

OVERVIEW

PEOPLE IN A CHANGING CLIMATE: FROM VULNERABILITY TO ACTION

Insights from World Bank Group Country Climate
and Development Reports covering 72 economies



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1818 H Street NW, Washington, DC 20433
Telephone: 202-473-1000; Internet: www.worldbank.org

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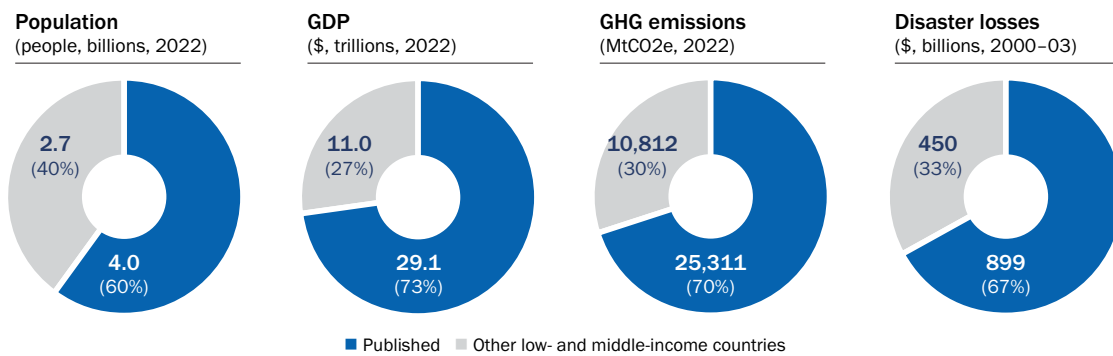
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OVERVIEW

Ending poverty on a livable planet requires all countries to enhance the resilience of their people and economies to the impacts of climate change, while also reducing greenhouse gas (GHG) emissions and other damages to nature and the environment. To identify options and priorities to align development and climate change action and objectives, the World Bank Group introduced the Country Climate and Development Report (CCDR) in 2022.¹ This summary report summarizes findings from the first three years of this work, with 58 CCDRs covering 72 countries and economies, which represent an increasing share of low- and middle-income economies and populations (figure O.1). This report focuses on the role of people, as they are affected by climate change impacts, but also as essential actors in inventing, designing, and implementing solutions to make development more resilient and to lower emissions.

Figure O.1: Share of low- and middle-income countries covered by CCDRs to date



This report is structured into three main parts, covering both new content and confirming key conclusions of the first two summary reports.² First, it summarizes CCDR findings on the impacts of climate change on people and explores how putting people at the core of climate-development policies enhances their effectiveness and generates larger benefits. Next, it explores how people’s vulnerability and ability to transition toward resilient, low-emission development depend on key infrastructure systems—the energy, water, transport, and digital sectors—and highlights the potential benefits of green value chains and green minerals. Finally, it summarizes key conclusions on macroeconomic impacts, with a focus on the diversity of impacts across countries and the large investment needs, especially in lower-income countries. These findings confirm that, even with optimistic adaptation outcomes, large residual risks make GHG emission reductions urgent. The CCDRs illustrate how low- and middle-income countries (LICs and MICs) can contribute to this global objective without compromising on development progress and poverty reduction, with well-designed policies and enhanced support from higher-income countries.

People are at the center of both climate change risks and climate solutions

Placing people at the core of climate action is critical to achieving climate and development objectives. Investing in human capital—people’s health, skills, and knowledge—is integral to building resilience and enabling people to contribute to climate solutions.

¹ <https://www.worldbank.org/en/publication/country-climate-development-reports>.

² World Bank Group. 2022. *Climate and Development: An Agenda for Action—Emerging Insights from World Bank Group 2021–22 Country Climate and Development Reports*. Washington DC: World Bank. <http://hdl.handle.net/10986/38220>; World Bank Group. 2023. *The Development, Climate, and Nature Crisis: Solutions to End Poverty on a Livable Planet—Insights from World Bank Country Climate and Development Reports Covering 42 Economies*. Washington DC: World Bank. <http://hdl.handle.net/10986/40652>.

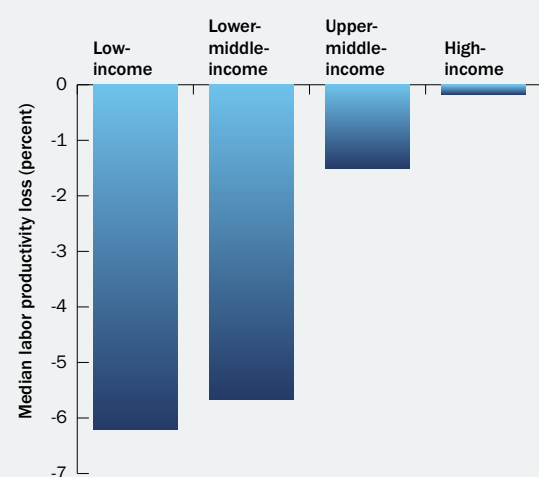
Climate change affects people, their economic prospects, and their well-being

Climate change is a direct threat to people and human capital. Slow-onset climate trends and climate shocks can have long-lasting, irreversible, and intergenerational impacts on people by holding back learning and intensifying disease and malnutrition. In **Armenia**, climate change could increase poverty by 2.7 percentage points in 2030. In the **Sahel** region, climate impacts threaten women's livelihoods and increase the likelihood of malnutrition, raising the risk of anemia during pregnancy and eventual stunting in children. Climate impacts also limit how people invest in health and education.

Climate change can decrease people's productivity, harming their livelihoods.

As illustrated in figure 0.2, lower-income countries are often more vulnerable to the impact of temperature on labor productivity: the median loss of productivity in 2050 in a pessimistic climate scenario is 6.2 percent in LICs, 5.7 percent in lower-middle-income countries (LMICs), 1.5 percent in upper-middle-income countries (UMICs), and 0.2 percent in high-income countries (HICs). This is driven by countries' economic structure, as LICs have more physical labor outdoors, and pre-existing climate conditions. Other impacts on firms, such as infrastructure disruptions, will also impact labor productivity.

Figure 0.2: Labor productivity loss due to heat stress by 2050, by country income group



Poor, excluded, and vulnerable people, including children and women, experience disproportionate climate impacts. Multiple exclusion and economic factors influence climate impacts, such as where people live, their livelihoods, their health, education, and skills, and their life stage. In **Honduras**, areas with high numbers of Indigenous people and Afro-descendants have high levels of socioeconomic vulnerability. Droughts in **Côte d'Ivoire** require children and youth to spend more time tending to family farm operations and less time in school.

Migration is an adaptation strategy, but migrants, refugees, and displaced people often have reduced capacity to prepare for and respond to climate impacts. In **Morocco**, climate impacts in rural areas may drive 1.9 million people to migrate to urban centers by 2050. Already experiencing some of the highest migration rates, **Caribbean** countries also face erosion of human capital exacerbated by climate-driven migration.

Investing in people is a key part of making them more resilient and better able to adapt; it also makes them better able to contribute to low-emission development

Countries can boost resilience by investing in health, education, early warning systems, and social protection, but these services also need to be more resilient. CCDRs for **Kenya**, **Uzbekistan**, **Nepal**, and four countries of the **Organisation of Eastern Caribbean States** emphasize health management plans to strengthen systems against climate-related health risks. The **Zimbabwe** CCDR notes that education is a core resilience strategy, underlining an urgent need to reverse declines in primary education enrollment. And because it is impossible to avoid all risks, adaptive social protection programs are important to help people respond to climate shocks and build community resilience. In **Niger**, an adaptive social protection program automatically dispenses cash after droughts and helps families

avoid asset losses. These systems can be strengthened by investing in hydrometeorological services that can deliver timely and accurate weather alerts.

A critical step is adapting health and education infrastructure and building capacity and flexible service delivery structures. The [Angola](#) CCDR mentions off-grid solar systems to keep health care facilities fully operational during regular power outages and after disasters. In [Armenia](#), strengthening 60 schools and 13 hospitals exposed to severe flood risk would generate benefits 2–4 times higher than the costs.

By identifying synergies and trade-offs early in the design of climate policies, countries can effectively combat climate change while improving people's lives and addressing adverse impacts, including on women and other disadvantaged groups. In [Lebanon](#), replacing unreliable and costly diesel generators and backup capacity with solar electricity generation creates opportunities for firms and could generate more than 20,000 jobs across multiple sectors. The [Mozambique](#) and [Sahel](#) CCDRs emphasize that clean cooking can protect vulnerable populations and counteract environmental impacts from solid fuel sourcing, production, and combustion. Careful analysis, policy design, and legal and regulatory frameworks can ensure climate policy benefits reach the most vulnerable people, including women, children, the elderly, people in rural areas, informal workers, and unskilled populations.

Countries can invest in people's skills and connect them to jobs in emerging green industries. Education and behavioral change interventions can help realize people's potential to reduce GHG emissions. The [Pakistan](#) CCDR points to policies aimed at changing behaviors and attitudes to reduce waste generation for more livable cities. In [Tajikistan](#), the low task similarity between agricultural and nonagricultural jobs makes it difficult for agricultural workers to switch to other sectors without a marked loss in income. Similarly, the [Western Balkan](#) CCDR highlights that insufficient investments in retraining and upskilling will result in missed opportunities due to a lack of adequate workforce. Many CCDRs, such as [Kenya](#), highlight the need to ensure that policies also consider the specific needs of informal sector workers, who face specific threats and may not benefit from existing support systems. Supporting labor market transitions is not only essential to protect people and workers; it also helps reduce the macroeconomic cost of the transition.

Community and locally led action can help address people's different climate vulnerabilities

Many CCDRs identify a need for institutional reform to establish citizen engagement and participatory mechanisms that increase community participation and foster the legitimacy of climate policies. Countries can enhance capacity and financing for local and subnational governments, accelerating locally led approaches to climate action. The [Maldives](#) CCDR proposes a national capacity development program focused on the local level. CCDRs in forested countries—including [Colombia](#), [Peru](#), and the [Democratic Republic of Congo](#)—underscore the role that Indigenous communities and their local knowledge play in forest conservation.

Increasing people's resilience and ability to transition toward low-emission development requires urgent action in key sectors

People's resilience and adaptive capacity, as well as their ability to shift to greener and low-emission technologies and practices, depend on key infrastructure systems and economic sectors.

Energy, water, transport, and digital infrastructure systems are at the core of resilient, low-emission development

Many CCDRs explore net zero scenarios in the power sector, a critical step toward low-emission development; but they also emphasize that a reliable, affordable, sustainable, and resilient power

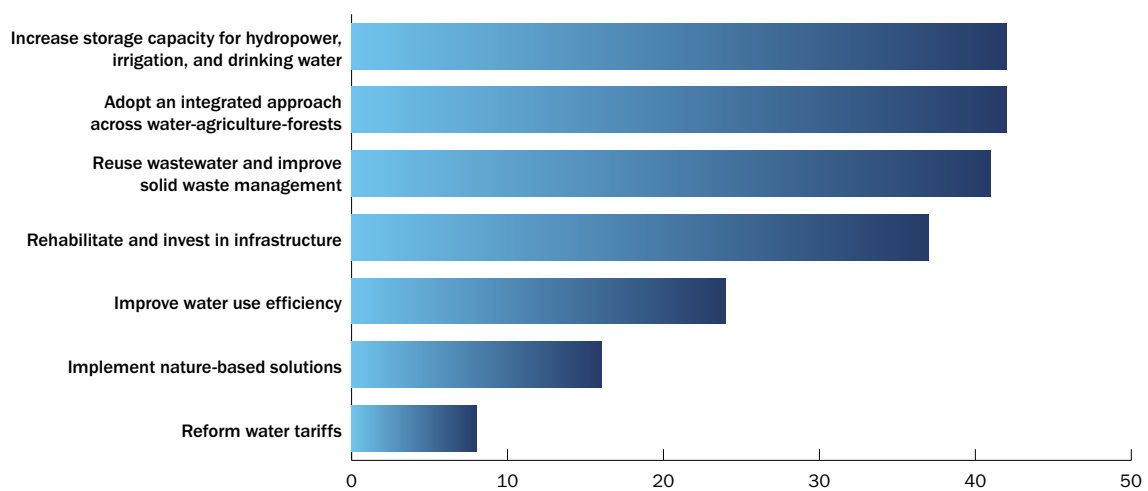
sector is crucial for people’s resilience. People without access to electricity are more vulnerable, and fans and passive cooling technologies, food refrigeration, or air conditioning equipment enhance resilience. Access to electricity also allows people to use digital technologies, which enable access to risk information, including early warnings.

Renewable energy offers a unique opportunity to improve people’s resilience and economic prospects while reducing emissions and electricity costs. Renewable energy is often the lowest-cost option to enhance energy access, meet the growing demand for electricity, and improve energy security. The current shift to renewable energy is driven by economic and regulatory considerations, not climate goals. But to achieve climate objectives, renewable energy would need to represent almost all new capacity additions. Between 2023 and 2030, renewable energy capacity in CCDD countries except China increases by a factor 2.5 in least-cost baseline scenarios, and by 3.5 in low-emission development pathways. This is consistent with the commitment countries made at the 28th United Nations climate change conference to triple renewable energy capacity by 2030.

Climate change impacts on water affects people through multiple impact channels, including water shocks on agricultural and energy production, diseases that impact health and labor productivity, and damage from natural hazards.³ Most cities face severe long-term risks to water availability due to the rapidly expanding population, heavy concentration of industrial and commercial activities, and unsustainable wastewater management practices. Water is also crucial for producing green hydrogen, an emerging priority in many CCDD countries, including [Angola](#), [Morocco](#), [Türkiye](#), [Azerbaijan](#), and [Brazil](#).

The CCDDs identify a range of solutions—from investments to policy, institutional, and regulatory reforms—to improve water resource management and build climate resilience (figure 0.3). These solutions highlight demand-side management and improved water resource allocation, which are often more cost-effective than supply-side investments but can face difficult political barriers. CCDDs also flag governance capacity constraints that limit countries’ ability to integrate climate adaptation and water resource management in development planning. Countries with low governance capacity will need significant support to improve water security and climate resilience.

Figure 0.3: Water-related recommendations in CCDDs



Water investments yield significant social, economic, and climate returns, but current investments remain below what is needed. In [Armenia](#), an ambitious adaptation portfolio (with 15 new reservoirs) would cost \$1 billion but bring \$2.6–3 billion in direct benefits. In spite of such high returns, identified in

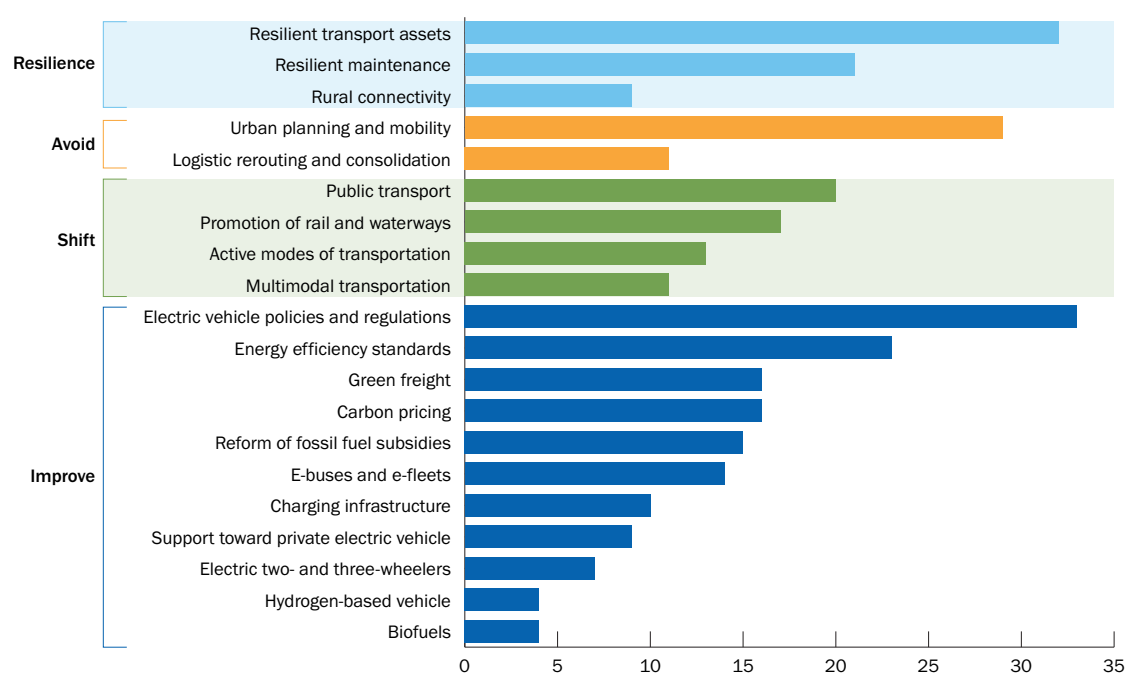
³ World Bank. 2024. Water Security and Climate Change: Insights from Country Climate and Development Reports, Washington, DC: World Bank.

many CCDRs, countries are not investing enough in their water sectors, with annual spending estimated at only about 0.5 percent of GDP. Large, coordinated flows of public, concessional, and private capital are needed to meet water-related objectives, as set in the Sustainable Development Goals, and to compensate for decades of underinvestment. With appropriate policies and incentives, water projects can be partly or fully financed by the private sector. Estimates from CCDRs suggest that the public sector will continue to play a dominant role, but that the private sector can contribute up to 20 percent.

With natural hazards and climate change impacting the transport sector, increasing the resilience of new transport infrastructure would lead to large economic gains.⁴ Many countries' design standards are outdated and not based on climate risk exposure level. And many countries are struggling to finance the maintenance of their transport systems. Making all new infrastructure investments more resilient and increasing maintenance standards would lead to higher upfront costs but countries would recover these costs over time. In **Malawi**, for example, adaptation in transport infrastructure has a benefit-cost ratio of 1.7–2.7. On the other hand, retrofitting existing infrastructure to make it more climate-resilient is expensive and should focus on critical assets. In **Brazil**, road retrofit outside of normal replacement schedule has a benefit cost ratio below 1, except for the most critical assets. Most countries also have a high reliance on road transport, and investing in multimodal solutions could increase resilience and efficiency while reducing GHG emissions.

CCDRs explore opportunities to reduce emissions from transportation, using the Avoid-Shift-Improve framework (figure 0.4). The framework distinguishes between *avoiding* travel activity, *shifting* travel to lower-carbon modes, and *improving* the energy efficiency of a given mode, acknowledging the strong interactions across these dimensions. For example, as well as avoiding unnecessary trips, transit-oriented development and appropriate land use planning help facilitate a shift to public transit, walking, or biking, and reduce the cost of providing charging stations to facilitate the electrification of individual transportation modes. Similarly, digital technologies applied to logistics offer multiple avenues for reducing emissions by cutting the number of journeys and facilitating multimodal logistics that can increase the use of rail and waterways.

Figure 0.4: Transport sector recommendations in CCDRs



4 World Bank. 2024. Transport and Climate Action in Developing Countries: Insights from Country Climate and Development Reports, Washington, DC: World Bank.

Digital technologies can act as an enabler for both climate adaptation and mitigation activities. Opportunities noted in CCDRs include digital-enabled smart-agriculture via precision farming to help farmers optimize water and fertilizer usage. The CCDRs also emphasize the importance of digital land information systems with georeferenced registration of land rights, and the role of digital forms of identification and digital payments, which would help governments respond to disasters with emergency cash transfers. But the digital sector is also both a rapidly-growing contributor to global GHG emissions and susceptible to climate hazards, creating new economic and social vulnerabilities.

Rapid urbanization offers a unique opportunity to build resilient and low-emission cities

Urban policies are often identified as priorities in CCDRs, because irreversibility in urban development makes it a particularly urgent issue. Once cities have developed in high-risk areas, or with sprawl that makes it difficult to deploy public transit, it is hard or impossible to change. Since 1985, urban expansion in areas with high flood risk in **Poland** increased by 118 percent, outpacing the 92 percent growth of “safer” settlements. Priorities identified in CCDRs include improved and risk-informed land use, upgrading informal settlement, urban regeneration, affordable housing and buildings, flood risk reduction and extreme heat management, and nature-based solutions. The **Ghana, Brazil,** and **Colombia** CCDRs highlight the potential of green buildings certification programs, such as the International Finance Corporation’s Excellence in Design for Greater Efficiencies program, to improve energy and water efficiency and lower operating and maintenance costs. And although the current conflict affects what is possible, the **West Bank and Gaza** CCDR shows that nature-based solutions could address climate-related risks and hazards in vulnerable built-up areas and expansion zones.

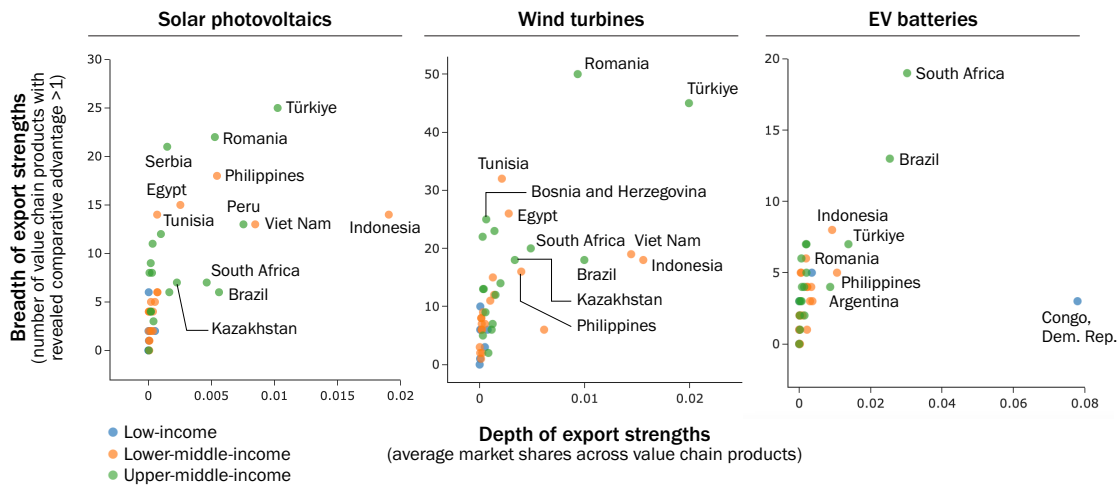
CCDRs highlight the importance of solid waste management and the major opportunities it offers for a triple win for development, resilience, and sustainability. Municipal waste accounts for 20 percent of global methane emissions, and five percent of global GHG emissions. Reducing emissions from waste brings large environmental, economic, and health benefits. In **Nepal**, investing in biodegradable waste management, reduced landfill, and methane capture could reduce solid waste emissions by 50 percent.

Green value chains offer opportunities for growth, innovation, and job creation

The CCDRs have explored opportunities for countries to increase their participation in the global value chains of key green technologies, creating new jobs while boosting incomes and exports. According to the International Energy Agency’s net zero roadmap, solar photovoltaic capacity is expected to increase nearly fivefold and wind capacity three-fold in the next decade, while electric vehicle (EV) sales are projected to grow 18-fold by 2030. While **China** is a particularly strong player in all three value chains, CCDRs have also identified other countries—such as **Türkiye, Romania,** or **South Africa**—that are well placed to grow their involvement further (figure 0.5). Cultivating competitiveness in the manufacturing of technologically sophisticated products can spur technological upgrading and boost economic growth. **Morocco** and **Brazil** are among the countries that have a comparative advantage for energy-intensive products, such as fertilizers or steel, thanks to their large potential for low-cost renewable energy.

Many of the countries analyzed have rich reserves of green minerals, but their extraction can pose important challenges and sound revenue management will be important to make sure people benefit. Although green technologies require less mining than fossil fuels, the demand for green minerals—such as cobalt, copper, graphite, lithium, nickel, and rare earths—is expected to grow rapidly, creating substantial potential in many countries, including **Tajikistan** and the **Democratic Republic of Congo**. But to prevent exploitation and unsafe working conditions, it is essential that governments improve governance frameworks, increase transparency in the allocation of mining rights, and enforce labor standards. They will also need to ensure that revenues are managed transparently and equitably distributed so that local communities benefit.

Figure 0.5: CCDR countries' export strengths across key green value chains



Outcomes for people will depend on aggregate risks and opportunities

Macroeconomic and aggregate impacts will be critical determinants of the ultimate effects of climate change and climate policies on people's opportunities and well-being.

Countries face different levels/types of climate risk, and have different adaptation priorities

Even when considering only a subset of impact categories and without exploring the larger impacts expected after 2050, the impact of climate change on GDP is expected to be significant. Although some of the biggest risks linked to ecosystems, conflicts, or tipping points are difficult to quantify (box 0.1), figure 0.6 illustrates the estimated effect of key climate change impacts on GDP in 2050 under a pessimistic climate scenario. When controlling for the unique circumstances of small islands, each additional \$1,000 in GDP per capita reduces climate change-induced GDP losses by 0.5–0.7 percentage points.

Box 0.1: CCDRs in fragile and conflict states

Of the 72 countries and economies with CCDRs published to date, 18 are classified as fragile and conflict states and their CCDRs reference the potential for climate change to act as threat multiplier for conflict. The **Central African Republic** CCDR finds that climate-related factors are likely to inflame existing conflicts over seasonal pastoralist and livestock movements. CCDRs for countries experiencing fragility, conflict, and violence recommend solutions that recognize specific country challenges such as limited government capacity and a shrinking natural resource base. In the **Democratic Republic of Congo**, the government's limited financial capacities suggest a need to engage with the private sector in resource-intensive activities.

The dominant impact channel varies by country, leading to different adaptation priorities. While lower-income countries are more exposed to the effect of temperature on labor productivity, higher-income countries are more exposed to extreme weather impacts on physical capital. In the latter, building the resilience of infrastructure systems is often a key priority, while in the former, the impacts of higher temperatures on labor productivity for physical outdoor work are more important and more

difficult to adapt to.⁵ For these impacts, structural change, mechanizing physical work in agriculture, and creating jobs in manufacturing and services are the only solutions, but they depend on the broader development pathway more than on targeted adaptation interventions.

Figure 0.6: Estimated impacts of a pessimistic climate scenario on GDP by 2050

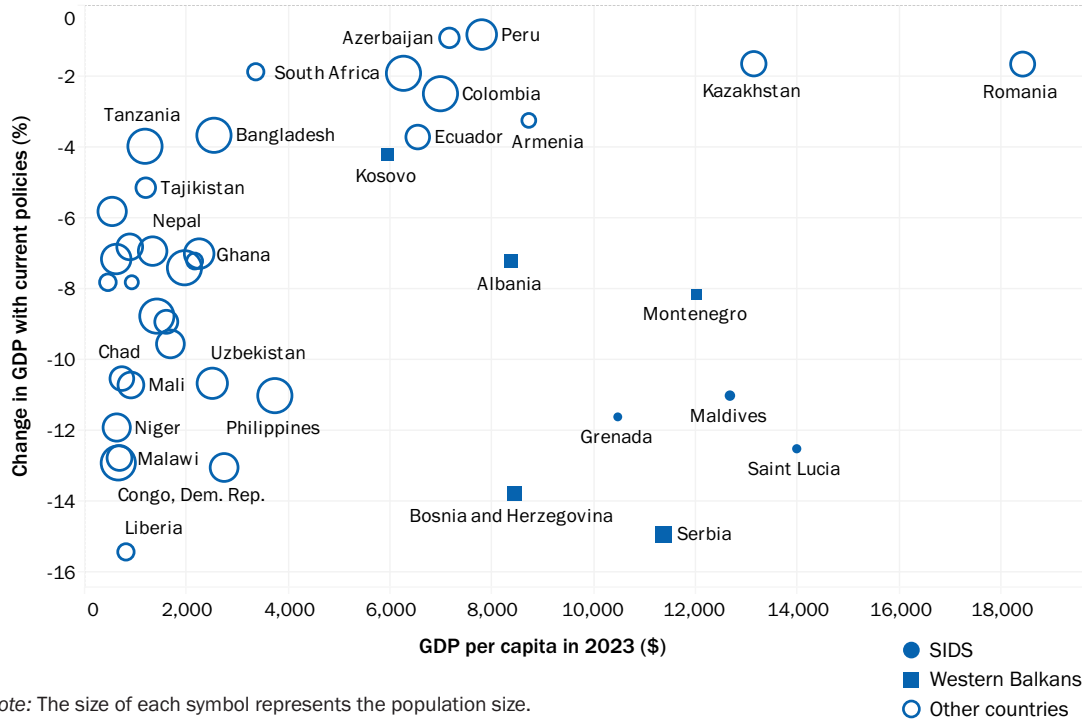
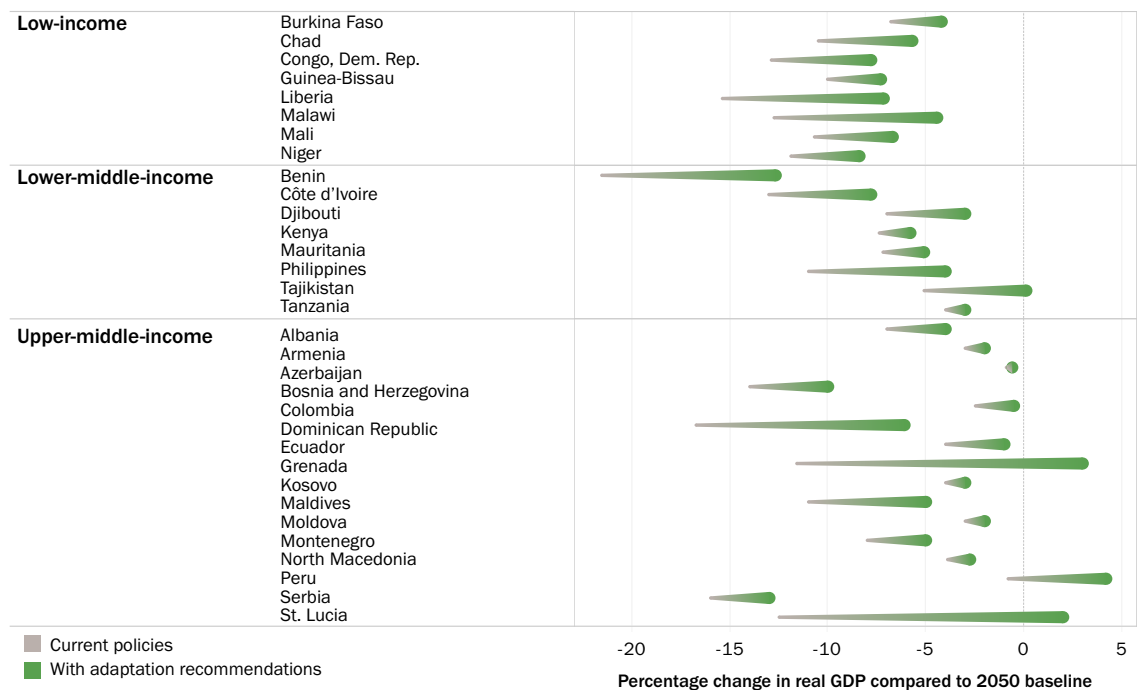


Figure 0.7: Benefits from adaptation interventions recommended in the CCDRs



⁵ Counter-intuitively, impacts like labor productivity losses for outdoor workers lead to small adaptation costs, because there are few adaptation options that are cost-effective.

The adaptation recommendations listed in the CCDRs would yield large benefits, even accounting for the investments they require (figure 0.7). But even ambitious adaptation actions reach their limit, especially with larger warming expected after 2050, and adaptation cannot cancel all impacts from climate change (box 0.2). As such, it is no substitute for accelerated emission reductions in countries of all income levels, but especially in HICs—which are more responsible for historical emissions and have higher per capita emissions, more capacity to develop new solutions and technologies, and more resources.

Box 0.2: Small islands face a unique set of challenges

Small island states (SIDS) have a unique set of geographical and socioeconomic characteristics that make them particularly vulnerable to economic shocks and the impacts of climate change. They have relatively small populations, are remote, depend on ocean resources, rely on imports, and often have limited access to finance (or high levels of public debt). The Maldives, Caribbean islands, and Pacific atolls have adapted to sea level rise in the past, but their future natural adaptation potential is highly uncertain, partly due to the degradation of coral reefs and the expected pace of change. The estimated impacts of climate change are substantial, though the CCDRs' limited time horizon—often to 2050—may also hide large long-term vulnerabilities, and therefore existential risks, faced by SIDS.

A range of adaptation actions exist to mitigate the impacts of increased coastal flooding and shoreline erosion. These can be further organized around three broad categories of action, which are not mutually exclusive: protect, accommodate, and retreat. *Protect* options aim to protect coastlines with infrastructure such as seawalls, or vegetated natural buffer zones and other nature-based solutions. *Accommodate* options reduce the impacts of flooding by raising dwellings or land, or by reclaiming new land from the sea. *Retreat* options are for when people need to move away from the shore to higher ground within their own country, or to another country. These options should also consider the land tenure implications of such impacts and measures, including the need to protect affected people's land and natural resource rights.

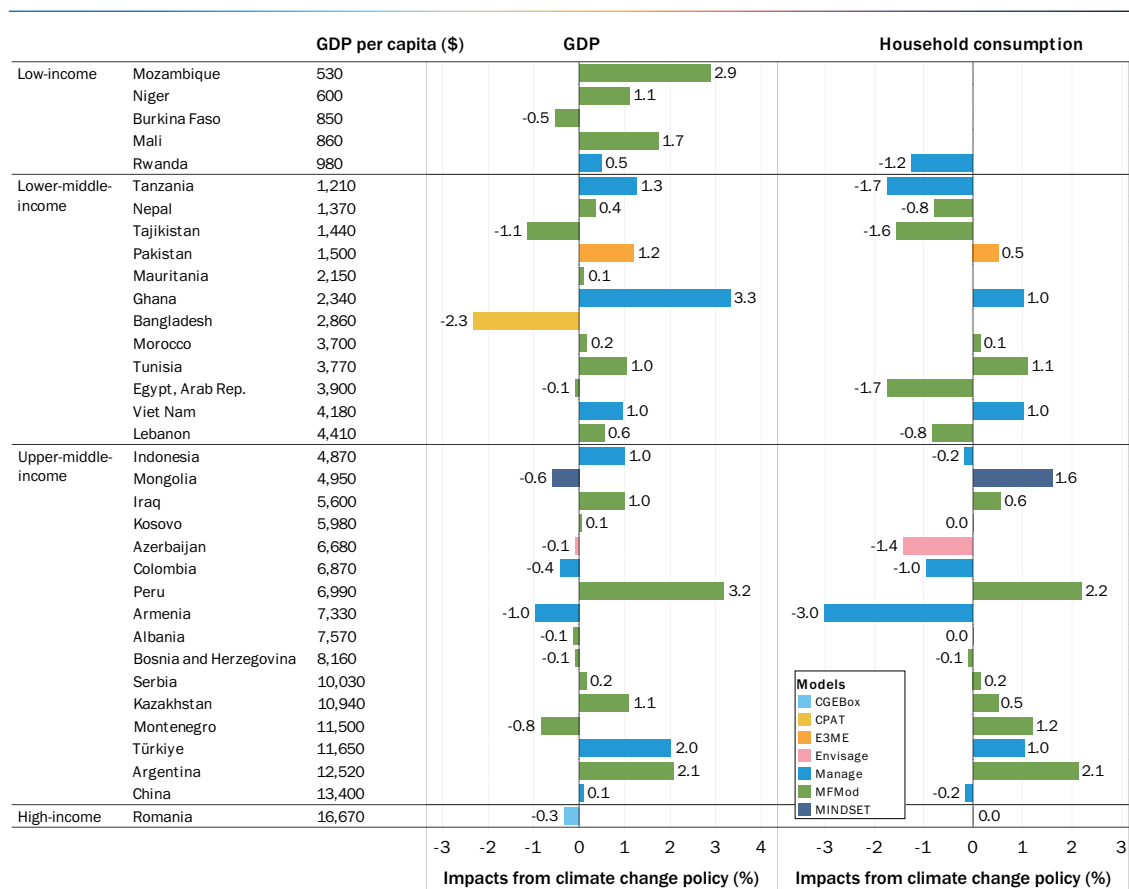
Short-term economic growth can be similar or even faster in low-emissions development scenarios than in the reference scenarios

CCDRs' low-emissions development scenarios are illustrative scenarios that reduce countries' GHG emissions by 72 percent by 2050, compared to current levels. They are used to explore the costs and benefits of ambitious emissions reductions. Despite being often more ambitious than nationally determined contributions, they would still lead to the emission of 5.3 gigatonnes of carbon dioxide equivalent by 2050. As such, achieving the Paris Agreement's global mitigation objectives and reducing net global emissions to zero in or around 2050 would require enhanced ambition beyond the CCDR low-emissions development pathways, including larger reductions in fossil fuel use.

Low-emissions development pathways achieve similar or even faster economic growth than the reference scenarios, when assuming well-designed policies, synergies between structural reforms, and a supportive environment. But because low-emissions development scenarios systematically require higher investments and lower operational costs, the short-term impact on household consumption is often larger than on GDP (figure 0.8). Implications for longer-term growth, beyond 2030, are more uncertain and depend on avoided climate change impacts and progress in key technologies. The previous CCDR summary explored the macroeconomic implications of these scenarios in detail,⁶ and key results (and explanations for these results) remain valid.

⁶ World Bank Group. 2023. *The Development, Climate, and Nature Crisis: Solutions to End Poverty on a Livable Planet—Insights from World Bank Country Climate and Development Reports Covering 42 Economies*. Washington DC: World Bank. <http://hdl.handle.net/10986/40652>.

Figure 0.8: Impacts of low-carbon development pathways on GDP and household consumption by 2030, by country



Investment needs in resilient, low-emissions scenarios are higher in lower-income countries, where the financing gap is the largest

The resilient and low-emission pathways explored in the CCDRs include investments that are, on average, 1.4 percent of GDP higher than in the reference scenarios, between now and 2030. These additional investments are also higher as a share of GDP for LICs (figure 0.9). Extrapolating CCDR results and assuming identified investments are realized over five years suggest that all LICs and MICs except China need a \$960 billion (2.9 percent of GDP) increase in annual investments. This is lower than the Independent High-Level Expert Group on Climate Finance’s investment need estimates because CCDRs identify *additional* investments in country-specific scenarios that have different timings and ambitions than global scenarios.

If the policy, regulatory, and (where appropriate) blended finance conditions are in place to provide attractive combinations of risk and return, the private sector can undertake a major part of the investments for resilient low-emission development. Figure 0.10 shows that the private sector could provide a large share of financing across multiple sectors. This varies by sector—for example, for industry, most CCDRs expect the financing to come from the private sector; for water, the public sector is expected to cover most of the needs; and for transport, there are large differences across countries.

Public finance continues to play a crucial role beyond the derisking of private investments, and more concessional resources will be required to make the shift to resilient and low-emission development possible, especially in LICs and LMICs. A majority of global climate finance continues to be provided by

the public sector, particularly in developing countries, but many countries face tight fiscal constraints. Policy reforms, the reallocation of public resources, and improving the efficacy of public spending will therefore be crucial. This includes measures to enhance domestic resource mobilization by reviewing the efficacy and alignment of existing taxes and subsidies with national development goals and the potential for using carbon pricing instruments. To meet needs for resilient low-emission development, access to increased amounts of concessional funding will be necessary, especially in lower-income countries, and these resources should not be at the expense of concessional development finance.

Figure 0.9: Additional annual investment in resilient and low-emission scenarios

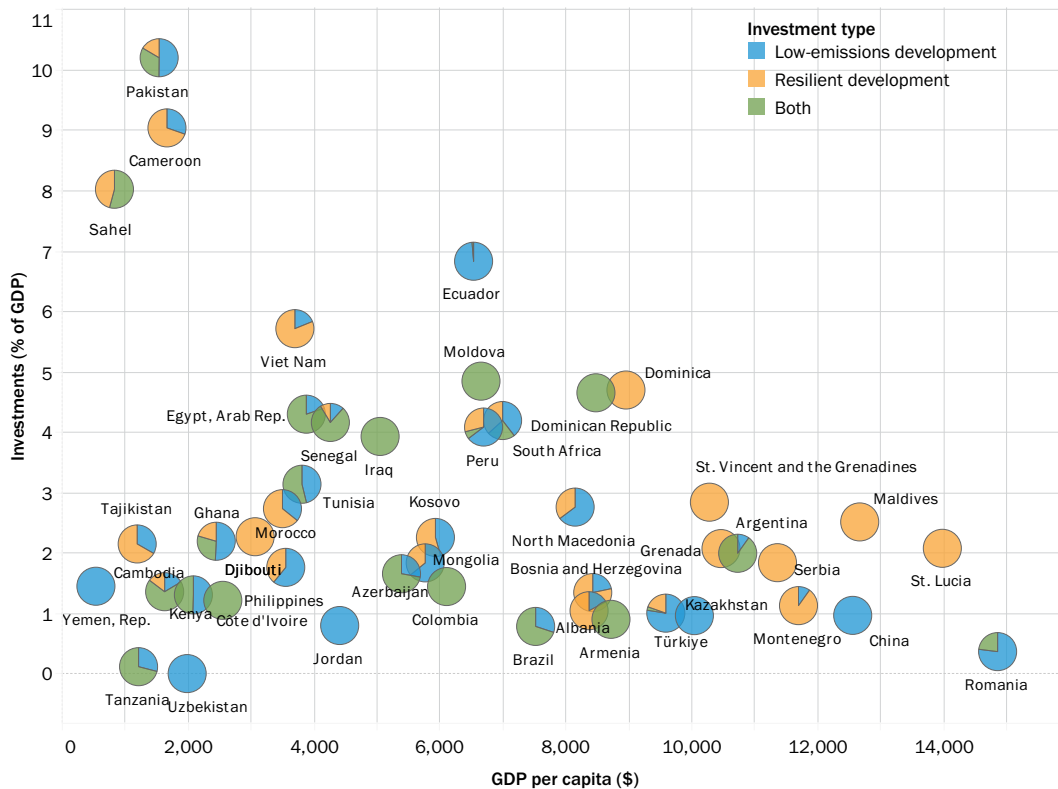
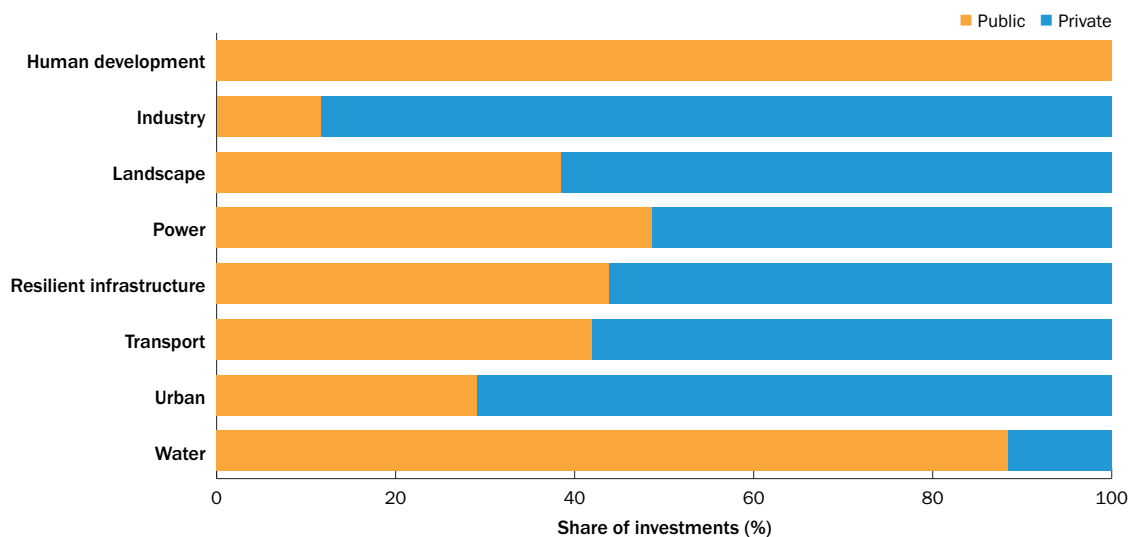


Figure 0.10: Public-private split average across all CCDRs, by sector



The toolkit of instruments available for mobilizing private capital toward climate investments has expanded over the years. It includes capital market solutions, sovereign green and sustainable bonds (such as those issued by [Colombia](#), [Brazil](#), and the [Dominican Republic](#)), green and sustainable loans (such as those issued by [Côte d'Ivoire](#) in 2023), sustainability-linked instruments, banking instruments (such as risk-sharing facilities), public-private funds including climate finance facilities (such as [Rwanda's](#) Ireme Invest), and insurance and disaster risk sharing instruments (as adopted by the [Philippines](#)). Each instrument has its own preconditions and structuring challenges, and each country's choice of instrument will be guided by its funding needs, macroeconomic conditions, financial sector development, availability of financial resources from different sources, and the private sector mobilization it expects to achieve.

Carbon markets have the potential to channel climate finance toward climate action. While they are unlikely to meet a large proportion of the total financing need, they provide revenues that do not need to be repaid and can be deployed flexibly to address underlying financing challenges. Many countries—including [Benin](#), [Brazil](#), and [Côte d'Ivoire](#)—are looking to access carbon markets under Article 6 of the Paris Agreement to reduce deforestation or finance investments in forests. Countries such as [Kenya](#) and [Uzbekistan](#) are considering the role of carbon markets in mobilizing non-debt finance for supporting the energy transition. Operationalizing scaled-up carbon markets requires country-level preparation in terms of necessary policy, institutions, and infrastructure for participation.

Disaster risk finance and insurance solutions are at the core of countries' climate adaptation and disaster resilience efforts and aim to help people, businesses, and governments cope and prosper in the face of climate shocks and disasters. To protect public finance against the contingent liabilities created by climate change and natural hazards, the CCDRs recommend countries use a series of tools and instruments in a layered approach that differentiates instruments that are more or less appropriate for different types of risk (for example, frequent and moderate shocks vs. rare and high-impact shocks) or different financing needs (for example, urgent needs to maintain government continuity vs. longer-term reconstruction needs). Disaster risk finance and insurance strategies also involve ensuring financial protection for individuals and businesses, often through adaptive social protection and public-private partnerships for insurance.

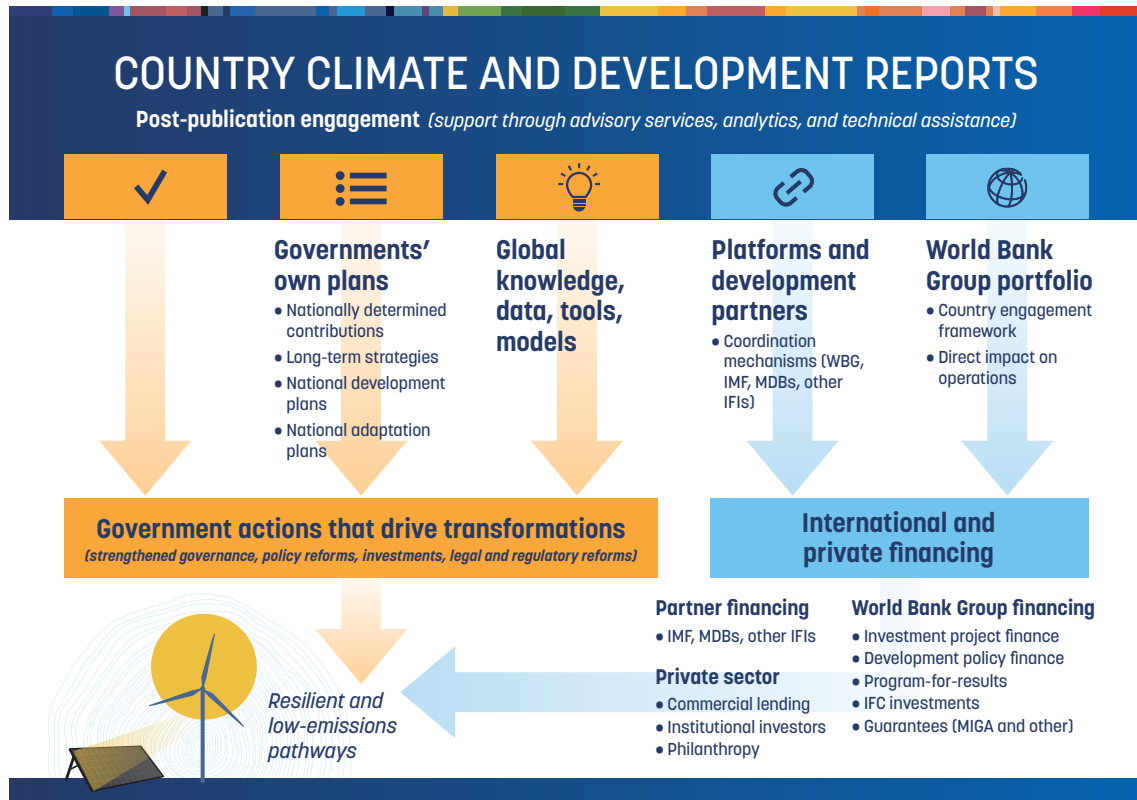
Conclusion and next steps

The CCDRs are diagnostics that aim to help countries achieve their development and climate goals together. A companion report, *From Knowledge to Action: Lessons from Early Operationalization of Country Climate and Development Reports*⁷, explores how the first CCDRs have been used at subnational, national, or regional levels. One important finding is the diversity in operationalization modalities (figure 0.11), which is driven by each country's unique needs and political context. Many countries combine multiple modalities.

This review of three years of CCDRs demonstrates the benefits of applying a people lens to climate policy design. By prioritizing protecting and investing in people, countries can lay the groundwork to help counteract potentially long-lasting climate change impacts on individuals and communities, foster innovative local climate solutions, accelerate climate action, and demonstrate the potential for achieving mutually reinforcing climate and development objectives. By placing people at the core of climate policy design and increasing engagement with communities and stakeholders, countries can navigate a green transition that improves people's lives and makes policies and economic growth more inclusive.

7 World Bank Group. 2024. *From Knowledge to Action: Lessons from Early Operationalization of Country Climate and Development Reports*. Washington DC: World Bank. <http://documents.worldbank.org/curated/en/099110124091520135/P5070741b7f66e09c19dae18076d882175c>

Figure O.11: The five modalities of CCDR operationalization



Notes: WBG = World Bank Group; IMF = International Monetary Fund; MDBs = multilateral development banks; IFIs = international financial institutions; IFC = International Finance Corporation; MIGA = Multilateral Investment Guarantee Agency

