

Working Paper

From COVID-19 Response to Sustainable Redesign

How Decarbonization, Circular Economy, and Decentralization can Guide the Transition and Strengthen National Climate Objectives

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Contents

Executive Summary	1
Introduction	5
Analysis of National Submissions to the Platform for Redesign	8
The Three Transitions: Redesigning Economies and Societies for Sustainability and Resilience in the Wake of COVID-19	10
Transition to a Decarbonized Economy	10
Transition to a Circular Economy	17
Transition to a Decentralized Society	22
Conclusions	27
Appendix A	28
References	30

Executive Summary

Highlights

This paper provides recommendations and good practice examples of policies that governments have implemented to contribute to a sustainable and resilient recovery from COVID-19 as well as longer-term redesigns to spur transformative change toward a sustainable future in each of their economies.

Three mutually reinforcing transitions were identified, as part of an initiative under the Ministry of the Environment of Japan (MoEJ), to help reframe and prioritize policies to enable a sustainable recovery and redesign: decarbonization, circular economy, and decentralization.

Decarbonization: An impressive wave of net-zero emissions commitments has been announced in the past year. However, to ensure these are robust and credible, more effort is needed to enhance the 2030 Nationally Determined Contributions (NDCs) and correlate targets with net-zero commitments, avoid financing fossil fuels or carbon-intensive industries as part of the COVID-19 recovery, and take advantage of the jobs and economic opportunities of green investments.

Circular economy: Wasteful use of material and natural resources is exacerbating climate change and is a missed economic opportunity. Initiatives must shift their focus from “recycling” at the end of a product’s life cycle to engaging in upstream activities focused on “reducing” and “reusing.”

Decentralization: Proper collaboration, dissemination of information, and coordination on planning and implementation is essential between national and subnational actors to unleash subnational climate action. Subnational governments should be empowered, and inclusive planning should take place, especially at the local level.

In all three transitions, adaptation action, which plays a critical role in strengthening the resilience of economies and societies, and the financial investment needed to achieve each of these transitions need to be made a priority. All three transitions should be implemented in a way that ensures the transitions are just and equitable.

Applying these approaches to the COVID economic recovery can lead to better, stronger, more inclusive, and resilient growth.

An Opportunity for Systemic Change

As part of the response to the COVID-19 pandemic, a growing number of countries are driving systemic change through direct stimulus funding and investments and shifts in broader policies and approaches. To date \$16 trillion in government funds have already been made available to tackle both the COVID-19 pandemic and economic recovery initiatives. Additionally, by September 2021, 117 countries had submitted updated NDC commitments to the Paris Agreement, complemented by a new wave of formal and informal long-term net-zero emissions pledges. Some of these governments have already realized that green investments and climate action will contribute to the immediate recovery efforts by creating jobs, stimulating investment, and boosting the economy, while also being essential to the long-term transitions needed to set us on a more sustainable course.

Major crises can help break down barriers to systemic change. Subnational governments, civil society groups, and businesses are putting pressure on national governments to build back better from COVID-19—altering the status quo to prioritize equity, sustainability, and resilience in recovery packages. Driving transformative change is a challenging task and requires coordination and alignment across many sectors and levels of government.

About This Working Paper

This body of work was funded by the Ministry of the Environment of Japan (MoEJ) and was developed to complement the Platform for Redesign 2020,¹ which was launched by MoEJ in September 2020 as a hub for countries to share their efforts and plans to integrate climate and environmental policies in COVID-19 recovery and beyond.

The paper provides good practice examples of strategies that governments have already implemented to contribute to a sustainable and resilient recovery from COVID-19 and to a longer-term redesign of their economies, which align with global goals and makes recommendations for further action. The target audience is national- and subnational-level practitioners and policymakers. The paper draws on information within the Platform for Redesign and the latest external research on these topics. It examines three transitions, selected by MoEJ, that can help reframe and prioritize policies to enable a sustainable recovery and redesign: decarbonization, circular economy, and decentralization.

Analysis of National Submissions to the Platform for Redesign 2020

As of September 2021, 78 countries had self-reported information to the Platform for Redesign, sharing how they are approaching COVID-19 recovery and what types of interventions they are prioritizing. The most common broad category was climate mitigation, followed by climate adaptation, cross-cutting measures, other climate and environmental measures, and international cooperation. The four most common subcategories were adaptation planning, waste management and circular economy, sustainable transportation, and renewable energy.

Findings and Recommendations

Transition I: Decarbonization

Economic research has found that in economies around the world, green recovery plans would provide an immediate boost to output and employment greater than traditional stimulus approaches (IEA 2020; Pollitt 2020; IFC 2021). Despite this, in the initial response to the COVID-19 crisis, many countries bailed out the business-as-usual economy including fossil fuel and high-carbon industries. However, in the months that followed, a small number of governments announced recovery packages that had decarbonization as a central element, and many other governments began to announce sector-specific policies and investments that will benefit climate action. Overall, by mid-2021, there was greater balance between recovery investments in the clean economy compared with those in fossil fuel-related sectors. Still, high-carbon industries continue to receive support, and relatively few countries are integrating climate adaptation into their stimulus efforts even though this is critical for an equitable and resilient COVID-19 recovery.

In the past year, many net-zero emissions commitments have been announced by governments, businesses, investors, states, and cities, particularly in the major economies. However, only a few countries, as of early September 2021, have announced 2030 Nationally Determined Contributions (NDCs) that are ambitious enough to align with net-zero emissions by midcentury (UNFCCC 2021).

To make economic recovery measures greener, country priorities should do, as follows:

- Avoid further financing of fossil fuel industries or bailing out high-carbon sectors without phaseout targets or goals.
- Invest in projects that promote climate mitigation to take advantage of the jobs and economic gains they offer.
- Strengthen NDCs ahead of the 26th UN Climate Change Conference of the Parties (COP26) in line with long-term goals for decarbonization of the economy.
- Engage in cross-ministerial collaboration or use stakeholder networks to foster greater integration of climate actions and policies into national budgets and local development planning.
- Strive to ensure that economic recovery is also climate-resilient and protects ecosystems by incorporating nature-based solutions, circular resource and waste management, and locally led adaptation action (GCA 2021), and by strengthening rural and urban linkages.

Transition II: Circular Economy

Failing to address the wasteful use of material and natural resources across the value chain of product development is exacerbating climate change and is a missed economic opportunity (Material Economics 2018). The alternative—a circular economy—prioritizes reducing, reusing, and recycling materials. The circular economy can offer significant environmental, economic, and social benefits, including helping to reduce global greenhouse gas (GHG) emissions and eliminating significant economic loss, which could support a sustainable economic recovery from the COVID-19 pandemic.

However, these opportunities are currently being missed. Most circular economy initiatives focus on the end of a product's life cycle even though a large share of the benefits can only be realized through upstream "reduce" and "reuse" activities. To realize these benefits, the top priorities are, as follows:

- Adopt an economy-wide circular economy target, such as the Netherlands 2050 complete circular economy goal
- Scale up "reduce" and "reuse" activities across entire value chains
- Improve understanding of the circular economy's opportunities among policymakers and industries, including by sector
- Expand circular economy activities at the local level

Transition III: Decentralization

Subnational action is key to keeping global warming at safe levels, and yet most NDCs and Long-Term Strategies (LTSs) do not consider the role of subnational actors in meeting climate goals. A decentralized approach to COVID-19 redesign can help to unleash subnational climate action in an inclusive and economically prosperous way. Collaboration and coordination between national and subnational actors, rather than decentralization alone, is key to effective crisis response and recovery.

Countries should consider taking the following steps toward a more decentralized society to maximize the positive

economic and environmental impacts of COVID-19 recovery and redesign packages:

- Empower subnational governments to drive climate action
- Invest in and incentivize decentralized solutions, such as in renewable energy, low carbon and shared mobility, and water and sanitation
- Support inclusive planning at the local level
- Implement targeted, innovative financing to support subnational green redesign
- Strengthen rural and urban linkages

In all these three transitions, adaptation, which plays a critical role in strengthening the resilience of economies and societies, is lagging and must be addressed. Countries should strive to ensure that their economic recovery is both decarbonized and climate-resilient, and that the transitions are implemented in a way that is just and strengthens equity.

Introduction

The COVID-19 pandemic has upended the world, causing the deaths of 4.7 million people as of September 2021 and severe economic hardship that has disproportionately affected the most vulnerable (Johns Hopkins University of Medicine 2021). The response by governments around the world has been unprecedented, from nationwide lockdowns to the rapid development and dissemination of vaccines, to massive expenditures to support the economy. Governments announced around \$16 trillion in stimulus as of July 2021 (IMF 2021). Most is being used to respond to the immediate economic impacts of the pandemic, but a growing amount is intended to support long-term economic recoveries.

At the same time, climate change and environmental degradation threaten future prosperity. Amid the COVID-19 pandemic, there has been an impressive wave of net-zero emissions commitments from governments, but also from businesses, investors, and cities and states. Green investments and climate action can benefit the economic recovery while contributing to long-term decarbonization.

Now governments must align their 2030 Nationally Determined Contributions (NDCs) with the trajectories that can achieve their net-zero emissions targets, along with putting in place complementary adaptation strategies to build resilience to climate impacts. Five years after the adoption of the Paris Agreement, in 2020, countries were expected to submit more ambitious national climate plans. As of September 2021, only 117 countries out of 197 had submitted new NDCs, some more ambitious but others unchanged or at lower levels of ambition (Climate Watch 2021).

Green recovery investments and NDCs should be integrated as well. NDC targets should guide recovery investments. If governments make the wrong investments now and lock in high-carbon infrastructure, there is a possibility that parties will not be able to achieve their NDCs or net-zero targets. Hence, making the right investments presents an opportunity to accelerate implementation of the Paris Agreement and the 2030 Sustainable Development Agenda.

The response to major crises like COVID-19 can often lead to systemic change. Subnational governments, civil society groups, and businesses are urging national governments to pursue a green recovery from COVID-19 (C40 2020). True transformation will require coordination and alignment across many sectors and levels of government.

About This Paper

This paper does the following:

- Briefly analyzes government submissions to the Platform for Redesign to learn how governments are approaching redesign and/or COVID-19 recovery and what types of interventions they are prioritizing.
- Provides examples of policies that governments have already implemented to contribute to a sustainable and resilient recovery from COVID-19 and to a longer-term redesign; and explores opportunities for greater ambition where current practices are coming up short, drawing on a wide variety of sources.
- Examines three transitions identified as priorities by the Ministry of the Environment of Japan (MoEJ)—decarbonization, circular economy, and decentralization—using information from the platform and external sources.

Encourages governments to strengthen their NDCs ahead of the 26th UN Climate Change Conference of the Parties (COP26) and develop measures that make their recovery plans greener.

We characterize the stages of post-COVID government action in the following categories:

Response: Targeted emergency measures in the short term to address concerns that have directly emerged from the COVID-19 pandemic and improve the well-being of those who are suffering.

Recovery: Broader policy and spending decisions in the medium term aimed at stimulating the economy, ideally with an environmental and climate focus to support a green recovery from COVID-19.

Redesign: Systematic change that can begin now but extends toward the long term, involving restructuring institutions, systems, and infrastructure to make the post-COVID economy and society more sustainable and resilient.

This paper targets policymakers, practitioners, and other relevant stakeholders in the climate community who will benefit from a synthesis of the range of approaches governments are taking to address climate change and environmental issues in the wake of COVID-19. It can then be used to spur further discussions between energy and climate ministries and other relevant stakeholders responsible for green stimulus package formulation as well as other investments to strengthen recovery “greenness.”

The impact of COVID-19 has varied widely across different countries. Likewise, countries differ significantly in their development paths, levels of greenhouse gas (GHG) emissions, and economic, government, and social structures. Given that this working paper is a broad global overview, it is unable to provide tailored context and recommendations for every country.

The next section briefly analyzes the contents of the Platform for Redesign. The subsequent section focuses on the three transitions of decarbonization, circular economies, and decentralization. The conclusion provides recommendations for policymakers and other relevant stakeholders. Appendix A provides more details on the analysis of the Platform for Redesign and the three transitions.

Analysis of National Submissions to the Platform for Redesign

The Ministry of the Environment of Japan (MoEJ) launched the Platform for Redesign 2020 in September 2020 at an event hosted by Japan's Minister of the Environment Shinjiro Koizumi with the support of the United Nations Framework Convention on Climate Change (UNFCCC) Executive Secretary Patricia Espinosa. The platform is managed by the Institute for Global Environmental Strategies (IGES) and serves as a hub to share national efforts and plans to integrate climate and environmental policies in COVID-19 recovery and beyond. The data on the Platform for Redesign add to our understanding of how governments are approaching redesign and/or COVID-19 recovery and what types of interventions they are prioritizing, but there are still many limitations to this data, which means the results presented here should be treated with caution.

Methodology and Limitations

Governments voluntarily provided inputs to the Platform for Redesign by answering a questionnaire prepared by IGES. As of August 2021, governments submitted 1,220 policies and actions to the platform. Seventy-eight countries submitted responses, including 14 of the G20 countries. Sixty-eight countries submitted written responses, while the rest sent video responses only, which we did not analyze. Governments that submitted information are not representative of all countries. Some major economies had not submitted information as of August 2021, including the United States and India. Most of the countries with written responses were high-income countries, which is unrepresentative of the world. Thirty-five countries with written responses were high-income (gross national income [GNI] per capita > \$12,536), 16 were upper-middle-income (GNI per capita of \$4,046 to \$12,535), 14 were lower-middle-income (GNI per capita of \$1,036 to \$4,045), and 3 were low-income (GNI per capita < \$1,036) using World Bank income classifications (World Bank 2021). In addition, subnational actors and businesses could not submit responses.

The information on the platform was self-reported by governments. Self-reporting is useful to provide perspective on national priorities but is often not an accurate representation of the full scope of national policy and introduces many limitations. Government's submissions ranged in formality from a speech or informal policy document to formal national legislation. Government submissions did not take into account policies, investments, or actions that may be environmentally damaging or unsustainable.

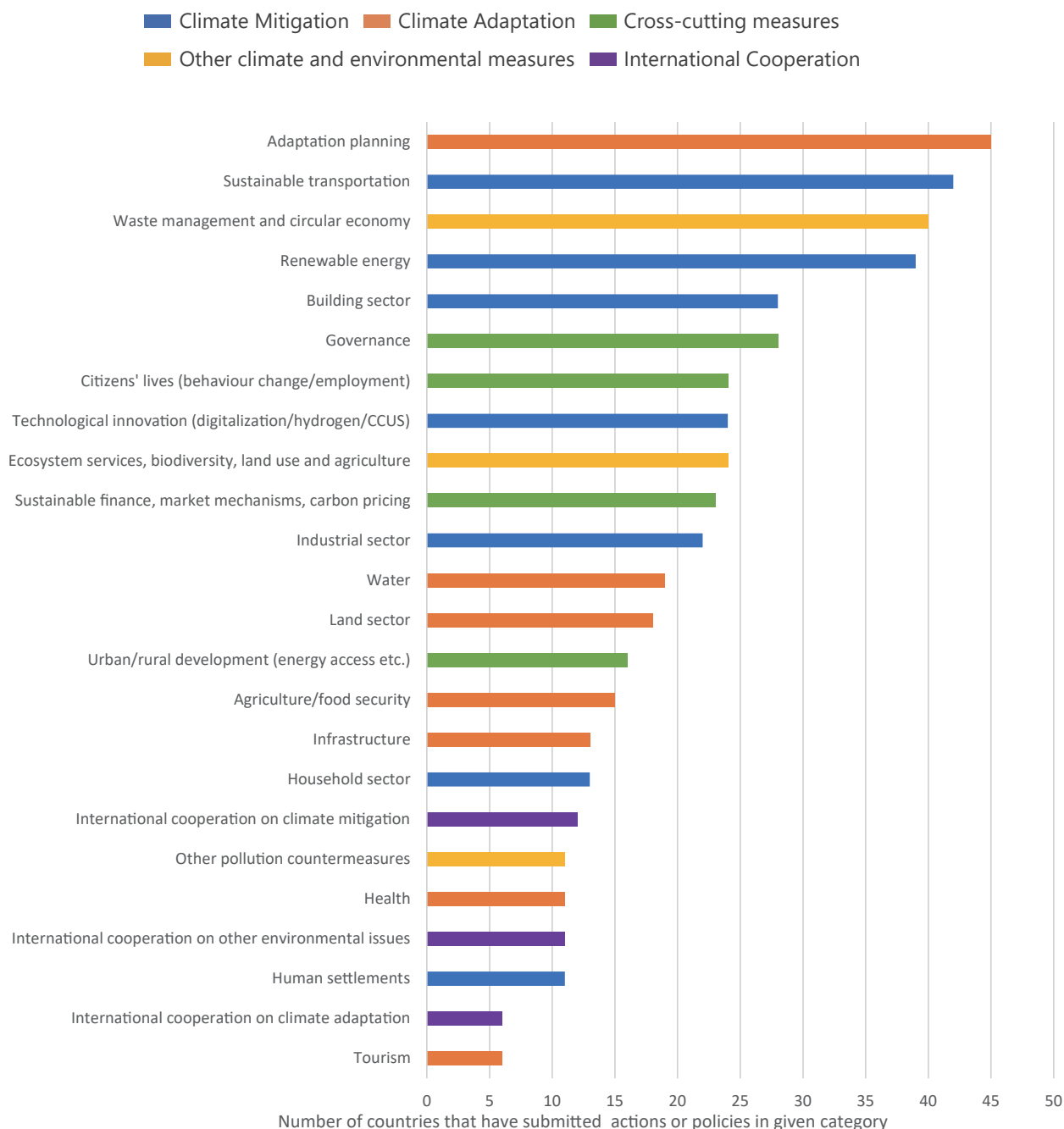
Governments self-sorted their policies and actions into categories and subcategories that were chosen beforehand by IGES when the platform was created. Governments' interpretations of the categories often varied, so similar responses may have been submitted to one category by one government and another category by another government. Given time limitations, we did not change the categories from what was presented in the original questionnaire. We were not able to evaluate all responses by governments to make sure they had all been categorized correctly or consistently. For this analysis, we simply counted the number of countries that had submitted responses in given categories and subcategories on the platform.

Some governments focused their submissions only on actions or policies that had been introduced after the outbreak of COVID-19, while many included actions or policies that were already in place, even though that was not the intention of the platform. While the results presented here include actions and policies that governments submitted from any period, throughout this paper we draw out the examples from the platform that are most relevant for post-COVID-19 transitions.

Results

The most common category of policies and actions submitted to the platform was climate mitigation (66 countries out of 68 with written responses included at least one climate mitigation action or policy), followed by climate adaptation (57 countries), cross-cutting measures (55 countries), other climate and environmental measures (52 countries), and international cooperation (37 countries). The four most common subcategories were adaptation planning, waste management and circular economy, sustainable transportation, and renewable energy (Figure 1).

Figure 1: Categories of Policy and Action Submitted by Countries to the Platform for Redesign

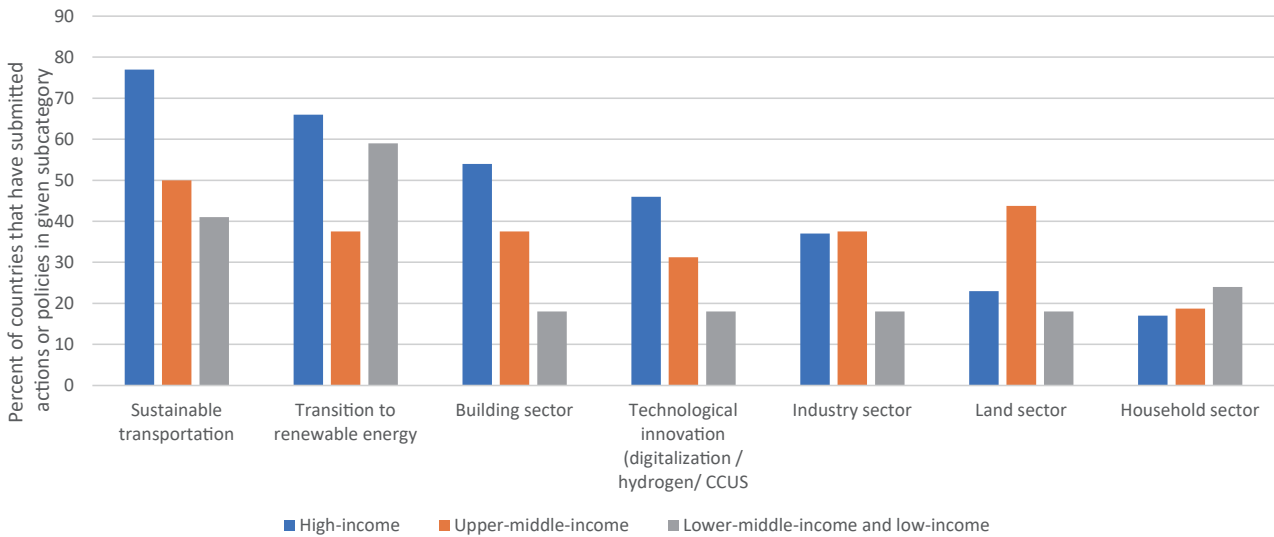


From COVID-19 Response to Sustainable Redesign

Note: CCUS = Carbon capture, utilization, and storage.
 Source: Platform for Redesign 2020.

Sorting the responses by income level, high-income countries were most likely to submit climate mitigation responses relating to sustainable transportation, the building sector, and technological innovation. Upper-middle-income countries were more likely to submit responses relating to the land sector compared to others. Lower-middle-income and low-income countries (grouped together because there were so few low-income countries) submitted responses about renewable energy almost as often as high-income countries, but were more likely than others to submit responses about actions relating to the household sector (Figure 2).

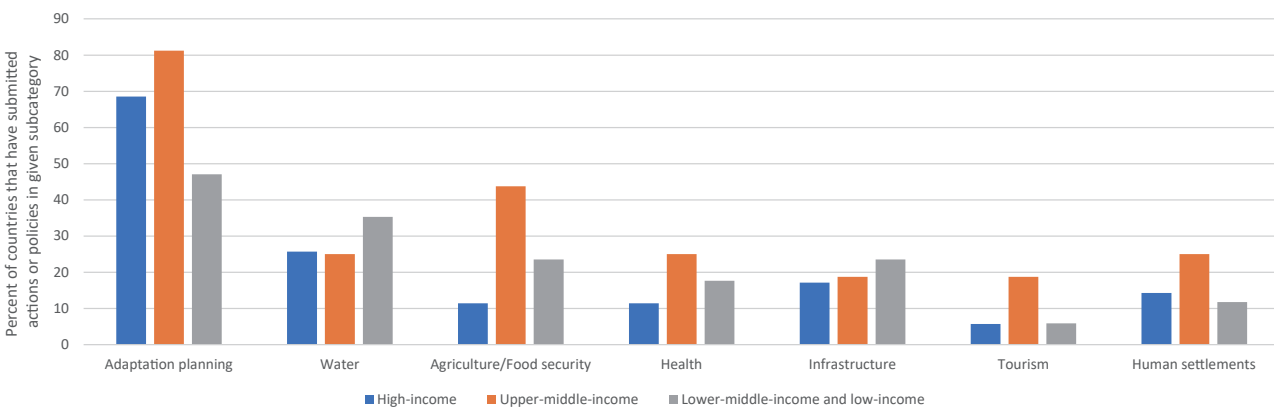
Figure 2: Platform for Redesign: Climate Mitigation Measures by Country Income Group



Note: CCUS = Carbon capture, utilization, and storage.
Source: Platform for Redesign 2020.

Of the countries that submitted climate adaptation measures to the platform, 79 percent submitted adaptation planning measures. Upper-middle-income countries far outpaced high-income, lower-middle-income, and low-income countries in submitting responses in all adaptation subcategories except water and infrastructure, where low-income countries were more likely to submit responses (as shown in Figure 3).

Figure 3: Platform for Redesign: Climate Adaptation Measures by Country Income Group



Source: Platform for Redesign 2020.

The following section draws on both the Platform for Redesign and a variety of other sources to analyze the balance of sustainable and unsustainable measures and explore opportunities for greater ambition where current policies are coming up short.

The Three Transitions: Redesigning Economies and Societies for Sustainability and Resilience in the Wake of COVID-19

Reaching a sustainable and resilient future requires transformative change across our environment, economy, and societies. In this chapter we focus on three transitions that were identified as priorities by the Ministry of the Environment of Japan and IGES:

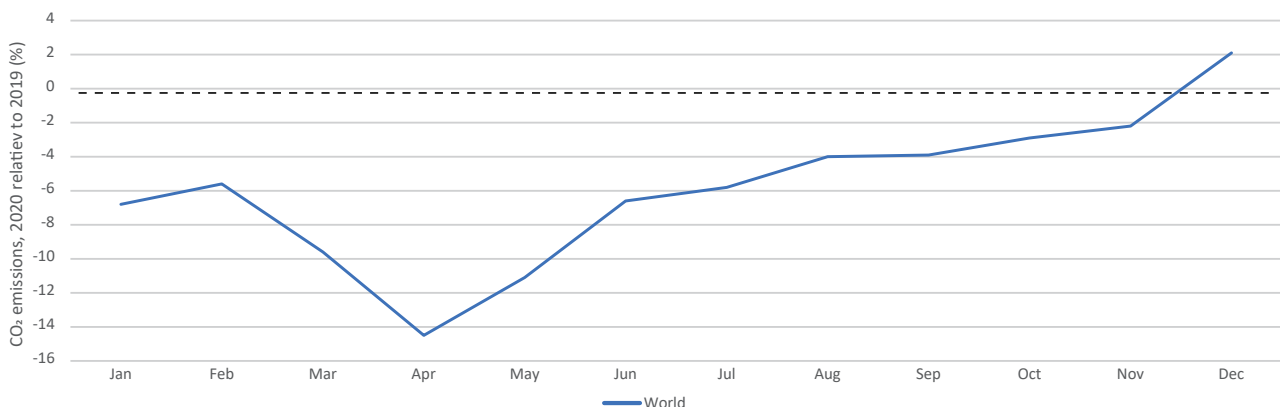
- Transition to a decarbonized economy
- Transition to a circular economy
- Transition to a decentralized society

These are not the only transitions that are necessary for the world to reach a sustainable course, but they encompass many important elements. Decarbonization has received a lot of attention from policymakers, given the urgency of the climate crisis. However, it is also important to examine how to build a circular economy and strengthen local economies and institutions.

Transition to a Decarbonized Economy

While the world tries to rebound from the effects of a devastating global health crisis, it is also at a potential turning point on climate change. Global carbon dioxide (CO₂) emissions dropped around 6 percent in 2020 overall compared to 2019 (as shown in Figure 4) because of the economic contraction and lockdowns. However, by December 2020 emissions had already rebounded strongly to levels higher than in December 2019 (IEA 2021). To be on a path to limit global warming to 1.5°C—the ambitious goal of the Paris Agreement—global CO₂ emissions must continue to drop around 6 percent per year over the next decade, even as the economy recovers (IPCC 2018). This requires the implementation of green recovery plans in the next few months and years, robust 2030 Nationally Determined Contributions (NDCs) to be announced this year, and firm plans to reach net-zero targets by midcentury, as well as the integration of adaptation action to ensure that all of the Paris Agreement’s long-term goals are met.

Figure 4: Monthly Evolution of Global CO₂ Emissions, 2020 relative to 2019

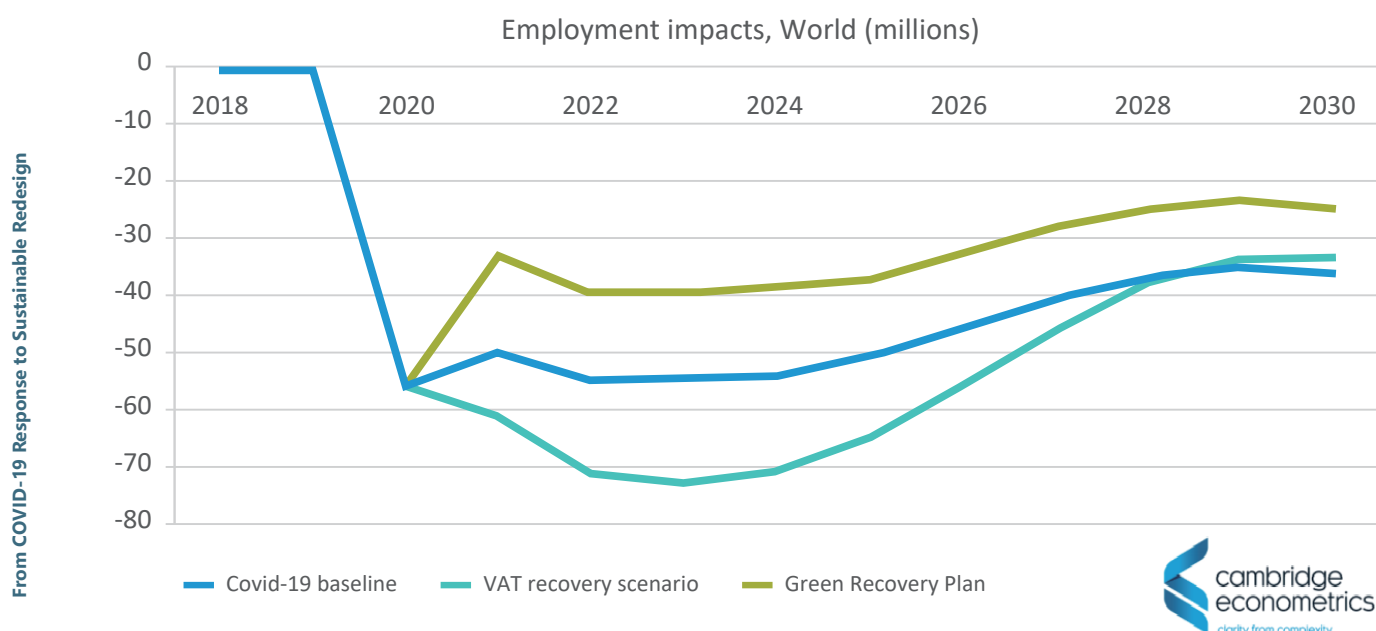


Source: IEA 2021.

Response and recovery

A growing body of evidence has found that green recovery investments not only benefit the climate but are better for the economy (Figure 5). COVID-19 recovery investments in solar photovoltaic (PV), energy efficiency, and clean urban transport can generate up to twice the number of jobs that the same investments in coal or gas could produce (IEA 2020). Economic modeling has found that in economies around the world like the European Union (EU), the United States, India, and Japan, green recovery plans would provide an immediate boost to output and employment beyond a “return to normal” stimulus approach based on value-added taxes that cost the same amount of money (Pollitt 2020). In 21 emerging markets, low-carbon investments through COVID-19 recovery funds in 10 sectors have the potential to generate \$10.2 trillion in investment opportunities, 213 million cumulative new direct jobs, and a reduction of 4 billion tons of carbon dioxide-equivalent (CO₂e) from 2020 to 2030 (IFC 2021).

Figure 5: Green Recovery Plans Create More Jobs Than the Alternatives, 2018–2030

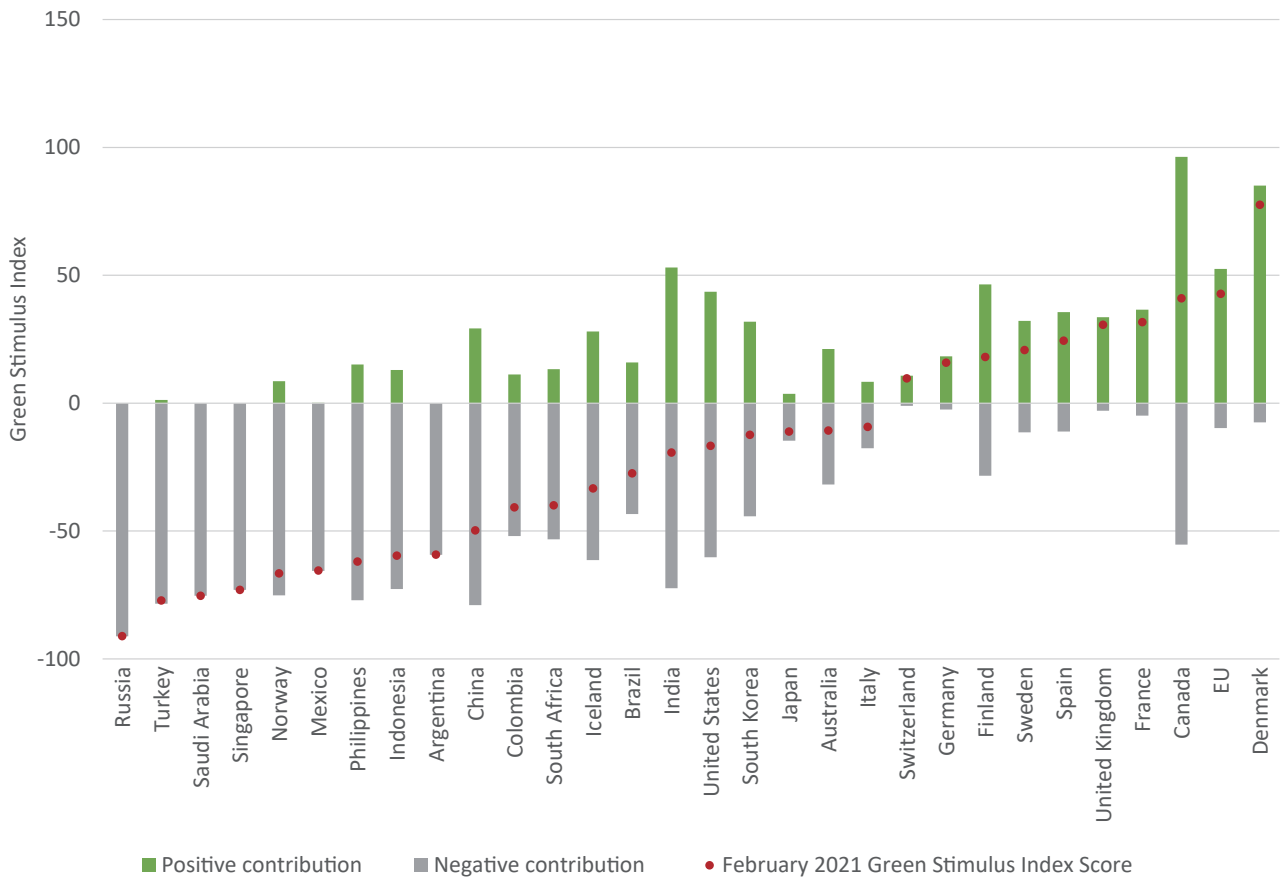


Note: The VAT recovery scenario is based on a value-added tax reduction. The Green Recovery Plan costs the same amount and includes a smaller value-added tax reduction and investment in energy efficiency, renewable energy, electricity grids, car scrappage schemes, and tree planting programs.

Source: Pollitt 2020.

While some countries are taking advantage of these green recovery opportunities, many are still financing coal and other fossil fuels, rolling back environmental regulations, and bailing out high-carbon industries like airlines and auto companies without conditions. According to one stimulus tracker, current stimulus measures are estimated to have a net-positive environmental effect in only one-third of countries (Vivid Economics 2021)—see Figure 6. According to another stimulus tracker, major economies have pledged \$332 billion to fossil fuels since the start of the pandemic, compared to \$272 billion for clean energy, as of June 2021 (Energy Policy Tracker 2021).

Figure 6: Impact of COVID-19 Stimulus Measures That Are Environmentally Relevant



Note: According to Vivid Economics, stimulus measures are estimated to have a net-positive environmental impact in only one-third of countries.

Source: Vivid Economics 2021.

In the immediate response, nearly all countries pumped money into the overall economy without specifying whether it should go to high- or low-carbon sectors (Vivid Economics 2021). Given the importance and urgency of providing support to prevent economic collapse and hardship, very few countries designed and included environmental conditions for bailouts that went to high-carbon sectors. However, there are some examples that show it was possible. Canada required that large companies receiving public loans publish annual reports of their climate-related risk and how their future operations affect national climate goals (Office of Prime Minister of Canada Justin Trudeau 2020). France, Austria, Sweden, and Switzerland included climate conditions as part of airline bailouts, requiring that the airlines reduce their emissions, though enforcement is unclear in most cases (Platform for Redesign 2020; Greenpeace European Unit 2020).

As countries move from immediate rescue spending to recovery plans, a few have developed cross-cutting green investment packages. The EU has specified that 30 percent of its €750 billion (\$911 billion) recovery package must go to climate-friendly projects, and has established a Just Transition Fund to aid fossil fuel-dependent regions in the low-carbon transition (European Council 2020). France, Germany, and South Korea have each introduced major green recovery packages that dedicate around a third of the spending to low-carbon power, sustainable transportation, and other green solutions (Yonhap News 2020; Lombrana and Rathi 2020; Government of France 2020).

A wide variety of countries have announced sustainable recovery measures for individual sectors. The following highlights some promising examples that can contribute to the decarbonization agenda. All of these examples are from government self-reports to the Platform for Redesign 2020.

Transportation:

France's COVID-19 recovery plan provides support to the automobile and aviation sectors, but unlike other countries, its support also sets environmental goals for the industries and is accompanied by electric vehicle subsidies, and public investment in hydrogen and in carbon-neutral aviation research and development. It is also allocating stimulus money to railways, public transit, cycling networks, and green port infrastructure.

Germany has a comprehensive stimulus package for transportation that allocates money to public transit, electric vehicles, charging infrastructure, and low-emissions trucks and buses.

Pakistan unveiled its target to have 30 percent of all passenger vehicle and heavy-duty truck sales be electric by 2030 and 90 percent by 2040.

Energy

Denmark approved a climate agreement in June 2020 that will quadruple its total offshore wind energy capacity.

Eswatini (formerly Swaziland) introduced a COVID-19 recovery plan that includes the promotion of solar plants and a biomass energy plant.

São Tomé and Príncipe has a project for installing solar panels to power medical facilities.

Buildings

Estonia is providing grants and loan guarantees for upgrading the energy efficiency of single- and multifamily residential buildings.

Japan is supporting high-efficiency ventilation in hospitals to reduce virus transmission, while also reducing energy needs.

Singapore has created a Green Building Masterplan.

Land

Peru is strengthening community forest management in indigenous communities as a means of implementing its NDC at a local level and guaranteeing adequate recovery and response for COVID-19 effects.

Mauritania launched a new national program to promote reforestation and avoid desertification.

Redesign: NDCs and Long-Term Strategies

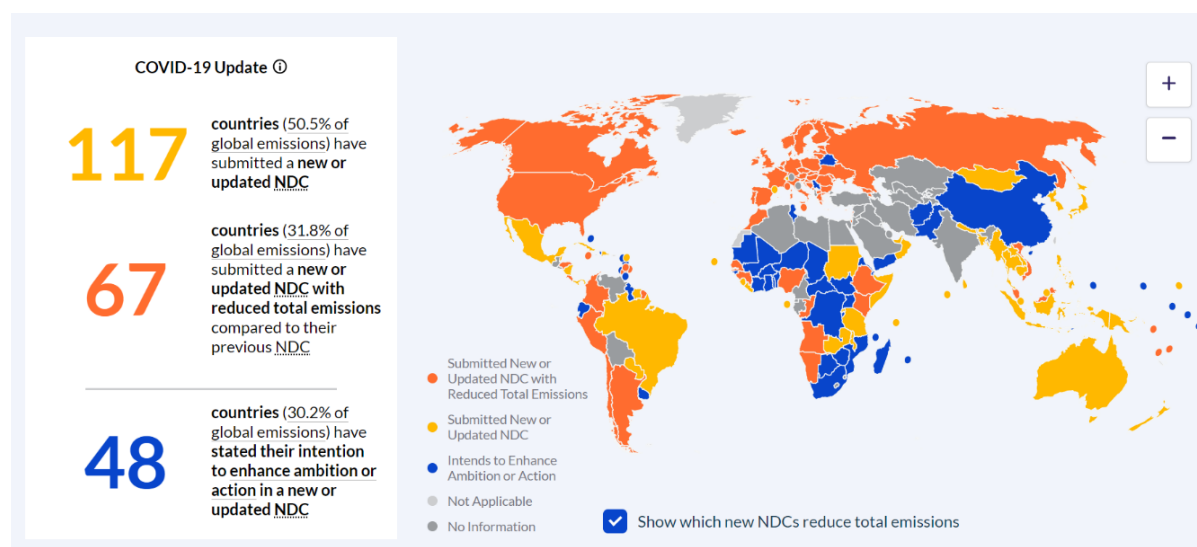
As a complement to emerging green recovery efforts, medium-term plans such as the 2020 NDCs and 2050 Long-Term Strategies (LTSs) play a major role in identifying areas for decarbonization.

Medium-Term Commitments (NDCs)

The new round of NDCs in 2020 offered an opportunity for all countries to set more aggressive decarbonization targets, aligning with what the science says is needed. In addition, NDCs are an avenue through which developing countries can identify the types and levels of support needed for implementing their mitigation targets and for adapting to climate impacts. By September 2021, 117 countries representing 50.5 percent of global emissions had submitted an updated NDC (see Figure 7) ([Climate Watch 2021](#)). Some represent strengthened climate targets that seek to achieve decarbonization across sectors, for example the EU, the United Kingdom, Colombia, and Fiji, while others provide further details but continue with the same overarching target. With only a few weeks left to COP26 in Glasgow, countries yet to submit NDCs represent the other half of global emissions. These countries should aim to

communicate their ambition elements ahead of COP26 with strategies and policy actions that are aligned with the 1.5°C pathway projected to 2030.

Figure 7: Countries with 2020 Nationally Determined Contributions Submitted



Source: Climate Watch 2021.

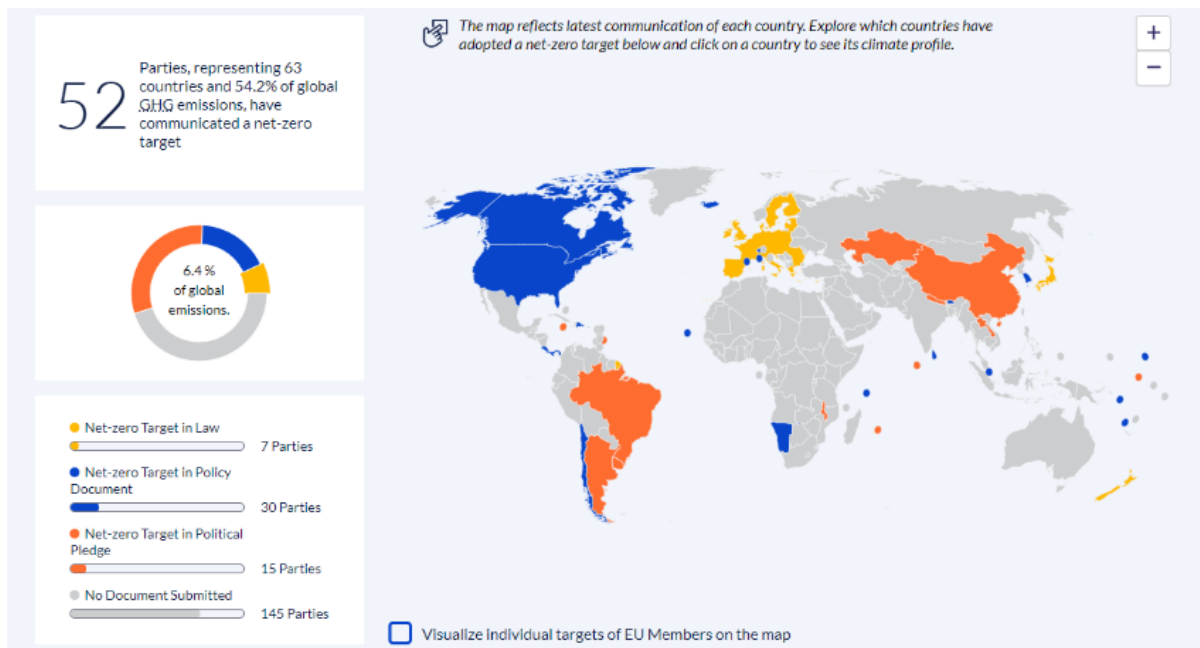
The 2030 emissions reduction targets set by the European Union, and the individual targets set out by countries within the EU, namely Sweden, Denmark, and the United Kingdom (55 percent, 63 percent, 70 percent, and 78 percent, respectively) are among the most robust climate goals ever submitted. The EU's decarbonization pledges include efforts to improve energy efficiency and increase renewable energy in the primary energy mix, reduce CO₂ emissions from passenger cars and vans, tighten landfilling and recycling targets, increase the circularity of the EU economy, and reduce emissions from fluorinated gases (European Union 2020). Denmark's decarbonization pledges (Danish Ministry of Climate, Energy, and Utilities 2019) are firmly rooted in its legally binding commitments to reach net-zero by 2050, or in the case of Sweden by 2045 (SwedishEPA 2020). Moreover, the United Kingdom, the country with the most robust GHG target to date has announced even greater ambition by pledging a 78 percent reduction of CO₂ emissions below 1990 levels by 2035 (Harvey 2021).

In Latin America and the Caribbean, Chile, Colombia, Panama, Jamaica, and the Dominican Republic—despite their low contribution to global GHGs—have all charted a course to achieve greater levels of decarbonization in their NDCs. Chile has pledged to unconditionally reduce 95 megatons of carbon dioxide-equivalent (MtCO₂e) and 25 percent of black carbon emissions by 2030, as well as to integrate nature-based solutions and a circular economy as part of its decarbonization effort (Leprince-Ringuet 2020). More recently, the Chilean government has established a methodology to help identify which projects in its green recovery packages are aligned with both its NDC and LTS objectives (Government of Chile 2020). Panama and Colombia have both pledged to diversify their energy portfolio to include renewable energy and to use nature-based solutions (NDC Partnership 2020a). From the island states, the Dominican Republic pledges to fully transition to electric and hybrid rapid bus systems to help meet its 27 percent reduction in emissions by 2030 (NDC Partnership 2020c). Jamaica has identified opportunities to deepen emission reductions from energy and land-use change as part of its NDC (Government of Jamaica 2020).

Long-Term Commitments

Beyond NDCs, decarbonization requires longer-term roadmaps to ensure that countries transition to net-zero emissions by 2050, as scientists have indicated is necessary to achieve the 1.5°C goal (Levin et al. 2020). As of this writing, 52 parties representing 63 countries² had formally adopted net-zero targets as part of national law or policy or had signaled their intention to do the same through political pledges and cabinet documents (Figure 8).

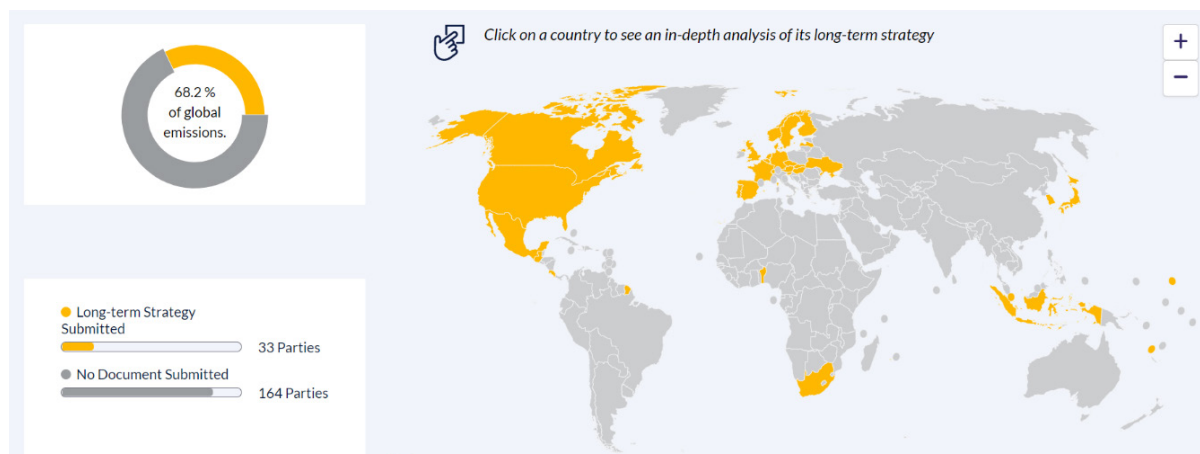
Figure 8: Countries Announcing Net-Zero Emissions Targets



Source: WRI Climate Watch 2021

Moreover, 33 parties to date have submitted a long-term strategy to the UNFCCC; 18³ explicitly mention their net-zero target (Figure 9).

Figure 9: Countries Submitting Long-Term Strategies with Explicit Net-Zero Emissions Targets Mentioned



Source: WRI Climate Watch 2021.

Aligning the decarbonization and recovery agendas

While COVID-19 recovery packages and NDCs have different objectives, both can contribute to sustainable development. The targets and strategies outlined in enhanced NDCs can guide financial investments. To date, many updated NDCs provide little to no detail on alignment of climate commitment and national green stimulus packages. It is possible that a business-as-usual approach to policy formulation, which includes limited coordination among ministries, has resulted in the deprioritization of climate-friendly recovery policies, ultimately leading to bailouts and continued funding of carbon-intensive sectors during this cycle of pandemic response. Countries still have time to revisit their NDCs before COP26 and before the next five-year cycle upgrade. NDCs can build on green recovery investments and foster a longer-term sustainable economic transformation.

Resilient decarbonization

Adaptation is critical to a resilient, sustainable, and decarbonized economy. Even if the Paris temperature goals are achieved, the most vulnerable populations will still experience significant climate impacts, affecting livelihoods, food security, health, and more. Specific impacts include reductions in crop yields, an increase in heat-related mortality, and increased water stress (IPCC 2018). Hurricanes, floods, and droughts will only become more devastating. As the world recovers from the impacts of the COVID-19 pandemic, adaptation measures play an even more critical role in strengthening the resilience of economies and societies.

Generally, most COVID-19 stimulus packages do not have climate resilience integrated in their recovery plans. A forthcoming study by World Resources Institute (WRI) which analyzed the stimulus responses of 66 countries, found that fewer than one-third of those countries incorporated interventions that are explicitly about climate adaptation and resilience into their plans, and climate considerations that are included tend to focus more on accelerating the transition to low-carbon practices. Countries that are already experiencing the impacts of climate change, such as those that belong to the Vulnerable Group of 20 (V20), were more likely to make resilience central to their recovery plans. These plans tend to focus on already vulnerable sectors, such as water resource management and resilience, food security, and infrastructure. Fiji, for example, is bolstering food security and its agricultural sector through the introduction of climate-resilient crops. The country is being supported by international organizations including the World Bank and the Asian Development Bank in its efforts to ensure that communities in remote islands have reliable access to energy, water, and information. In collaboration with the United Nations Economic Commission for Africa (ECA), Ethiopia is focusing on nature-based solutions to better manage its water resources, improve community resilience, and rehabilitate degraded lands. Bangladesh revised its 2020–21 budget to further integrate considerations surrounding the importance of resilience, and the country continues to invest in the agricultural sector through research and development in diversification and resilience of crop varieties.

Submissions to the platform indicate that while only a handful of countries have included climate resilience in their recovery plans, the measures that were submitted are consistent with the seven areas identified by the Global Commission on Adaptation (GCA) as critical for an equitable and resilient COVID-19 recovery. New Zealand, for example, is providing a \$210 million investment package focused on protecting infrastructure from extreme weather events, along with protecting land from soil erosion and flooding. This investment package is part of the country's larger COVID-19 infrastructure investment fund. Peru is guaranteeing adequate recovery and response to the impacts of the COVID-19 pandemic through strengthening food security systems in Cusco and Apurimac. Benin is distributing seed kits to those in the agricultural sector who are seriously affected by the COVID-19 pandemic. Canada has opened up a \$3 billion COVID-19 resilience stream under its Investing in Canada Infrastructure Program, which will include adaptation projects such as improving natural infrastructure.

Despite these examples, COVID-19 recovery plans in general are not climate-resilient. The 48 V20 member countries continue to lead on adaptation, but their actions are unlikely to be sufficient to achieve recovery from the pandemic and address the impacts of climate change. Countries should strive to ensure that their economic recovery is not only decarbonized, but also climate-resilient. Stakeholders including international and regional organizations, academic and research institutions, and the private sector could play a role in developing creative technical and financial solutions with cobenefits to address various global challenges simultaneously, such as green infrastructure for water security that concurrently addresses adaptation, climate change mitigation, and resilience in terms of future pandemics and disasters. Development cobenefits are increasingly critical given the pressures on fiscal budgets generated by the COVID-19 recovery process. Key adaptation and resilience enhancement recommendations such as nature-based solutions, closed-loop resource management, and waste management are discussed under the circular economy subsection.

The Way forward

In the short term, any further government bailouts to companies should include environmental conditions, including meeting emissions reduction goals and reporting on climate-related risk. In the case of NDCs, countries should be aligned with net-zero emissions by midcentury, with goals and measures developed through cross-ministerial collaboration.

For the medium term, as countries develop more measures focused on economic recovery, they should take advantage of the jobs and economic gains that can come from investments in clean energy, sustainable transport, nature-based climate solutions, and other low-carbon projects. Countries with conditional NDC targets should be willing to provide detailed sectoral actions to achieve emissions reduction and adaptation targets, quantify the absolute number of reductions that would be achieved, and provide details on the level of international financing needed for rollout of these mitigation and adaptation packages. Developed countries should increase their international climate finance support and create more opportunities for capacity-building and technology transfer.

For the long term, countries should invest in low-carbon innovation to help develop new technologies and industries that can drive the future economy, while implementing new policies to reorient their economies toward net-zero emissions in a fair and equitable way. Countries should adopt an all-inclusive approach to emissions reductions that taps into decarbonization opportunities in terrestrial and ocean sectors. Countries should therefore earmark investments for technological innovation or to assist vulnerable countries with technological upgrades in renewable energy (land- and ocean-based), and to preserve or restore ecosystems that provide nature-based solutions.

Transition to a Circular Economy

What is the circular economy, and what problems would it solve?

Today's economic model is largely linear: raw materials are collected, transformed into products, and discarded as waste when they are no longer used. Humanity's use of natural resources has more than tripled since 1970 (International Resource Panel 2019), and each year, approximately 92 billion metric tons of material resources flow into the economy (Circle Economy 2020). This huge and growing material consumption has contributed to economic development but has come at a huge cost to the environment, ultimately fueling climate change and threatening human well-being (Kistler and Muffett 2019). The extraction and processing⁴ of natural resources account for about half of global GHG emissions (excluding emissions related to land use) (International Resource Panel 2019).

The waste inherent in the linear economy is also a missed economic opportunity. Each year, a combined \$622 billion worth of single-use or usable products are discarded in the plastics (Ellen MacArthur Foundation and World Economic Forum 2016), textiles (Ellen MacArthur Foundation 2017), and food and agriculture sectors (Ellen MacArthur Foundation 2019b). This dependence on a constant flow of resources leaves economies exposed to fluctuating commodity prices and economic shocks, as COVID-19 has demonstrated, and will pose new challenges as climate-friendly technologies scale up and require different material flows.

The alternative to this system, a circular economy, prioritizes using less materials ("reduce"), keeping materials and products in use for as long as possible ("reuse"), and recycling them in a form that retains as much as possible of their existing value ("recycle") ("Action Agenda" 2021). For the remaining nonrecyclable materials, energy recovery can be undertaken, with the goal of designing out waste entirely.

What are the environmental, economic, and social benefits of transition to a circular economy?

Applying circular economy approaches across all sectors can enhance existing climate mitigation efforts, further reducing GHG emissions or delivering those reductions in a more resource-efficient, cost-effective, or ecologically responsible way (Table 1). Globally, changing how products are made and used can contribute to reducing 45 percent of global GHG emissions that are currently generated from production (Ellen MacArthur Foundation 2019a).

Table 1: Benefits from the Circular Economy, by Sector

Industry and materials	Keeping industrial products and materials in use longer can reduce the need for “hard-to-abate” processes like melting steel and end-of-life cycle incineration, which could reduce combined global emissions from cement, steel, plastics, and aluminum by 40% in 2050 (Ellen MacArthur Foundation 2019a).
Energy	More efficient use and reuse of materials would reduce renewable energy’s GHG emissions, which mostly come from material extraction and manufacturing of equipment like solar panels and wind turbines (Amponsah et al. 2014; NREL 2012). Recycling or repurposing solar PV panels can unlock 78 million metric tons of materials and components globally by 2050, worth over \$15 billion (Weckend et al. 2016). Organic waste could also be used for energy production (Makarichi et al. 2018).
Buildings	Alternative and recycled construction materials, more intensive use of buildings, and improved energy efficiency can reduce GHG emissions from buildings’ material cycle by 50–80% by 2050 (UNEP and UNDP 2020), including by 35% in G7 countries, by 50–70% in India, and by 80–100% in China (International Resource Panel 2020).
Transportation	Material efficiency strategies, especially making vehicles smaller and using them more efficiently (i.e., car-sharing) could reduce GHG emissions from passenger cars’ material cycle by 57–70% in the G7, 29–62% in China, and 39–53% in India by 2050 (International Resource Panel 2020).
Food, agriculture, and land use	Slowing growth in food demand, shifting to more sustainable diets, and reducing food loss and waste could reduce emissions from agriculture by 33% globally by 2050 (WRI 2019).

Notes: GHG = Greenhouse gas; PV = Photovoltaic.

Source: Authors.

The circular economy can also promote health, resilience, nature-based solutions, and a just scale-up of climate technologies, which can mitigate the impact of and promote a faster recovery from health and economic shocks like COVID-19, as well as the wider impacts of climate change.

A circular economy could reduce the health and environmental harms of current poor waste management practices, lowering future risks to society. Many governments lack the capacity to safely manage even their current waste streams. This leads to waste being dumped or burned, which is a major source of local air, soil, and water pollution that causes illnesses (Cogut 2016) and makes people less resilient to climate shocks and stresses. Roughly 9 million people die each year from diseases linked to waste mismanagement and pollutants (Gower and Schröder 2016). Circular economy approaches can reduce waste throughout the supply chain and create the economic incentives to circulate (rather than dump or burn) materials. Circular management of organic waste can also replace agricultural fertilizer or serve as biofuel for energy production.

Climate action will require different types and shares of materials than are currently in use. For example, we will use more lithium and yttrium for clean energy production and storage (Dominish et al. 2019), and electric vehicles (Favot and Massarutto 2019). In some cases, identified global stocks of these “critical minerals” are insufficient or concentrated in a few countries, including in places with unstable governance or poor labor conditions, or in ecologically sensitive areas. Circular economy approaches, which would reduce the growth of demand for virgin materials by increasing the use of recycled materials, can mitigate these supply chain challenges (Gaustad et al. 2018) while protecting natural areas and human rights (Heffron 2020).

By reducing demand for virgin materials, a circular economy could protect ecosystems from damaging extractive processes like oil drilling, mining, or conventional forestry. According to one estimate, 90 percent of land-related biodiversity loss and water stress are caused by resource extraction and processing, mainly through land conversion (International Resource Panel 2019). These natural areas can then contribute to both climate mitigation (by sequestering carbon) and adaptation (by providing ecosystem services such as buffering floods or regulating temperatures), as well as safeguarding biodiversity and local heritage.

The circular economy also offers major economic opportunities, which can contribute to COVID-19 recovery and spur private sector action.

At the global level, the transition to a circular economy could unlock an additional \$4.5 trillion in annual economic growth by 2030 (Lacy and Rutqvist 2015). It could generate cost savings worth CNY 70 trillion (\$10 trillion) in China by 2040 (16 percent of China's projected GDP) (Ellen MacArthur Foundation 2018), and €1.8 trillion (\$2.1 trillion) in increased productivity and positive externalities in Europe by 2030 (Ellen MacArthur Foundation 2015).

Adopting circular economy measures would reduce jobs in some sectors and increase them in others. Compared to resource extraction or landfilling waste, jobs in repair and remanufacture are often local, and require more labor and more specialized skills. The International Labour Organization (ILO) (2018) estimates that the transition to a circular economy could create approximately 6 million net jobs globally by 2030, while the International Institute for Sustainable Development (IISD) (2018) finds that the circular economy could create 50 million and 45 million jobs in the services and waste management sectors, respectively, by 2030; and the European Commission (2018), that it could add 700,000 jobs in the EU alone.

The circular economy is a model for sustainability in resource use and consumption. Almost 6 million jobs can be created by moving away from an extract-manufacture-use-discard model and embracing, instead, the recycling, reuse, remanufacture, rental, and longer durability of goods. Notably, it means a reallocation from the mining and manufacturing sectors to waste management (recycling) and services (repair, rent).

The circular economy also offers the private sector opportunities to increase efficiency and innovate new business models. Resource-efficient design reduces the inputs needed to manufacture a given product and may be able to raise the profit margin or reduce the price for the consumer. Rental- and sharing-based businesses, which make more intensive use of everything from homes to cars to clothing, are growing worldwide and could reach \$335 billion by 2025 (Yaraghi and Ravi 2017; PwC 2015).

The financial sector is waking up to this opportunity. In 2020, assets managed through public equity funds with the circular economy as the sole or partial focus increased sixfold, from \$300 million to over \$2 billion (Ellen MacArthur Foundation 2020). In the first half of 2020, these funds outperformed their Morningstar category benchmarks by 5 percent (Ellen MacArthur Foundation 2020).

Analysis of the economic opportunities and business models in the circular economy remains limited, though some value chains are covered better than others, including food, plastics, textiles, and electronics ("Action Agenda" 2021). Filling this knowledge gap will be a precondition for scaling up circular economy policies across sectors and levels of government. Deeper understanding could also spur private sector action, since companies often lack understanding of how to make their business models more circular, or of the financial benefits of doing so (ING 2015). See Recommendation 3, in the way forward subsection below for policy options.

Some special considerations are needed to ensure that the transition to the circular economy achieves the maximum possible environmental, social, and economic benefits. More efficient resource use may not necessarily reduce emissions or may shift the location of GHG emissions or local pollution. This is especially likely when recycling requires energy-intensive processes or when postconsumer materials are poorly separated. Bio-based or renewable materials,

such as those derived from plants, are more land- or water-intensive than nonrenewable materials (like metals) that they would replace. In addition, the alternative supply chains that would result from a global shift to a circular economy could create changes in trade patterns, job availability, and consumer prices, which could exacerbate inequality and need to be anticipated and managed appropriately (Preston et al. 2019; Lanzi et al. 2010; Schroeder et al. 2018).

Examples of progress and areas for improvement

Countries around the world are demonstrating progress in the circular economy, including in their COVID-19 economic recovery plans (Table 2). However, of the measures submitted to the Platform for Redesign 2020, the majority (51 percent) focus on the end of a product's life cycle ("recycle"), usually aiming to divert waste from landfills and recycle the constituent materials. Only 20 percent of measures focused on "reduce" and just 3 percent on "reuse" (Figure 10). This reflects global trends; recycling is easiest to implement given current practices.

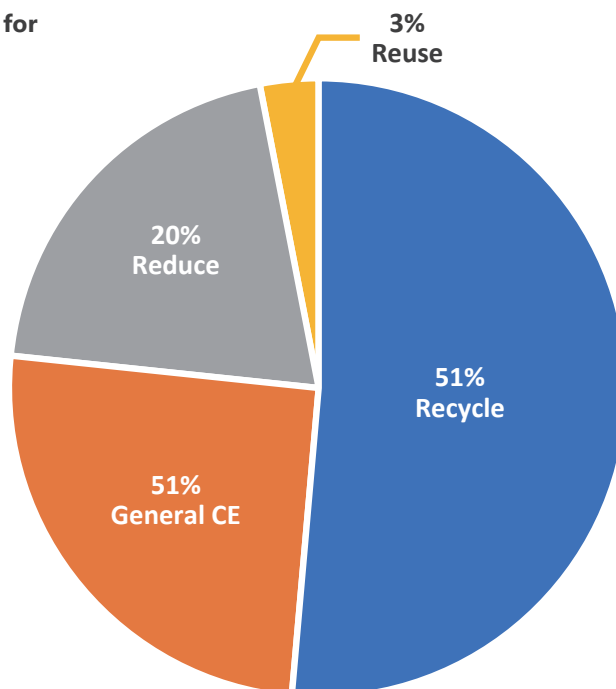
However, recycling a product into its constituent materials wastes much of its added economic value and releases embedded emissions. For example, the raw materials for an iPhone 6 cost \$1.03, (Moneycontrol 2017), and production accounts for 85 percent of its life-cycle emissions (Apple 2014). This illustrates how a large share of the environmental benefits of the circular economy can only be realized through "reduce" and "reuse" activities (Ellen MacArthur Foundation 2019a; International Resource Panel 2020; Material Economics 2018). See Recommendation 2 in the way forward subsection below for policy options.

Table 2: Examples of Leadership in the Circular Economy

Reduce	<ol style="list-style-type: none"> 1. China will limit waste from construction sites to 300 metric tons per hectare. 2. Israel is expanding the national Resource Efficiency Center, which assists factories and industrial businesses in reducing raw material consumption (IREC n.d.). 3. Peru is developing guidelines for sustainable public procurement and resource-efficient management of public buildings.
Reuse	<ol style="list-style-type: none"> 1. Finland is creating a database of building material content to facilitate circular construction (Sitra 2019) and a national information platform of "waste" streams to connect producers and users of those streams (Sitra 2021). 2. Austria reduced the value-added tax rate from 20% to 10% for repairs to bicycles, clothing, and shoes. Several states complemented that with a 50% reimbursement on repair costs of electrical appliances (Piringer and Schanda 2020).
Recycle	<ol style="list-style-type: none"> 1. Chile is helping coordinate informal recyclers to collect household waste door-to-door while recycling collection stations are closed due to COVID-19 ("Recicla en Casa" n.d.). 2. Indonesia is promoting "waste banks," where residents can bring household waste (often in exchange for financial compensation). The waste banks reuse economically valuable materials and are often managed by women (Dhewanto et al. 2018). 3. Eswatini is investing E 50 million (\$3.3 million) in a steel and metal recycling plant that could create 40 jobs (Government of Eswatini 2020). 4. Japan is implementing environmentally sound management of infectious waste and sharing "packages" of technologies and policies on waste management and recycling as part of its international cooperation in Asia and Africa.

Source: Platform for Redesign 2020, additional sources in table.

Figure 10. Circular Economy Measures in the Platform for Redesign 2020, by Material Life-Cycle Phase



Note: Does not sum to 100 percent due to rounding. CE = Circular economy.

Source: Platform for Redesign 2020.

From COVID-19 Response to Sustainable Redesign

The Way forward

Based on our analysis, we suggest the following recommendations to fully leverage the benefits of a circular economy.

Recommendation 1: Adopt an economy-wide set of circular economy targets:

These targets, and the assessments needed to set the target and monitor progress, can help policymakers across all sectors identify opportunities to reduce, reuse, and recycle (Gower and Schröder 2016).

- Create a cross-ministerial task force to coordinate circular economy planning among ministries in a way that is fair and equitable.
- Integrate circular economy into public procurement guidelines and management of public resources and buildings (Gower and Schröder 2016).
- Engage in policy dialogues or develop resource banks to facilitate the exchange of best practices among sectors and countries.

Recommendation 2: Scale up “reduce” and “reuse” activities to maximize the environmental, social, and economic benefits of the circular economy:

- Align fiscal policy incentives with “reduce” and “reuse” activities, for example, by shifting the tax burden from labor to resources, or taxing virgin materials at higher rates than recycled materials.
- Implement Extended Producer Responsibility (EPR), including product redesign and efforts from a product’s manufacturers to share financial or physical responsibility for the product’s treatment or disposal at the end of its life cycle (reverse logistics), incentivizing producers’ more efficient use of materials.
- Develop public information repositories that would reduce barriers to reusing products and materials.

- Introduce policy and legal reforms as well as regulations and incentives that increase material efficiency and reuse, such as design standards that facilitate easy disassembly and remanufacture.
- Review regulations that may inhibit reuse, repair, refurbishing, or remanufacturing (Gower and Schröder 2016).

Recommendation 3: Improve understanding of the economic opportunity of the circular economy:

- Design a policy dialogue between the cross-ministerial task force and research institutions to investigate the circularity potential of major economic sectors and estimate the economic benefits.
- Develop frameworks and methodologies that enable companies and investors to better assess the viability of circular economy-related businesses and investments.
- Incentivize, guide, measure, and support scaling up of companies with product-as-a-service business models along with regulatory changes that make these services legal and safe.

Recommendation 4: Expand circular economy activities at the local level. Local governments are most often responsible for waste management and can promote local circulation of used products but may lack capacity to enhance their systems.

- Seek support from international development agencies, think tanks, and multilateral banks, which may offer technical assistance and capacity-building to local governments, including through public-private partnerships.
- Introduce regional initiatives to increase international technology- and knowledge-sharing, including dialogue among peer countries and adopting lessons from lower-income countries with significant informal recycling systems (Chen and Beard 2018).
- Expand financing options for circular economy initiatives, for example, by collaborating with multilateral and national development banks and private banks to create novel financial instruments, or allocating a section of existing funds to foster circularity.

Transition to a decentralized society

Why decentralization?

Decentralized (or subnational) actors—broadly including cities, regions, companies, and organizations—have an important role to play in implementing climate actions and encouraging greater climate ambition at the national level. Yet most NDCs and LTSs do not explicitly consider the role of subnational actors in meeting climate goals (Horn-Pathanothai and Hart 2019)—which is a huge missed opportunity. For example, if subnational and nonstate climate commitments were fully implemented in the EU and Japan, the countries would overachieve their NDC mitigation targets (Kuramochi et al. 2020). National governments can make the most of subnational efforts by setting clear policies, creating incentives, and reducing barriers to subnational climate action (Elliott et al. 2018). By leveraging the power of civil society organizations, businesses, and transformative partnerships (which we group under our broad definition of decentralized actors), national governments can accelerate progress on their climate agenda and can support locally led and inclusive climate adaptation work (P4G 2021; NDC Partnership 2020b; Martin et al. 2018; Lobo n.d.).

This section defines decentralization broadly as a process of transferring knowledge, resources, and decision-making power from national to subnational governments. Evidence from the literature shows that collaborative, decentralized approaches to climate action can be effective means of advancing both mitigation and adaptation goals and can lead to more effective crisis response and recovery (Aubrecht et al. 2020; Allain-Dupré et al. 2020; Kosec and Mogues 2020; Hattke and Martin 2020; Betsill and Bulkeley 2006). Decentralization without leadership and guidance at the national level, however, can lead to response inefficiencies, resource competition and shortages, and a lack of policy coherence (Victor and Muro 2020). In this section, we highlight examples of effective decentralized approaches to COVID-19 redesign in different countries, using information from the Platform for Redesign and other sources. We then recommend measures to enhance decentralization.

The climate, economic, and social benefits of decentralization

The compounded challenges of COVID-19 and climate change have exposed deep existing inequalities in society, with vulnerable populations most at risk in terms of health, economic security, access to services, and extreme climate events (Van Den Berg 2020). Because the impacts of COVID-19 vary greatly, subnational governments play a leading role in designing and implementing locally relevant response and recovery plans (Allain-Dupré et al. 2020). Likewise, localized climate action is needed to address the unique climate risks of critical geographies. Decentralization can help national governments be more dynamic and flexible, creating the kind of adaptability that is needed to address crises as they evolve over time and with greater responsiveness to local needs on the ground, in the move toward a recovery and just transition. Equipping subnational governments with the tools, resources, and financing required to address the needs of their population in an equitable way and protect vulnerable groups will be critical for building resiliency to future shocks, whether they be economic, public health, or climate.

Effective coordination between centralized and decentralized government actors can unleash subnational innovation in climate action that inspires national policy changes, which in turn leads to the institutionalization and spread of climate best practices across regions within a country as well as internationally. For example, in 2016, the city of Bogotá, Colombia, worked with domestic and international partners to create a localized plan for implementing new national building efficiency codes (Stewart et al. 2018). The city developed a protocol that made the complex codes easier to implement, which was then approved by the president and shared with other Colombian cities.

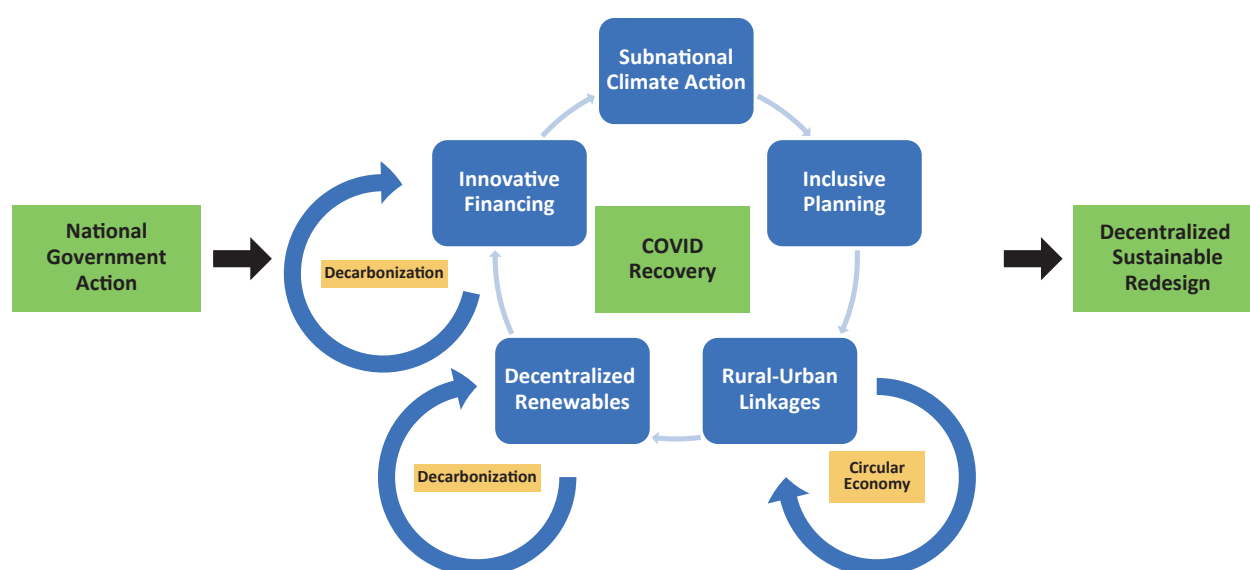
Decentralization also supports local self-reliance, which can lead to more efficient and sustainable resource use and stable food systems (Sukhwani et al. 2019; Sietchiping et al. 2020). Decentralized governance can empower local and regional governments to work together to use materials more efficiently and to reduce waste (Takeuchi et al. 2019). It can encourage urban-rural collaboration that strengthens the social, economic, natural, and material linkages between urban and rural areas to ensure that they develop sustainably and in a mutually beneficial way that prioritizes local resources and production for local consumption (Sukhwani et al. 2019; Sietchiping et al. 2020).

City and town governments are also smaller and more closely connected to their constituents and are thus well-suited to quickly identify vulnerable groups hit hardest by a crisis and direct resources and spend stimulus money in a way that benefits these groups and leads to local job creation (Katz et al. 2020; Takao 2012; Qvist-Sørensen et al. 2021). By giving subnational governments agency in the recovery and redesign process post-COVID-19, national governments can ensure locally grounded and inclusive solutions. But local governments need capacity and resources to act on these solutions, and national governments play an important role in directing resources to enable subnational action. In the United States, state and local government revenues are expected to decline by \$167 billion, or 57 percent, in 2021, while public spending on things like health and social services will likely rise (Sheiner and Campbell 2020). National governments will need to increase financial support to ensure that subnational governments have the resources they need to simultaneously respond to COVID-19 and address climate change.

The Way forward: Recommendations for incorporating decentralization approaches into COVID redesign

With economic stimulus packages totaling more than \$16 trillion being rolled out and the social contract between governments, businesses, and society being reexamined, a moment has emerged for national governments to restructure priorities to focus on reducing GHG emissions, strengthening climate resilience, investing in the circular economy, reducing biodiversity loss, and addressing systemic social and economic inequalities (Ziady 2020; OECD 2020). A decentralized approach to sustainable COVID-19 redesign has the potential to lead to a more equitable, green, and economically productive society. Discussed below are five mutually reinforcing elements of a decentralized sustainable redesign that emerged from our research (also illustrated in Figure 11), with best practices from countries around the world used to explain each.

Figure 9: Countries Submitting Long-Term Strategies with Explicit Net-Zero Emissions Targets Mentioned



Note: By prioritizing five core elements of a decentralized COVID recovery, all of which are connected and mutually reinforcing, national governments can advance a decentralized sustainable redesign of society. Innovative financing and decentralized renewables also link to the decarbonization transition, while strengthening rural and urban linkages can support the circular economy.

Source: Authors.

Empowering subnational governments to drive climate action: By providing incentives, mandates, and access to financing for climate action at the subnational level, national governments could bridge the ambition gap left by insufficient NDCs (Hsu et al. 2019). Even amidst the pandemic, many cities are stepping up on climate action. In the United States, as of September 2020, 13 states, Puerto Rico, and 165 cities had committed to 100 percent clean energy, with varying target dates. Because of this, a full one-third of all Americans now live in a jurisdiction that will be powered by 100 percent clean energy in the future (America’s Pledge 2020). Globally, more than 338 cities and regions have committed to 100 percent renewables, more than 535 have committed to climate/carbon neutrality, and more than 86 have committed to divesting from fossil fuels (Zimmermann et al. 2020).

International networks like C40, Climate Alliance, Global Covenant of Mayors (GCoM), ICLEI—Local Governments for Sustainability (formerly International Council for Local Environmental Initiatives), United Cities and Local Governments (UCLG), and the Under2 Coalition are helping to coordinate and aggregate these kinds of subnational climate actions and commitments, but national governments can do much more to help states and cities achieve their full climate action potential. A few strategies include breaking down barriers to enacting subnational climate policies; making locally relevant climate data accessible; removing fossil fuel subsidies; financing green infrastructure in cities; sharing knowledge and capacity-building tools and providing technical assistance programs to subnational governments;

and incorporating subnational climate action into NDCs (CUT 2019; NCE 2018). Peru, for instance, is mainstreaming environmental considerations in subnational development plans and COVID-19 economic recovery plans in Cusco and Apurimac (Platform for Redesign). And Germany launched the City Climate Finance Gap Fund to unlock €4 billion of investments and ensure that cities recover from the pandemic while at the same time enhancing their climate resilience and retaining some of the benefits citizens have experienced from cleaner air and reduced pollution (Platform for Redesign).

Investing in and incentivizing decentralized renewable energy and energy-efficiency measures: Implementing decentralized renewables and energy efficiency measures can be driven by nonstate actors (businesses, nonprofits, etc.), but national governments have a role to play in investing in and incentivizing renewable and efficient infrastructure in cities, communities, and individual homes, as well as among electric utility companies. This requires an expansion beyond traditional centralized grid management to more participatory, localized energy governance and accountability structures (Brisbois 2020; Ginoya et al. 2021; Odarno 2020). Decentralizing renewable energy includes adding mini- and off-grid renewables to national electrification plans, streamlining regulatory requirements, adopting quality standards and accountability measures across multiple tiers of government, incentivizing small-scale investment, and working with civil society groups to adopt energy-efficient practices (BMZ et al. 2018). Improving people's access to renewable energy, especially in rural areas, can help to lift people out of poverty, improve health outcomes and air quality, and reduce GHG emissions. Australia has dedicated \$40 million of grants through the Energy Efficient Communities Program to help businesses and community organizations invest in energy-efficient practices and technologies and reduce their power bills (Platform for Redesign). Nigeria and Bangladesh have also introduced initiatives to finance individual solar home systems (Nyong et al. 2021; Islam 2020). Beyond decentralized renewables, national governments can further decarbonize in a decentralized way by investing in infrastructure for active transport (walking and biking), implementing building efficiency standards and dedicating resources for building retrofits, dedicating resources for public transit in and between cities, and subsidizing electric vehicle use and charging infrastructure. France, for instance, is dedicating €1.2 billion to improve cycling networks, expand railway transit in urban areas, and develop new public transit options like dedicated bus lanes in cities (Platform for Redesign).

Supporting inclusive planning at the local level: National-subnational cooperation that prioritizes inclusive planning is crucial to fighting climate change while protecting the most vulnerable and reducing unintended consequences of climate action (Mahendra et al. 2019). Central governments should recognize the importance of including subnational voices in decision-making processes and should serve as a hub for best practices across localities. This is especially important for adaptation work, which is often highly dependent on the local context (e.g. climate risks, vulnerability of infrastructure, economic activities, etc.) but has traditionally not been inclusive of community voices (Martin et al. 2018; Mfitumukiza et al. 2020). Resources like the Global Commission on Adaptation's Principles for Locally Led Adaptation can help to guide countries in adopting effective and equitable adaptation programs and practices that prioritize the needs of communities and enhance local capacity (GCA 2021). Countries like Mauritius and Peru have established programs to assess the climate vulnerability of different groups and regions with the goal of prioritizing and strengthening local adaptive capacity (Platform for Redesign). In Thailand, the Baan Mankong housing collective program serves as a model for inclusive planning. This program helps residents of informal settlements to survey and map their community and to develop plans for upgrading housing and infrastructure, with financing coming from the national government (King et al. 2017).

Implementing targeted, innovative financing to support subnational green redesign: The pandemic will have lasting economic effects on cities and rural areas alike, and national governments (often with the support of multilateral development banks [MDBs]) have an important role to play in directing finance to generate economic growth while reducing emissions and protecting vulnerable groups at the local level. This is especially important in Africa, where much of the climate finance sits at the national level and not enough is being directed to local entities. Some countries are building in funding for green initiatives at the local level. Ireland is directing €115 million of its national economic stimulus to local authorities to invest in sustainable mobility and the renewal of transport infrastructure in cities and

surrounding rural areas (Platform for Redesign). Through the NDC Partnership, Rwanda is laying the groundwork for local climate financing, including working with the Rwanda Private Sector Federation to develop new project ideas that will contribute to NDC implementation (NDC Partnership 2020d). And Australia has issued more than 44 million carbon credits as part of the Emissions Reduction Fund to incentivize rural landholders to invest in new technology and operations that reduce or sequester carbon, like revegetation and reforestation (Platform for Redesign).

Strengthening rural and urban linkages: Strengthening linkages between rural and urban areas is key to achieving positive long-term environmental, social, and economic outcomes (Sukhwani et al. 2019). But unmanaged urban expansion and the growth of peri-urban settlements has created great risks for environmental resources and biodiversity in nearby rural areas (Mahendra and Seto 2019). The COVID-19 pandemic has made things worse by disrupting food supply chains and leaving many rural migrant workers without work (Sietchiping et al. 2020). Fostering cooperation and partnerships between urban and rural entities can help to mitigate some of these risks and can lead to the more efficient circulation of natural, material, human, and financial resources (Sukhwani et al. 2019). When the city of Nagpur, India, began facing disruptions to rural-urban food supply chains because of COVID-19, the local government formed partnerships with local farmers to deliver food directly to homes and created a helpline number for vulnerable groups like the elderly (Sukhwani et al. 2020). This kind of short-term partnership can be critical for keeping rural-urban supply chains working during a crisis and can help to maintain food security. Long-term partnerships, like the Geelong Region Alliance (G21) in Australia—a formal alliance of government, business, and community organizations that works to promote rural-urban development and coordinate with the national-level Regional Development Australia initiative—can also help to bolster rural-urban linkages and protect regions against future shocks (OECD 2013). Additionally, nongovernmental organizations (NGOs) like Cities4Forests provide much-needed technical assistance and knowledge to local governments and facilitate peer-to-peer learning for cities to better manage, conserve, and restore forests and watersheds (which are important for both urban and rural health, well-being, and livelihoods) within and beyond urban boundaries (Cities4Forests 2021).

Conclusions

Countries have shown interest in linking their efforts to update and produce ambitious climate plans with the development of COVID-19 stimulus packages to make their recovery greener and more sustainable, and a number have taken concrete steps to do so. However, too many of them are missing the chance to advance decarbonization, foster a circular economy, and leverage subnational actions or are putting in place measures that run counter to these objectives. The Platform for Redesign 2020 is a good first start that facilitates sharing experience and spurs more cooperation, but far more is needed.

The three transitions described in this paper, if combined, can go a long way toward transforming our economies and society in a just, resilient, low-carbon, and sustainable way. They are mutually reinforcing and involve a whole-of-society approach, which can accelerate and sustain long-term changes across multiple economic and social sectors.

More research should be undertaken to identify effective ways to spur cooperation and mobilize and facilitate access to both public and private finance, technology transfer, and capacity-building. More analysis is needed to inform the significant scaling-up of decarbonization, circular economy, and decentralization efforts in a way that continues to ensure the transitions are just and equitable. Finally, robust tracking of the policies and investments that are made, and post assessment of their impacts, will help to inform future choices.

Appendix A

Analysis of the Platform for Redesign

Analysis of the Platform for Redesign

As of August 2021, the following countries had submitted written responses to the Platform for Redesign: Afghanistan, Armenia, Australia, Austria, Azerbaijan, Benin, Bhutan, Bosnia and Herzegovina, Brazil, Bulgaria, Cambodia, Canada, Chile, China, Colombia, Costa Rica, Cyprus, Denmark, Ecuador, El Salvador, Estonia, Eswatini, European Commission, Finland, France, Germany, Greece, Guatemala, Guinea, Indonesia, Iran, Ireland, Israel, Italy, Japan, Lao People’s Democratic Republic, Latvia, Lithuania, Luxembourg, Mauritania, Mauritius, Mexico, Morocco, Mozambique, Myanmar, Namibia, Nepal, the Netherlands, New Zealand, North Macedonia, Norway, Pakistan, Panama, Peru, the Philippines, Poland, Romania, Russia, San Marino, São Tomé and Príncipe, Singapore, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine, and the United Kingdom.

In addition, the following countries submitted video responses: Bangladesh, Burkina Faso, Gabon, Gambia, Marshall Islands, Mongolia, the Netherlands, Palestine, South Korea, and Thailand.

Circular Economy

To conduct the data analysis on the circular economy section, the research team compiled all the policies in the “D1. Waste Management and Circular Economy/Sustainable Production and Consumption” category that had been submitted to the Platform for Redesign 2020 by August 2021. We supplemented this existing categorization with a keyword search to identify relevant policies from other categories, using the following search terms: circular, waste, resource effici*, reuse, repair, cycle*, and material effici* (no result). We removed duplicates and policies that dealt exclusively with the safe disposal of medical waste related to COVID-19 (with no circular component). We then categorized the policies based on the team’s assessment of where they fell into the following categories: reduce (including production of biomass, and resource efficiency), reuse (including repair), recycle (including waste-to-energy, wastewater treatment and waste management not otherwise specified), and general circular economy (which included measures such as economy-wide activity or planning, capacity-building, international cooperation, financing, and stakeholder engagement). In the end, we identified circular economy-related policies from 44 countries. We also categorized based on World Bank classifications of region and income level, but determined that findings from these categorizations would be biased because the Platform for Redesign 2020 did not include entries from a globally representative sample of countries.

Decentralization

The Platform for Redesign provides a basis to begin tracking the various coordinated, decentralized approaches that countries are taking to their COVID-19 sustainable response, recovery, and redesign. Leading examples of coordinated, decentralized approaches to sustainable COVID-19 redesign come primarily from higher-income countries, including Australia, France, Germany, Ireland, and Japan. This is not to say that lower-income countries in the global South are not taking a green, decentralized approach to COVID-19 redesign, but much of the information on measures was either not readily available on the Platform or was not detailed enough to understand the long-term impact or implementation plan. In general, the countries that have submitted detailed decentralization measures have several characteristics in common: strong democratic institutions, active and influential subnational governments, and national-level commitments made to climate mitigation and adaptation.

One challenge that arose in our analysis was that there was no explicit way to categorize these decentralization measures, as the platform does not mention or define “decentralization,” and only one country submitted a measure that explicitly mentioned the term “decentralization.” In our analysis, we used search terms that were relevant to the concept of decentralization, such as “city,” “rural,” and “subnational,” to better understand how countries were adopting decentralized approaches to COVID-19 recovery and redesign. So far, 52 countries have submitted measures related to decentralization on the Platform for Redesign.

- 1 country submitted a measure mentioning “decentralization.”
- 48 countries submitted measures mentioning “city/cities.”
- 4 countries submitted measures mentioning “subnational.”
- 21 countries submitted measures mentioning “rural.”

Going forward, the Platform for Redesign should include a category that specifically mentions “decentralization,” along with a clear definition, so that countries are prompted to include more details of decentralization-related COVID-19 redesign measures. Measuring the effectiveness of these approaches over the long term will be important for sharing best practices and recommendations for countries looking to create a more decentralized and resilient society.

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Endnotes

- 1: Platform for Redesign 2020 showcases policies and actions taken by national governments toward a sustainable and resilient recovery from COVID-19; for more information, see <https://platform2020redesign.org/>.
- 2: Andorra, Argentina, Austria, Barbados, Bhutan, Brazil, Canada, Cape Verde, Chile, China, Costa Rica, Denmark, the Dominican Republic, the European Union, Fiji, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Jamaica, Japan, Kazakhstan, Laos People's Democratic Republic, Latvia, Luxembourg, Malawi, Maldives, Marshall Islands, Mauritius, Monaco, Namibia, Nauru, Nepal, New Zealand, Panama, Portugal, the Seychelles, Singapore, Slovakia, Slovenia, Solomon Islands, South Korea, Spain, Sri Lanka, Sweden, Switzerland, the United Kingdom, United States, and Uruguay.
- 3: Australia, Belgium, Costa Rica, Denmark, Fiji, France, Germany, Hungary, Indonesia, Latvia, Marshall Islands, Portugal, Slovakia, Slovenia, South Korea, Spain, Sweden, and Switzerland
- 4: Resource extraction and processing up for "ready-to-use" materials and fuels (including waste disposal processes in the extraction and processing phase).

Working Paper

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