceed with the project is made (for the World Bank Group, this is at Board level). However, given unexpected changes during project implementation and to better track resilience-building activities, ratings can be reviewed during implementation—for example, in the mid-term review—and at a project's close.

Resilience through the project

Resilience *through* the project is the second dimension of the RRS. This rating, also expressed in grades A+ to C, characterizes the extent to which projects explicitly contribute to the resilience of beneficiaries, communities, asset networks, or even countries. Such projects are intentionally designed with the objective or subobjective of improving resilience. The distinction between this and the first dimension is important, because not all development projects seek to improve resilience more broadly beyond the individual investments themselves being resilient to impacts from climate and natural hazards. Thus, this dimension helps prioritize and promote investments that support transformation towards resilient development pathways as they relate to current and long-term climate impacts.

The rating levels are defined below and depicted in figure 4. Note that ratings build upon each other—for example, an A rating depends on meeting the criteria for the ratings C and B. See the full RRS methodology note for greater specifics and guidance. Table 2 contains some examples of rating resilience *through* project outcomes.

C The project is a standard development project that increases local income, reduces poverty, or provides beneficiaries with infrastructure or financial services that boost socioeconomic resilience. A C rating is based on the idea that lower poverty, higher income, and better access to infrastructure and financial services, health care and social protection increase resilience. All projects with development objectives (including World Bank Group projects) are rated at least C.

B The project targets resilience building through specific activities and investments—that is, by helping people manage shocks brought on or exacerbated by climate and disaster risks. These activities are intentionally designed to contribute to resilience building by reducing identified vulnerabilities of beneficiaries, asset networks, or wider systems. At the World Bank Group, all projects with adaptation co-benefits will be at this level at least.

The project is transformational in improving resilience, influencing resilience or adaptation beyond direct outputs by affecting institutions, policies, incentives, capacities, and so on. For example, an A-rated project might affect upstream policies, country-level strategic plans or frameworks, system-level change, cross-sectoral collaboration or technology and data enhancements.

Local ownership and high-level political buy-in are important for capacity building, empowerment, and lasting impacts.

As well as increasing the resilience of beneficiaries, the project uses at least one climate indicator to monitor the progress of those resilience-building activities and/or outcomes. Climate indicators that reflect resilience measures are thoroughly embedded in the project's overall theory of change or road map for achieving long-term goals, as part of its monitoring and evaluation strategy. The + rating can be added to both the B and A ratings.

As with the first dimension, an **NR** rating is for special circumstances where a project may not report on its contribution to development, growth, poverty reduction, or resilience. See figure 4 for an overview of the rating process.

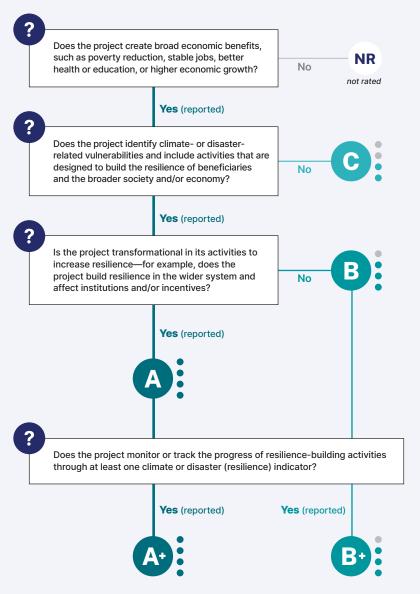
Implementation arrangements

The steps required to achieve B, B+, A, or A+ ratings correspond to different stages of project development:

- » Identifying an intent to build the resilience of the wider community, asset network or resource system—a key part of establishing resilience *through* the project—can begin at an early stage of project design (for example, during the concept stage at the World Bank) and be informed by stakeholder dialogues. Identifying initial resilience-building components and activities (to achieve a B rating) can therefore be described in project concept notes.
- » Projects aiming for transformational development outcomes should try to achieve the A rating criteria as early as possible in project design, embedding these development outcomes into the project's theory of change.
- » Including at least one indicator to achieve a B+ or A+ rating can be solidified as the monitoring and evaluation strategy is developed during project preparation.

As with resilience *of* the project, ratings will be attributed when the implementation decision is made (for the World Bank Group, this is at Board level). But the rating can be adjusted according to project implementation to enhance project monitoring and ensure outcomes.

FIGURE 4 • Decision tree for rating resilience through the project



Sector	Project examples	Rating
Agriculture	The project team incorporates a project component that supports research on the impacts of climate change on crop varieties and climate-smart agriculture practices, such as crop diversification, to mitigate risks of crop failure.	B
Transport	The project integrates disaster risk management criteria into codes and zoning laws to make sure new roads, assets, and future developments are not built in a flood plain. Developing a disaster risk management plan ensures that the population can be quickly evacuated by road in case of extreme events. The project is considered transformational because the improved codes and laws will also improve the resilience of future projects and investments.	A
Environment	The project objective supports resilience through community- led watershed and landscape management by investing in green infrastructure. This includes rehabilitating degraded forest, pasture, and woodlands; strengthening land tenure security; and enhancing institutional decision making to support resilient landscapes. A climate indicator tracks the hectares of land implementing climate-smart agriculture practices.	A.

TABLE 2 • Examples of rating resilience through the project

Link with existing methodologies and approaches

The full methodology note provides more details on how to determine a project's rating. Project developers can also use it to guide them through the steps and processes needed to ensure their project is resilient to climate and disaster risks, or contributes to the population's resilience. The note also provides links to data and methodological resources that can help teams incorporate climate and disaster risk considerations in their project design.¹⁵ Another guidance document, *Integrating Climate Change and Natural Disasters in the Economic Analysis of Projects*, has been developed for achieving an A rating for resilience of the project; and there are other, sector-specific documents on applying the RRS methodology to forest plantations, road projects, and urban projects.¹⁶

Of course, project developers—at the World Bank Group and elsewhere—already use guidance and other approved methodologies to incorporate resilience into their project designs, and the RRS is not meant to replace those. Instead, the RRS can be used to attribute a rating to these methodologies, which can then be transferred to projects that apply them.

Table 3 and Appendix 1 of the full RRS methodology note provide examples of where the (documented) use of sector methodology is enough for projects to receive a given rating. For example, projects following the World Bank's Water Global Practice guidelines— which help project developers build resilience of water supply and sanitation services by identifying vulnerabilities through stress-testing possible future scenarios and considering risk management in project design—would automatically gain an A+ rating.

TABLE 3 • Existing methodologies mapped to the Resilience Rating System

Some of these methodologies contain different levels of analysis that correspond to different resilience ratings.

Sector	Publication details	Rating
Dimension 1:	Resilience of the project methodologies	
Water	Building the Resilience of WSS Utilities to Climate Change and Other Threats: A Road Map. World Bank Group 2018.	
Water	Resilient Water Infrastructure Design Brief. World Bank Group 2020.	
Water	Confronting Climate Uncertainty in Water Resources Planning and Project Design: The Decision Tree Framework. World Bank Group 2015.	A ¹
Water	Climate Risk Informed Decision Analysis (CRIDA): Collaborative Water Resources Planning for an Uncertain Future. UNESCO and ICIWaRM Press 2018.	A [•]
Water	Incorporating Climate Change Adaptation in Infrastructure Planning and Design: Overarching Guide. USAID 2015.	B
Water	Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans and Online Companion Tool for Vulnerability Assessment Reports. US Environmental Protection Agency 2014.	
Transport	Addressing Climate Change in Transport (Volume 2): Volume 2: Pathway to Resilient Transport. World Bank 2019.	A [•]
Transport	Supporting Road Network Vulnerability Assessments in Pacific Island Countries. World Bank Group 2018.	
Transport	FHWA Vulnerability Assessment and Adaptation Framework. Federal and Highway Administration 2018.	A :
Transport	Climate Adaptation: Risk Management and Resilience Optimisation for Vulnerable Road Access in Africa—Climate Adaptation Options Report. Paige-Green, P, Verhaeghe, B, and Head, M 2016.	
Transport	Climate Adaptation: Risk Management and Resilience Optimisation for Vulnerable Road Access in Africa - Climate Risk and Vulnerability Assessment Guidelines. Le Roux, A, Makhanya, S., Arnold, K., Roux, M. Council for Scientific and Industrial Research, Paige- Green Consulting Ltd, and St Helens Consulting Ltd 2019.	B
Hydropower	Hydropower Sector Climate Resilience Guide. International Hydropower Association 2019.	
Energy	The Good Practice Note for Energy Sector Adaptation. World Bank 2020. [World Bank internal resource]	A
Energy	Guidelines for Climate Proofing Investment in the Energy Sector. Asian Development Bank 2013.	
Energy	Hands-on Energy Adaptation Toolkit (HEAT). Energy Sector Management Assistant Program (ESMAP) 2010.	
Agriculture	Reducing the Vulnerability of Azerbaijan's Agricultural Systems to Climate Change: Impact Assessment and Adaptation Options. World Bank 2014.	A
Agriculture	Agricultural Sector Risk Assessment: Methodological Guidance for Practitioners. Agriculture global practice discussion paper, no. 10. World Bank 2016.	B
Agriculture	ARCC Vulnerability Assessments in Africa. USAID.	B
Forestry	Overview of a four-step approach to building climate resilience in plantation forestry projects. World Bank, forthcoming. ¹⁶	
Buildings	Building Resilience Index. IFC 2020.	C to A
General	Robust Decision Making. RAND Corporation.	A.
General	Real Option Analysis: Where are the Emperor's Clothes? Borston, A 2003.	A

Sector	Publication details	Rating			
Dimension 2: Resilience through the project methodologies					
Health	Protecting health from climate change: vulnerability and adaptation assessment. WHO 2013.	A ¹			
Health	Methodological Guidance: Climate Change and Health Diagnostic. A Country-Based Approach for Assessing Risks and Investing in Climate-Smart Health Systems. World Bank 2018.	A			
Health	Assessing Health Vulnerability to Climate Change: A Guide for Health Departments. CDC 2019.	B			

Endnotes

- Adapted from the Intergovernmental Panel on Climate Change (IPCC) definition of resilience: "The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions." Denton, F, Wilbanks, T J, Abeysinghe, A C, Burton, I, Gao, Q, Lemos, M C, Masui, T, O'Brien, K L, and Warner, K. 2014. "Climate-resilient pathways: adaptation, mitigation, and sustainable development." In: IPCC. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1101–1131. https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap20_EINAL.pdf.
- 2. Climate change adaptation means adjusting to actual or expected climate impacts to moderate harm or exploiting beneficial opportunities. Definition adapted from IPCC. 2018. "Annex I: Glossary" [Matthews, J B R (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V, Zhai, P, Pörtner, H O, Roberts, D, Skea, J, Shukla, P R, Pirani, A, Moufouma-Okia, W, Péan, C, Pidcock, R, Connors, S, Matthews, J B R, Chen, Y, Zhou, X, Gomis, M I, Lonnoy, E, Maycock, T, Tignor, M and Waterfield, T (eds)]. https://www.ipcc.ch/sr15/chapter/glossary/.
- 3. The World Bank Group tracks climate-related finance through "climate co-benefits"—that is, the share of its lending commitments that contribute to climate change mitigation and/or adaptation. Climate co-benefits are based on the joint multilateral development banks methodologies for tracking climate change adaptation and mitigation finance. See African Development Bank, the Asian Development Bank, Furopean Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank Group, Islamic Development Bank and World Bank Group. 2020. 2019 Joint Report on Multilateral Development Banks Climate Finance. http://dx.doi.org/10.18235/0002528.
- 4. For example, a small-scale irrigation in one village and a massive hydropower dam will not need or be able to afford the same level of analysis of future climate change risks. The RRS provides examples of sector methodologies that, when followed, would lead to a certain rating.
- The World Bank Group's five corporate commitments related to climate change are: climate and disaster risk screening, greenhouse gas accounting, calculating the shadow price of carbon, climate co-benefits, and climate indicators.
- For information on corporate reporting for climate and sustainability matters, see CDP, CDSB, GRI, IIRC and SASB.
 2020. Reporting on Enterprise Value: Illustrated with a Prototype Climate-Related Financial Disclosure Standard. https://29kjwb3armds2g3gi4lq2sx1-wpengine.netdna-ssl.com/wp-content/uploads/Reporting-on-enterprise-value_climate-prototype_Dec20.pdf.
- 7. Acceptable rates of return or risk will vary across countries, sectors, projects, and investors.
- It is important to note that a high rating aims to assure decision makers and investors that the project will deliver as expected despite disaster and climate risks. However, it does not guarantee that the proposed design is the best possible design, in the context of climate change.
- 9. The determination of risk levels can be based on information sources such as: ThinkHazard! (https://thinkhazard.org/), which provides hazard ratings for all countries and subnational units; the Climate Change Knowledge Portal (https:// climateknowledgeportal.worldbank.org/), which provides climate information, country profiles, and subnational data; and national meteorological agencies (https://public.wmo.int/en/about-us/members/national-services), which can provide more localized climate information.
- A risk assessment goes beyond a screening in that it evaluates a project's sensitivity to climate and natural hazards based on specific assets as well as impacts to beneficiaries and project activities—for example, through the use of hazard mapping.
- This analysis can use the tools developed for the RRS (described in the full RRS methodology note) or an equivalent approach that meets similar standards.
- A review of existing DMDU methodology is available in Hallegatte, S, Shah, A, Lempert, R, Brown, C, and Gill, S. 2012. Investment Decision Making Under Deep Uncertainty: Application to Climate Change. Policy Research Working Paper; No. 6193. World Bank: Washington, DC. https://openknowledge.worldbank.org/handle/10986/12028.
- 13. There is no C+ rating, because a simple screening does not offer the information needed to plan for unexpected outcomes or threats.
- 14. For more information on the World Bank's project cycle, see https://www.worldbank.org/en/projects-operations/products-andservices/brief/projectcycle.
- 15. For example, ThinkHazard!'s ratings for all countries and subnational units can provide a basis for understanding whether hazard risks in a project location may be high, medium, or low (https://hinkhazard.org/). The Climate Change Knowledge Portal provides information on historic and projected climate trends, vulnerabilities, and sectoral impacts for all countries (https:// climateknowledgeportal.worldbank.org/). Its country profiles (https://climateknowledgeportal.worldbank.org/country-profiles) and subnational data can add depth to the understanding of key hazards.
- 16. These documents will be released in the first few months of 2021.

Resilience is the capacity to prepare for disruptions, recover from shocks, and grow from a disruptive experience. The World Bank Group has developed a *Resilience Rating System* that provides guidance and specific criteria to assess resilience along two complementary dimensions.

- » Resilience of the project rates the confidence that expected investment outcomes will be achieved, based on whether a project has considered climate and disaster risks in its design, incorporated adaptation measures, and demonstrated economic viability despite climate risks.
- » **Resilience** *through the project* rates a project's contribution to adaptive development pathways based on whether investments are targeted at increasing climate resilience in the broader community or sector.

The objectives of the *Resilience Rating System* are to:

- » Better inform decision makers, investors, and other stakeholders on the resilience of projects and investments.
- » Create incentives for more widespread and effective climate adaptation through enhanced transparency and simpler disclosure.
- » Identify best practices to allow proven lessons on resilience to be scaled up across sectors and countries.
- » Guide project developers on the best ways to manage risk and improve the quality of projects, while allowing flexibility for different sectoral and country contexts.

The resilience rating methodology, from C through to A+ in each dimension, can serve as a guide for institutions, public and private sector participants, and project developers, that are looking to improve disaster and climate resilience.

