

COVID-19

BCG Perspectives

Facts, scenarios, and actions for leaders

Accelerating Climate Actions in the New Reality

Version: 22 June 2020

COVID-19 BCG Perspectives

Objectives of this document

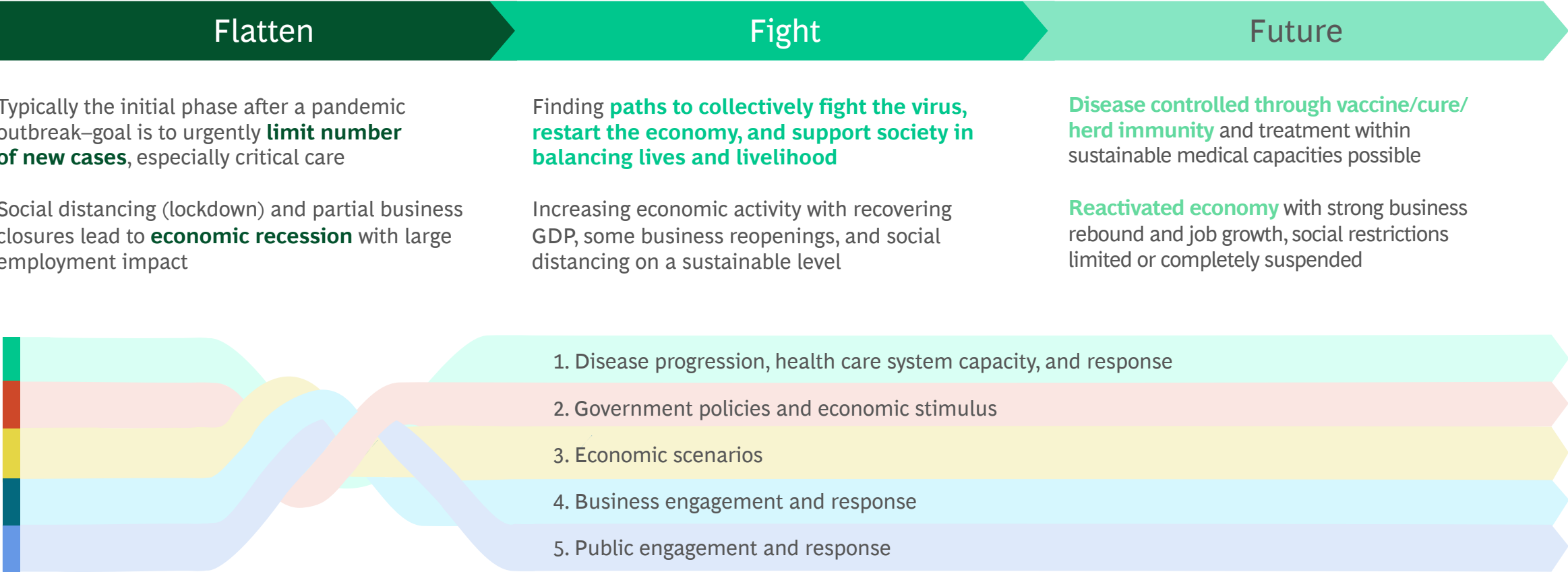
COVID-19 is a global societal crisis

We at BCG believe that the COVID-19 outbreak is first and foremost a societal crisis, threatening lives and the well-being of our global community. Society now, more than ever, needs to collaborate to protect people's lives and health, manage mid-term implications, and search for lasting solutions.

Leaders need to drive an integrated response to navigate the crisis

It is the duty of health, political, societal, and business leaders to navigate through this crisis. A complex interplay of epidemic progression, medical response, government action, sector impact, and company action is playing out. This document intends to help leaders find answers and shape opinions to navigate the crisis in their own environments. It encourages thinking across the multiple time horizons over which we see the crisis manifesting itself.

COVID-19 will be a journey with three distinct phases, requiring an integrated perspective



All of the above five factors result in specific economic and social outcomes in each phase

Executive Summary | COVID-19 BCG Perspectives

COVID-19 crisis provides a unique opportunity to governments and business leaders to accelerate climate actions and build a green recovery

- COVID-19 is expected to drive a ~5-10% drop in CO₂ emissions in 2020; however, this drop is very small compared with the required change in trajectory
- Annual investment of 1-3% of global GDP is required across countries to meet emission targets for a sustainable 2°C path
- Current stimulus packages to overcome the COVID-19 crisis add up to about \$11T globally; less than 5% of the commitments are “green” measures
- Governments should focus on five action areas to scale the green recovery: prioritizing sustainability in stimulus strategies, creating green job opportunities, preparing for job transitions, leveraging blended finance, and rebooting multi-lateralism
- Business leaders and investors can support the green recovery by focusing on reducing cost by reducing carbon, scrutinizing supply chains, increasing resilience to climate risks, actively financing the green recovery, and integrating climate into the investment process

Across countries, efforts to flatten the curve continue; severe global economic downturn expected for 2020

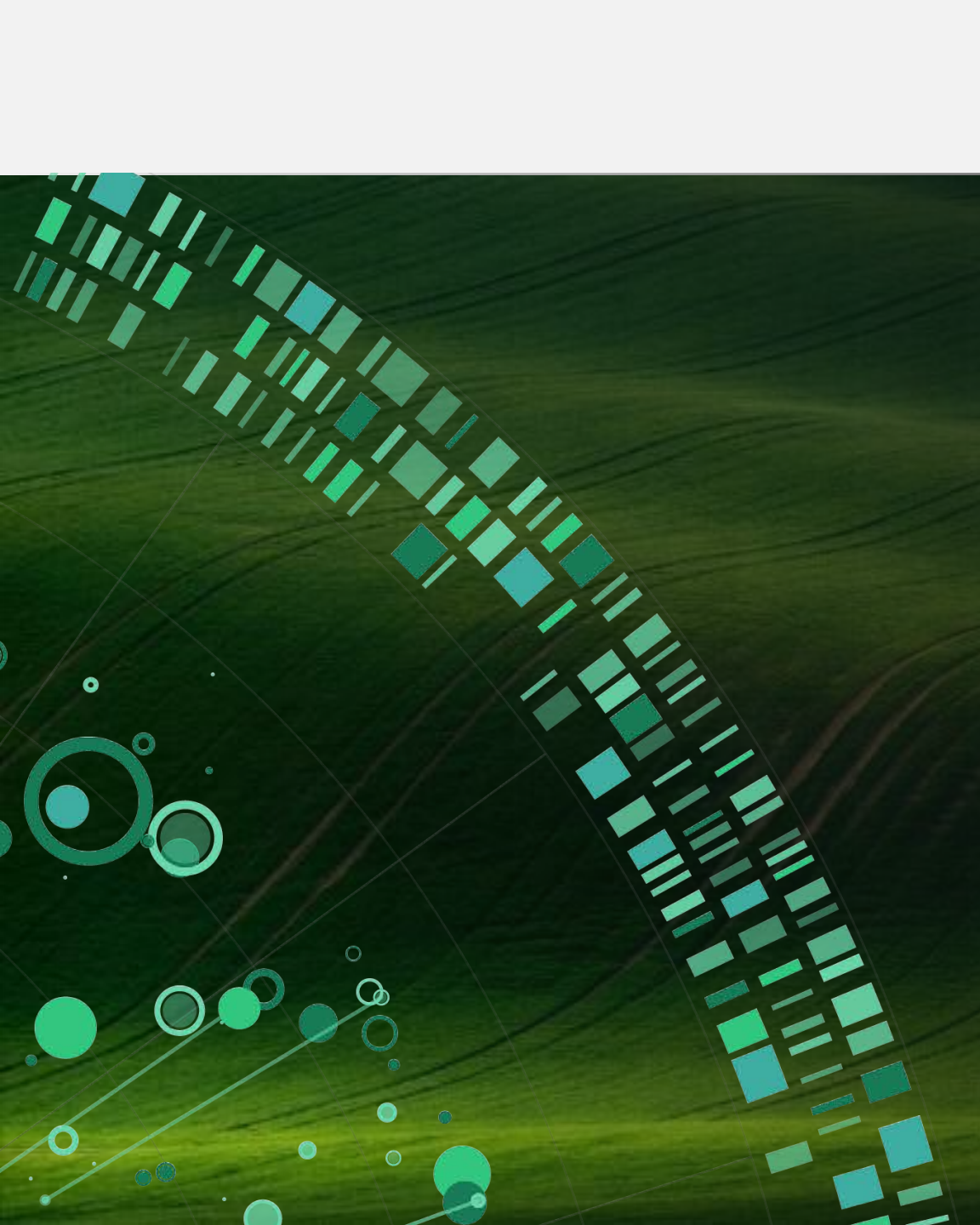
- Globally, 4.2 million patients have recovered from COVID-19; the growth rate of daily new cases is about 2%¹
- Increase in daily new cases is currently propelled by South America, Asia, and Africa
- Vaccine and therapeutics development continues to move at unprecedented pace; 12 vaccine candidates currently in phases I, II and III
- Latest economic forecasts from World Bank point to a 5.2% decline in global GDP in 2020; expected to rebound to 4.2% growth in 2021
- Only pharma and semiconductors currently at pre-crisis TSR² levels; 7 (out of 24) sectors with significant share³ of companies with >15% default risk
- Investors want companies to prioritize ESG⁴ agenda; net flow in ESG-focused mutual funds and ETFs⁵ higher than traditional funds

We believe during this crisis leaders need to think along two dimensions:

Taking an integrated perspective on health/medical progression, governmental responses, societal reactions, and economic implications to understand business/sector impacts

Thinking multi-timescale in a Flatten-Fight-Future logic

1. Daily new case growth rate is calculated based on 7-day rolling average; 2. Total Shareholder Return; compared with 21 Feb 2020; 3. Retailing, Materials, Transport, Auto, Real Estate, Energy, Hospitality with > 10% of companies with probability of default > 15% as of 18 June 2020; based on top S&P Global 1200 companies; sectors based on GICS definitions; 4. Environmental, Social, and Governance; 5. Exchange-Traded Funds. 3
Source: BCG



Guide for leaders

Impact of COVID-19 on climate

Call to action for a green recovery

Updated analyses and impact

Epidemic progression and virus monitoring

Economic, business, and climate impact

COVID-19 Impact dashboard

As of 18 June 2020

Epidemic Progression

8.5M

of cases

4.2M

of recoveries

454K

of fatalities

Growth rate¹ of daily new cases

0.9%

1.7%

of days of case doubling²

39

39

of reported recoveries as % of total cases

47%

49%

of tests / case³

18

18

of tests / million³

54K

58K

Trials in pre-clinical stage and beyond⁴

167

137

Trials in Phase 1 and beyond⁵

12

57

Current est. timeline for approval & scale-up

9-33 months⁶

6-21 months⁷

Economic Impact

GDP forecasts (%)

World Bank (8 June)

Banks⁸

2020

-10 -8 -6 -4 -2 0 2 4 6 8 10

Europe

-9.1% Baseline 1.0%⁹

US

-6.1% 1.8%

Japan

-6.1% 0.7%

China

1.0% 5.9%

India

-3.2% 5.8%

Estimated employment impact

	Total employment 2019 (M)	Employees impacted ¹⁰ (M)	% of employees impacted
US	159	46	29%
UK	33	11	32%
Germany	45	12	26%
France	28	13	48%
Italy	23	8	35%
Spain	20	4	22%

Business Impact

Stock market performance¹¹

20 Mar vs 21 Feb

-31%

-28%

-30%

-34%

-10%

18 June vs 21 Feb

-7%

4%

-16%

-10%

-3%

S&P500 NASDAQ FTSE100 DAX CHN SSE

Total Shareholder Returns (S&P1200)¹¹

First column: 21 Feb to 20 Mar; Second column: 21 Feb to 18 June

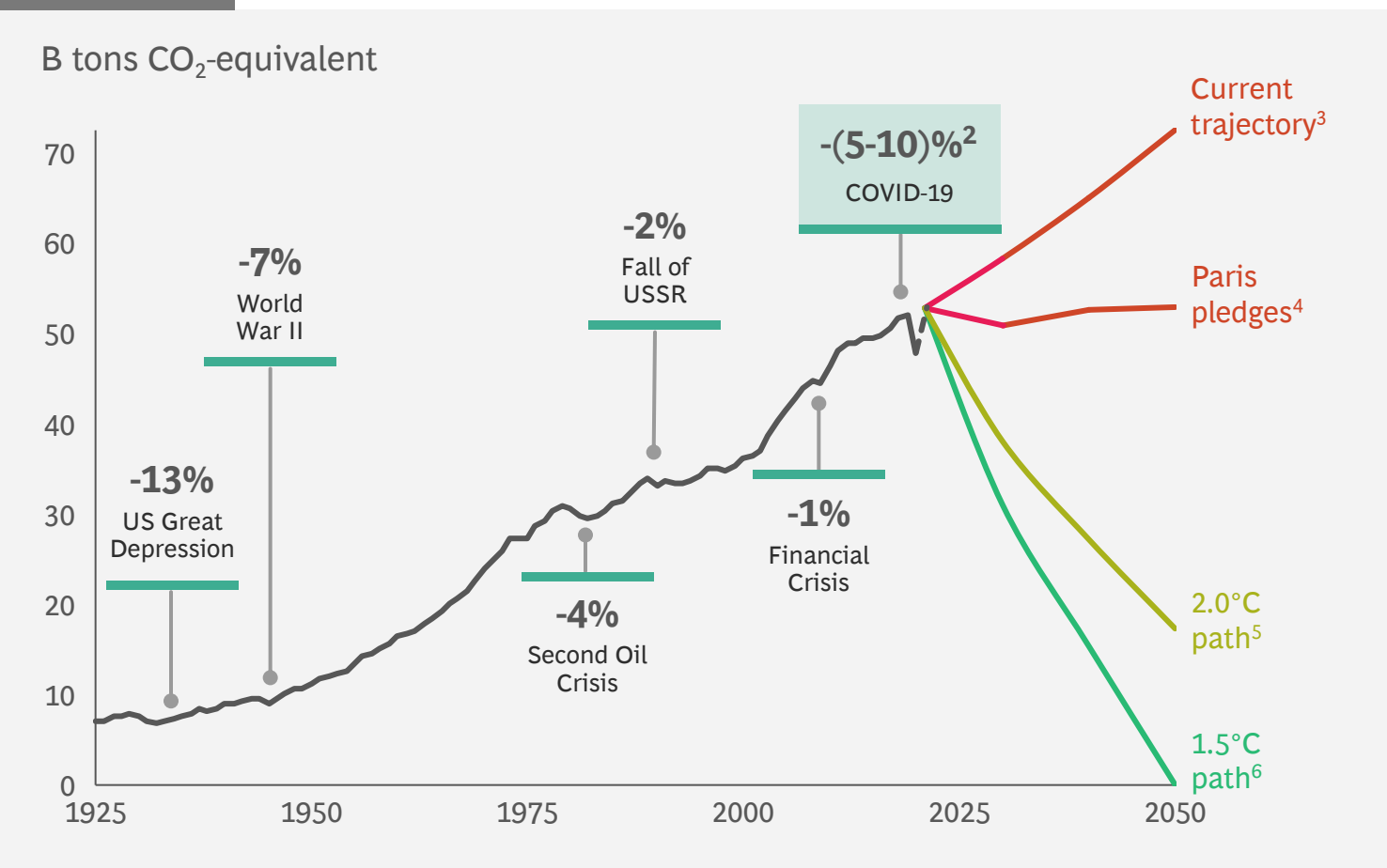
	Americas		Europe		Asia	
Pharma	-19%	3%	-20%	-1%	-22%	8%
F&B ¹²	-26%	-7%	-24%	-11%	-12%	-2%
Telecom	-17%	-10%	-20%	-18%	-14%	-6%
Software	-30%	-1%	-32%	-9%	-28%	0%
Retail	-42%	-7%	-36%	-13%	-24%	12%
Capital goods	-38%	-13%	-35%	-15%	-29%	-5%
Auto	-47%	-20%	-45%	-19%	-32%	-13%
Real Estate	-42%	-26%	-26%	-26%	-22%	-12%
Energy	-56%	-28%	-45%	-29%	-41%	-23%
Banks	-41%	-25%	-44%	-35%	-26%	-13%

1. Growth rate calculated basis rolling 7-day rolling average of new cases; 2. No. of doubling days based on 7-day average growth rate of total cases; 3. Median of values for top 15 countries by nominal GDP (except China); 4. Ongoing trials including pre-clinical, Phase 1 (first trial in humans), Phase 2, Phase 3, Phase 4; 5. Ongoing trials including Phase 1 (first trial in humans), Phase 2, Phase 3, Phase 4; 6. 9-month development current "best case" for first supply (12 months since Apr 2020), then likely to require time for scale-up and continuing to prepare for populations; 7. Remdesivir is approved now, could be more widely available by Jul-Sep 2020. For the next wave, estimated timeline is Oct '20 - April '22 (6-21 months). If first round of drugs being tested succeeds - then 6-9 months; if not - substantially longer; 8. For India, forecast is for financial year; for others, it is for calendar year; YoY forecasts; range from forecasts (where available) of World Bank, International Monetary Fund, JP Morgan Chase; Goldman Sachs; Morgan Stanley; Bank of America; Fitch Solutions; Credit Suisse; Danske Bank; ING Group; HSBC; As of reports dated 12 April 2020 to 18 June 2020; 9. World Bank January 2020 forecast; 10. Available cumulative data as of 18 June 2020 from mid-March 2020; includes increase in unemployment & employees covered by gov. wage support programs; US: unemployment insurance claims (data as of 13 June); UK no self-employment (data as of April) and Italy (data as of April) active & inactive unemployment; Germany: short-time work requests, may not actually utilized (data as of May); France: (data as of June); Spain: (data as of May); figures are changing rapidly and often being reported with a lag from the current date; 11. Sectors are based on Global Industry Classification Standard (GICS) definitions; Performance is tracked for two periods, first from 21 February 2020 (before international acceleration of outbreak) to 20 March 2020 (trough of the market) and from 21 February 2020 through 18 June 2020; 12. Food & Beverage. Source: WHO, World Bank, JHU CSSE, Our World in Data, IMF, Bloomberg, BCG, Eurostat (Europe), Gov't Wage Support & Unemployment figures & comments: UK Gov't 5/12, Bloomberg 6/16 (UK), ISTAT 4/30 & FitchRatings 5/18 (Italy), U.S. Department of Labor 5/21 (US), Ministério de Trabalho 6/2 (Spain), Ministère du Travail 6/5 (France), Arbeitsagentur 6/3 (Germany).

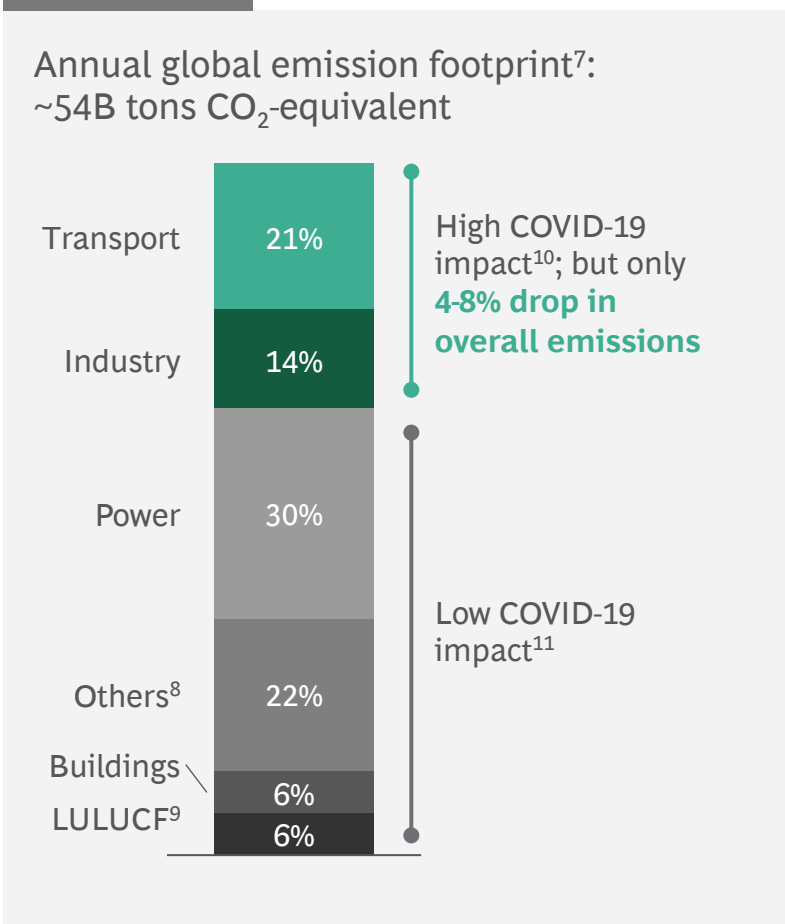
COVID-19 impact has led to largest drop of emissions since World War II; however, it's still small compared with overall global emissions

As of 19 May 2020

5-10% drop in greenhouse gas emissions¹, largest since World War II...



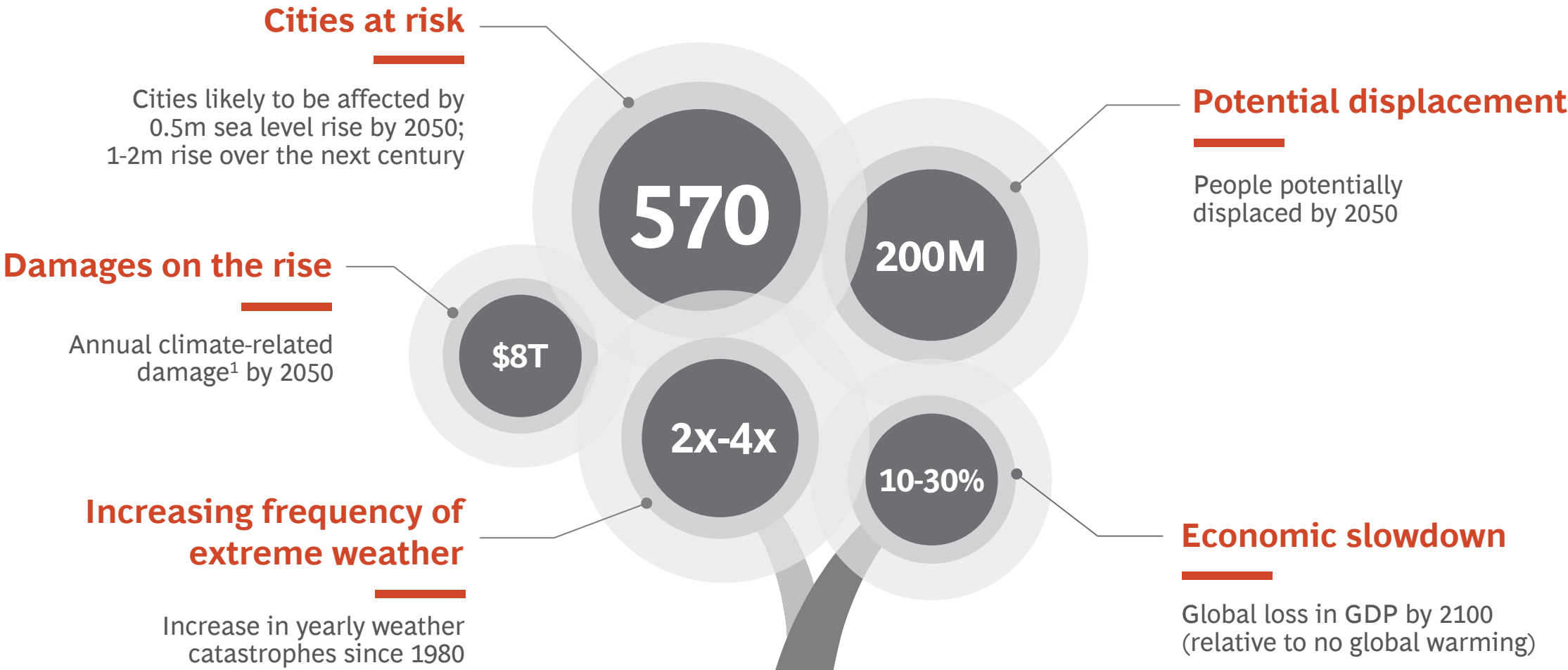
...but the overall impact is still small



1. Excluding Land Use, Land Use Change and Forestry (LULUCF); 2. Estimated annualized impact in 2020; 3. Assumes GHG emissions grow from 2018 at same rate as the Current Policies scenario in UNEP 2019 Gap report to 2050 (1.1% CAGR); 4. Assumes countries decarbonize further at same annual rate that was required to achieve INDCs between 2020 & 2030; 5. Assumes 25% reduction by 2030 and net-zero by 2070; 6. Assumes 45% reduction by 2030 and net-zero by 2050; 7. 2015-19 average; 8. Waste, Agriculture and Fugitive; 9. Land Use, Land Use Change, and Forestry; 10. 36% emissions decline from transport & 20% decline from industry until Apr 2020; 11. Resulting in 0-2% drop in overall emissions; Source: EDGAR 5.0, FAO, PRIMAP-hist v2.1, Global Carbon Project, IPCC, UNEP Emissions Gap Report, WRI, Nature – May 2020, BCG.

Unchecked climate change continues to pose a catastrophic economic and physical threat to society

As of 18 June 2020



1. Damage by increased drought, flooding & crop failures will hamper growth & threaten infrastructure
Source: The Economist - Aug 2017; The Guardian - Apr 2016; NBER - Aug 2019; Scientific - Dec 2012, EIU; PNAS - Jun 2019; MunichRe - Feb 2020; Climate Central - Oct 2019; C40 Cities - Jan 2020

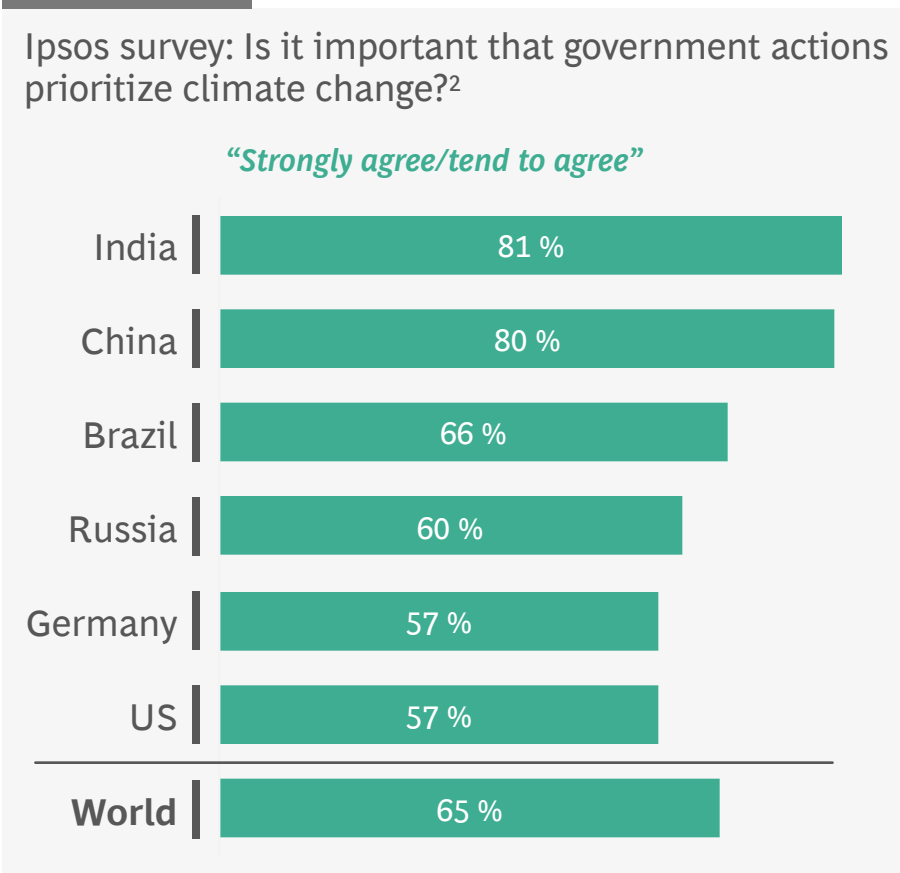
Governments need to make significant investments to meet emission targets; strong global public support for climate actions visible

As of 20 April 2020

Imperative for governments to push required investments

	2050 Greenhouse gas emissions (B tons CO ₂ -equivalent p.a.)		Required investment ¹ (% of GDP p.a.)
	Paris pledges	2°C path	2°C path
India	7.3	→ 3.8	1.5-2%
China	13.3	→ 3.7	1.5-2%
Brazil	1.2	→ 0.5	1.5-2%
Russia	2.2	→ 0.5	≥ 4%
Germany	0.5	→ 0.06	1-1.5%
US	5.6	→ 1.3	1-1.5%
World	50.0	17.3	1-3%

Strong public support for climate actions visible



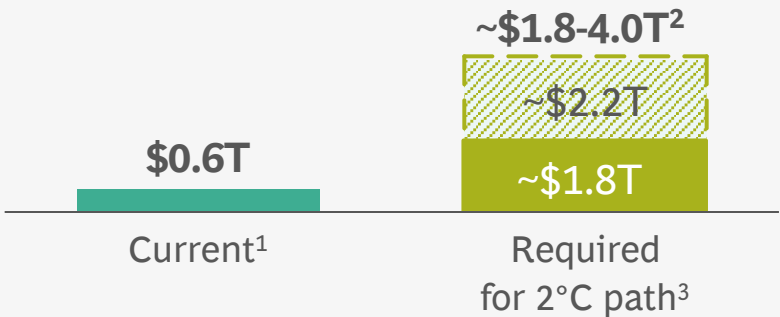
1. Investment depends on current emission volume & sector mix, ambition, GDP; investment to reach Paris pledges not included, but small in comparison 2. Survey results, April 2020; Full question: To what extent do you agree or disagree with the following: In the economic recovery after COVID-19, it is important that government actions prioritize climate change?; n = 500 to 1,000 per country; total of 28,039 online respondents aged 16–74; fieldwork dates 17-19 April 2020. Source: Ipsos MORI, World Bank; BCG

As stimulus measures continue to unfold, imperative for government leaders to push the green ambition further

As of 18 June 2020

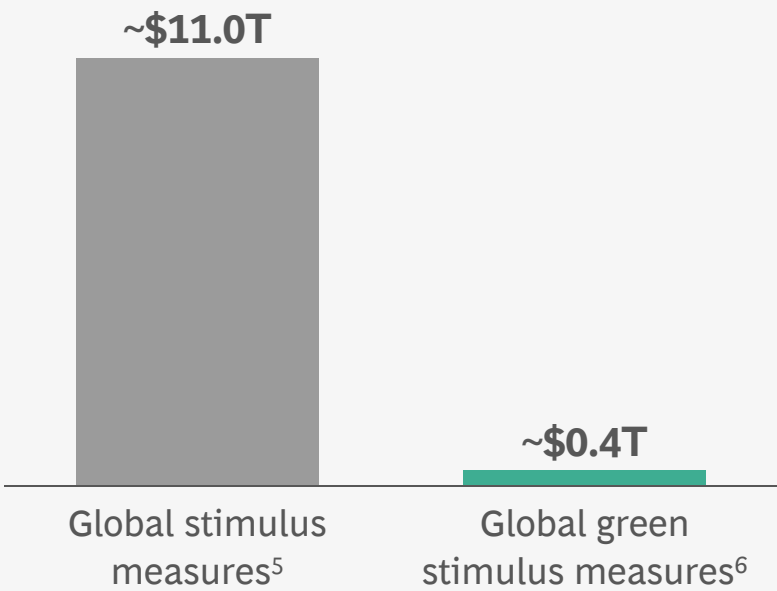
Current global annual green investments well below requirements to reach 2.0°C path

Current annual global government & corporate investments



As stimulus measures unfold, further potential⁴ to push green ambition

Current global stimulus package⁵ (G20) & green stimulus allocation



1. Average for year 2017-18; 2. Includes both adaptation (adjusting to the expected effects of climate change) and mitigation (reducing emissions); 3. Through 2050, year-on-year adjusted for inflation; 4. 'Potential' is defined as design of the stimulus package to allocate more share to green measures & further tranches of stimulus; 5. Data is represented for G20 countries, excl. India; EU figures still pending member state approval; 6. 'Green stimulus' defined as direct investments that also serve a strong environmental purpose; green stimulus countries include Canada, US, Australia, Germany, Italy, France, UK, European Union, China, South Korea; green stimulus measures are in addition to current annual investment shown on left-hand side. Source: The Climate Policy Initiative (CPI), IPCC, GCA, Vivid economics, BCG

Leaders have started to initiate actions to build green recovery into their COVID-19 response

As of 18 June 2020

The Korea Times

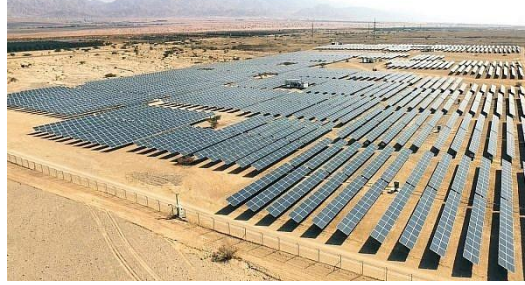
2020-05-21



South Korea: Moon pledges to safeguard jobs, industries with “Green New Deal”

THE TIMES OF ISRAEL

1 June 2020



With \$22 billion plan, Israel ups 2030 renewable energy target from 17% to 30%

SB
SUSTAINABLE
BRANDS

May 21, 2020



At LEAD on Climate 2020, 300+ Business leaders tell congress: we can build back better

The Sydney Morning Herald

June 8, 2020



Large global investor to begin abandoning companies heavily invested in thermal coal

BusinessGreen

04 June 2020



Green recovery: Germany unveils plan for €40B climate spending surge

The World News Monitor

Jun 5, 2020



India's IREDA has set aside ₹100B for renewable energy projects in 2020

Bloomberg

June 5, 2020



Investors With \$12 Trillion Call for Green EU Recovery Plan

UN News

19 May 2020



Post-pandemic “green shift” in transport could create up to 15 million jobs worldwide

Priorities for key stakeholders to achieve the green ambition

A Governments

- 01** Prioritize sustainability in stimulus strategy
- 02** Focus on green job creation opportunities
- 03** Prepare for job transitions
- 04** Leverage blended finance
- 05** Reboot multi-lateralism

B Business leaders & investors

- 01** Reduce cost by reducing carbon
- 02** Scrutinize supply chains
- 03** Increase resilience to climate risk
- 04** Finance the green recovery
- 05** Integrate climate into investment process

Governments | Five priorities to scale a green recovery

A

01

Prioritize sustainability in stimulus strategy



Focus on both decarbonizing existing sectors and funding green growth sectors

Weave in green strings in stimulus packages (e.g., climate disclosure standards, sustainability targets)

02

Focus on green job creation opportunities



Prioritize green recovery investments and programs by job creation potential

Balance measures that address both mitigation and adaptation

03

Prepare for job transitions

Prepare to manage a 'just transition' of the workforce towards a zero carbon economy

Recognize that some sectors would have radically changed once economies restart¹; actively drive reskilling

04

Leverage blended finance

Combine public and private funding to alleviate constraints

Set up project-capital-matching platforms²

05

Reboot multi-lateralism

Drive a coordinated climate response globally; ensure equitable resourcing

Focus on global public goods³



Deep-dive on following pages

1. Once economies restart, millions of people will go back to work - some into sectors that have been radically changed, e.g., lower carbon sectors growing and some high carbon sectors shrinking; 2. For example, trusted 3rd parties who help match demand for capital to supply through aggregating and screening climate projects; 3. Protecting natural carbon sinks such as forest, joint investments in promising emerging decarbonization technologies, cooperation and support in areas such as funding and technical capacity; Source: BCG

Prioritize sustainability in stimulus strategy | Need to incentivize decarbonizing existing sectors and promising new green technologies

A1

As of 18 June 2020

Existing sectors: Canada intertwined support to oil & gas industry with sustainability ambitions

\$750M

Emission Reduction Fund ('ERF') set up to support workers and reduce emissions in the oil & gas sector

\$1.7B

Cleanup of orphan & inactive oil & gas wells; grants for environmental site assessment, remediation and reclamation

**2050
Net zero**

Large companies receiving federal loans must report how they are contributing to Canada's goal of **net zero** by **2050**

New technologies: Germany allocated part of stimulus to promising hydrogen technology

€9B

€7B allocated to **national hydrogen strategy** for cutting emissions; €2B additional funding for **foreign trade partnerships**

10GW

Industrial scale **electrolyzers capacity** by **2040**; additional on- & offshore **wind expansion** to supply new electrolyzers

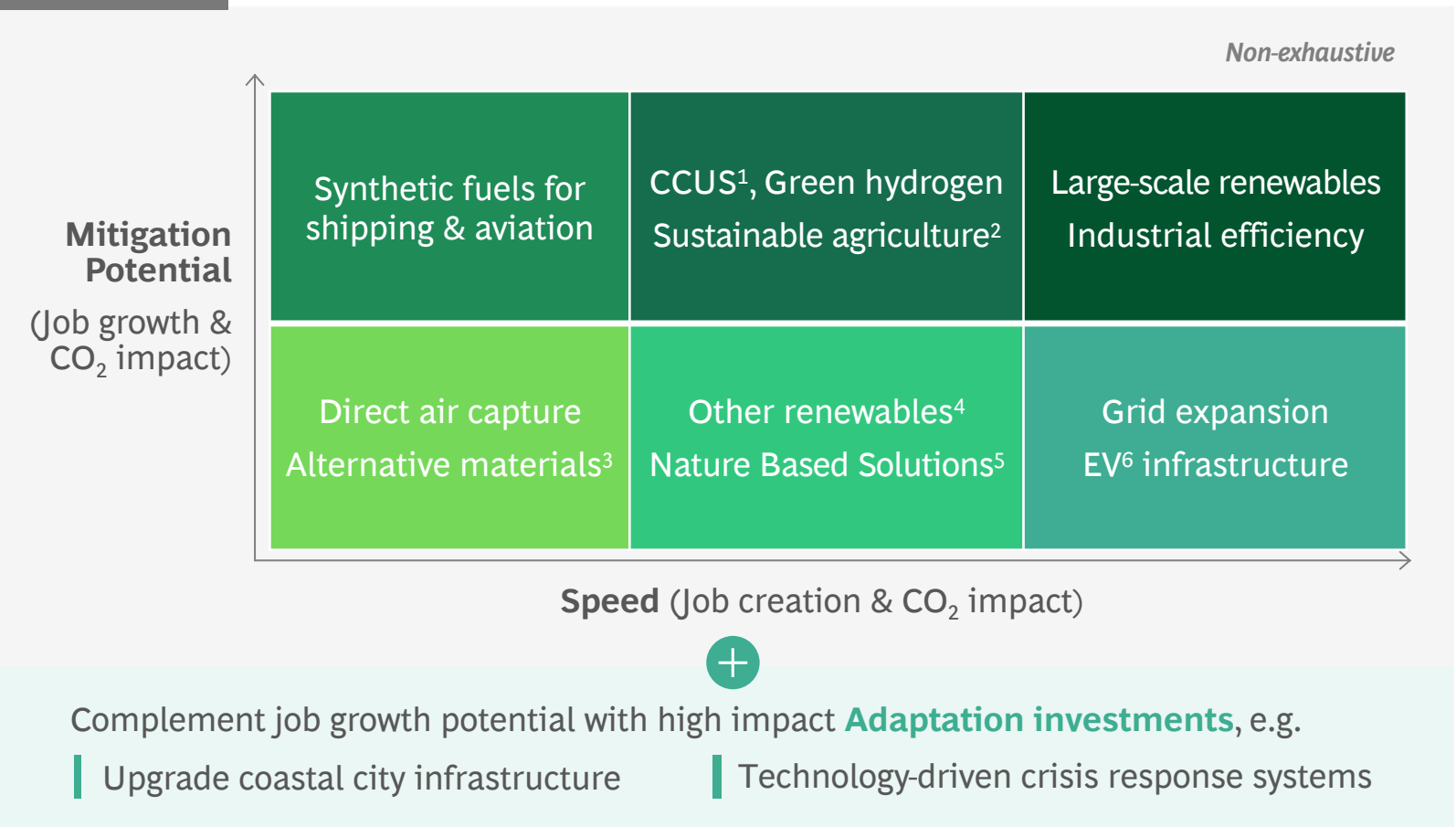
**Hydrogen
subsidies**

Dedicated policy instruments such as subsidies for 'H2-ready' CHP¹ plants, carbon contracts & EEG² levies

1. Combined Heat & Power; 2. ErneuerbareEnergienGesetz i.e., Feed-in Tariffs for Renewable Energy
Source: Neue Zürcher Zeitung, DW, Euractiv, Forbes, BCG

Focus on green job creation opportunities | Multiple sectors can be re-shaped to drive long-term 'greening' of the economy

Multiple climate opportunities exist to boost growth in jobs



1. Carbon Capture, Utilization, and Storage; 2. Based on leveraging technology to improve traditional levers such as irrigation, fertilizer use, crop rotation, pest control, storage etc.; 3. Alternative building materials; 4. E.g., biomass, biogas, small scale solar/ wind projects; 5. Includes supporting afforestation & reforestation measures, wetland restoration, etc.; 6. Electric vehicle; 7. Global Financial Crisis; 8. American Recovery & Reinvestment Act; 9. Renewable Generation, Energy Efficiency, Transit, Grid Modernization, Advanced Vehicles & Fuels, Carbon Capture; 10. A full-time job for one person for a year (between 2009 and 2015)
Source: US Executive Office - A Retrospective Assessment Of Clean Energy Investments In The Recovery Act, US Bureau of Labor Statistics, BCG

Example

Post GFC⁷, 2009 Recovery Act⁸ in the US led to clean energy job uptick

Law aimed at investment in economic future & macroeconomic recovery

\$90B invested in clean energy⁹ and related technologies led to job uptick

~900K

New job-years¹⁰ in clean energy⁹

~15%

Clean jobs as % of new jobs¹⁰

Business Leaders and Investors | Five priorities to support a green recovery

B

01

Reduce cost by reducing carbon



Expedite energy efficiency programs & switch to renewable energy to realize significant savings

With restart, actively look at ways of working to reduce carbon footprint

02

Scrutinize supply chains



Create transparency into supplier emissions and introduce CO₂ into procurement & supply chain reconfiguration decisions

Commit suppliers to rigorous efficiency and emission reduction targets

03

Increase resilience to climate risk

Decarbonize portfolios and build resilience to the physical, regulatory, and demand risks induced by global warming

Drive improvements in ESG¹ performance, which investors are increasingly rewarding²

04

Finance the green recovery

Apply a lens of climate-related risks & opportunities when financing COVID-19 recovery efforts³

Scale investments in climate-related portfolios

05

Integrate climate into investment process

Emphasize importance of climate in investment allocation and stewardship activities

Push adoption of climate-related disclosures (e.g. standardized ESG¹ reporting); integrate climate risks into credit models



Priorities for Business Leaders



Deep-dive on following pages



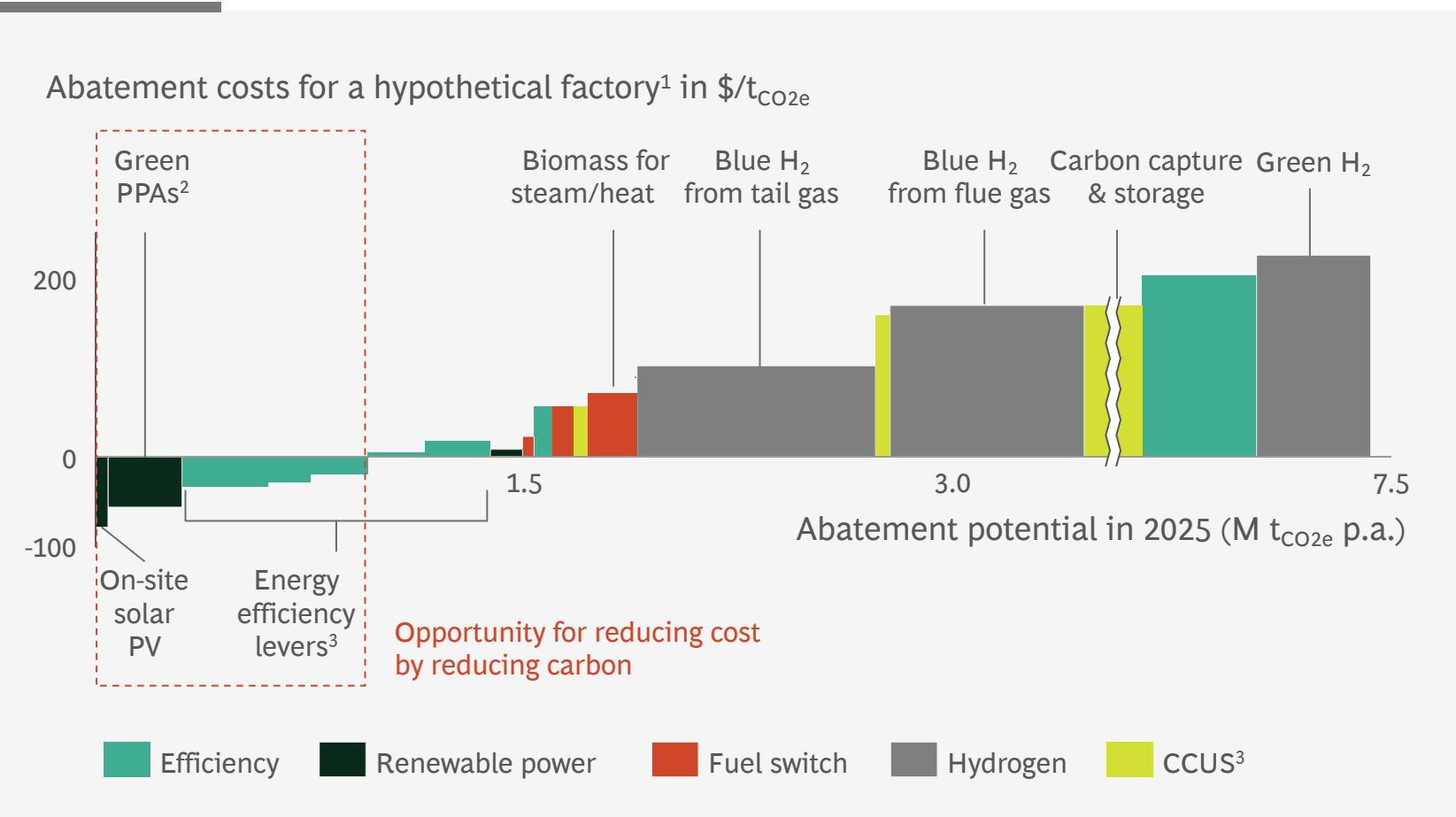
Priorities for Investors

1. Environmental, Social, and Governance; 2. ESG exchange-traded funds have fared significantly better during the crisis so far; 3. Investors can bring a green lens when supporting economies to restart and rebuild after CoVID-19 – through green bonds and other instruments Source: BCG

Reduce cost by reducing carbon | Expediting efficiency and renewable energy programs provides a good starting point for emission abatement

B1

Abatement costs & potential trade-off



1. Represents an average size factory in cement/steel/refining/chemical industry; 2. Power Purchase Agreements; 3. Carbon Capture, Utilization & Storage; 4. Compared to baseline year 2019
Source: BCG

Example

Oil & Gas company implemented emission reduction programs

Evaluated 200+ existing and new technologies for decarbonization

Developed concrete CO₂ reduction opportunities for individual refineries

~25%

Reduction in emissions targeted by 2025⁴

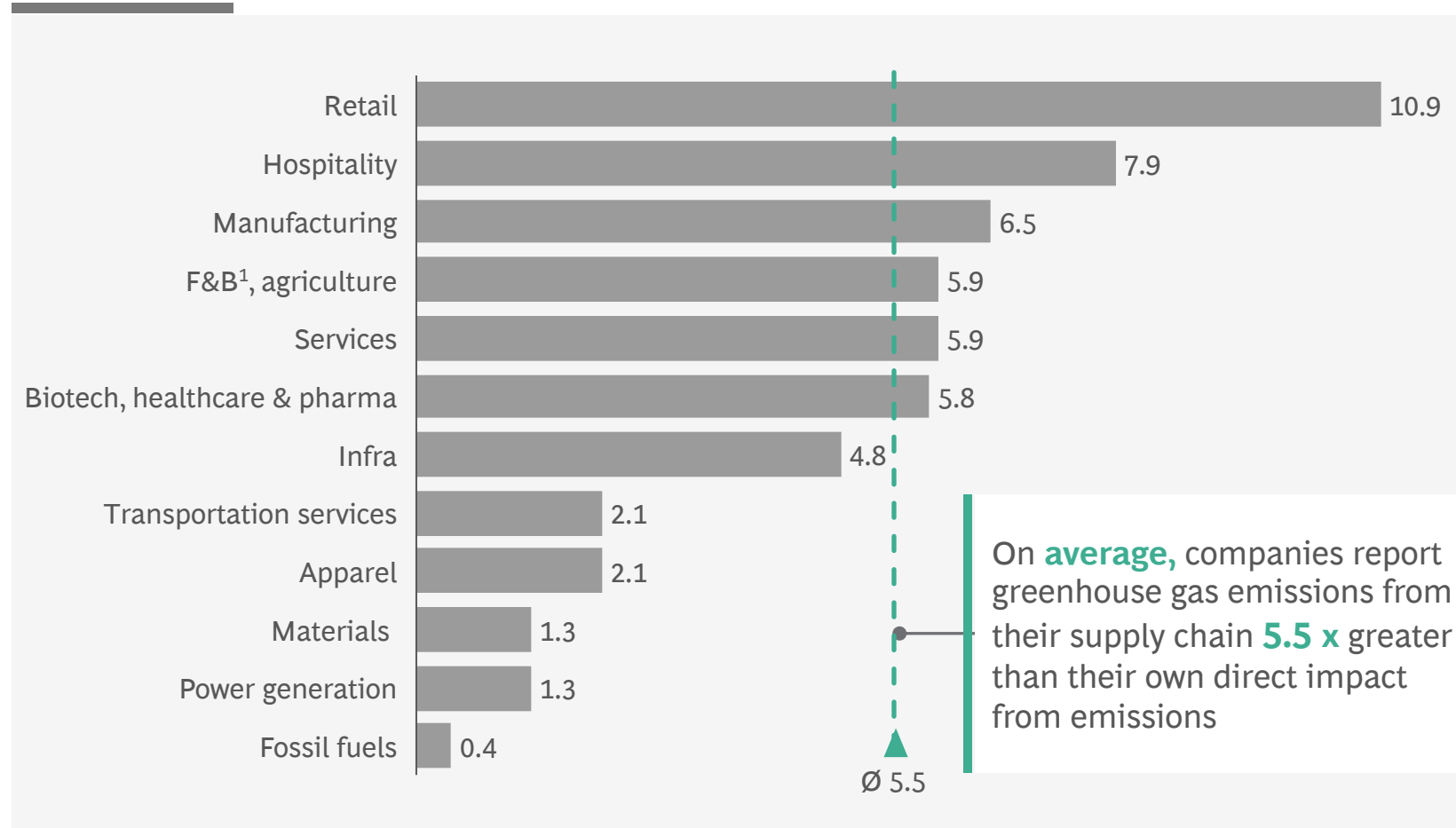
\$1B+

Investment planned for CO₂ reduction initiatives

Scrutinize supply chains | Critical for companies to drive transparency into supplier emissions and introduce CO₂ into procurement decisions

B2

Ratio of supply chain emissions to own direct emissions



Example

Global automotive mfg. supported suppliers² to drive transparency

Created centralized reporting on emissions

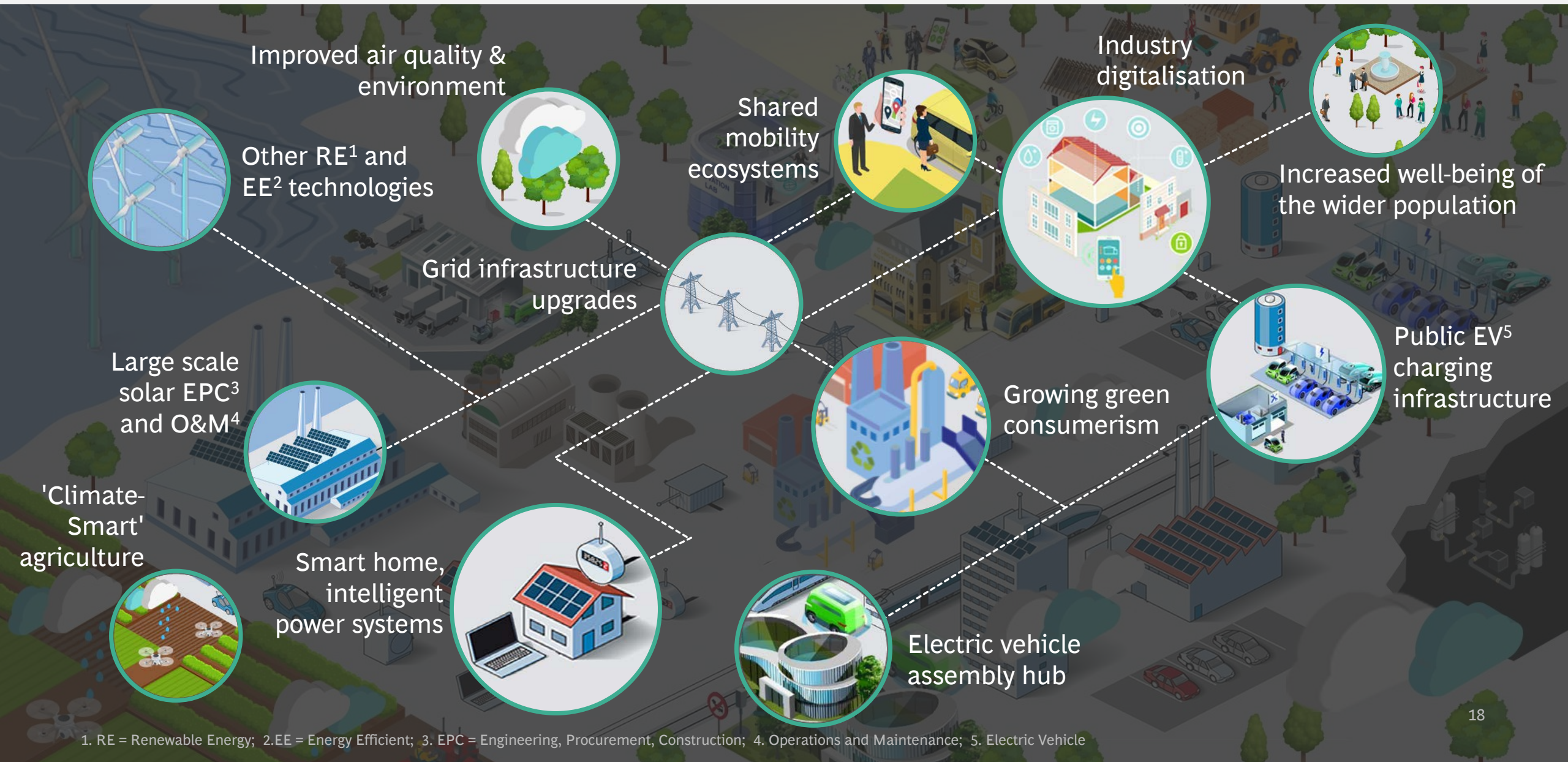
Increased transparency on share of renewables in energy consumption

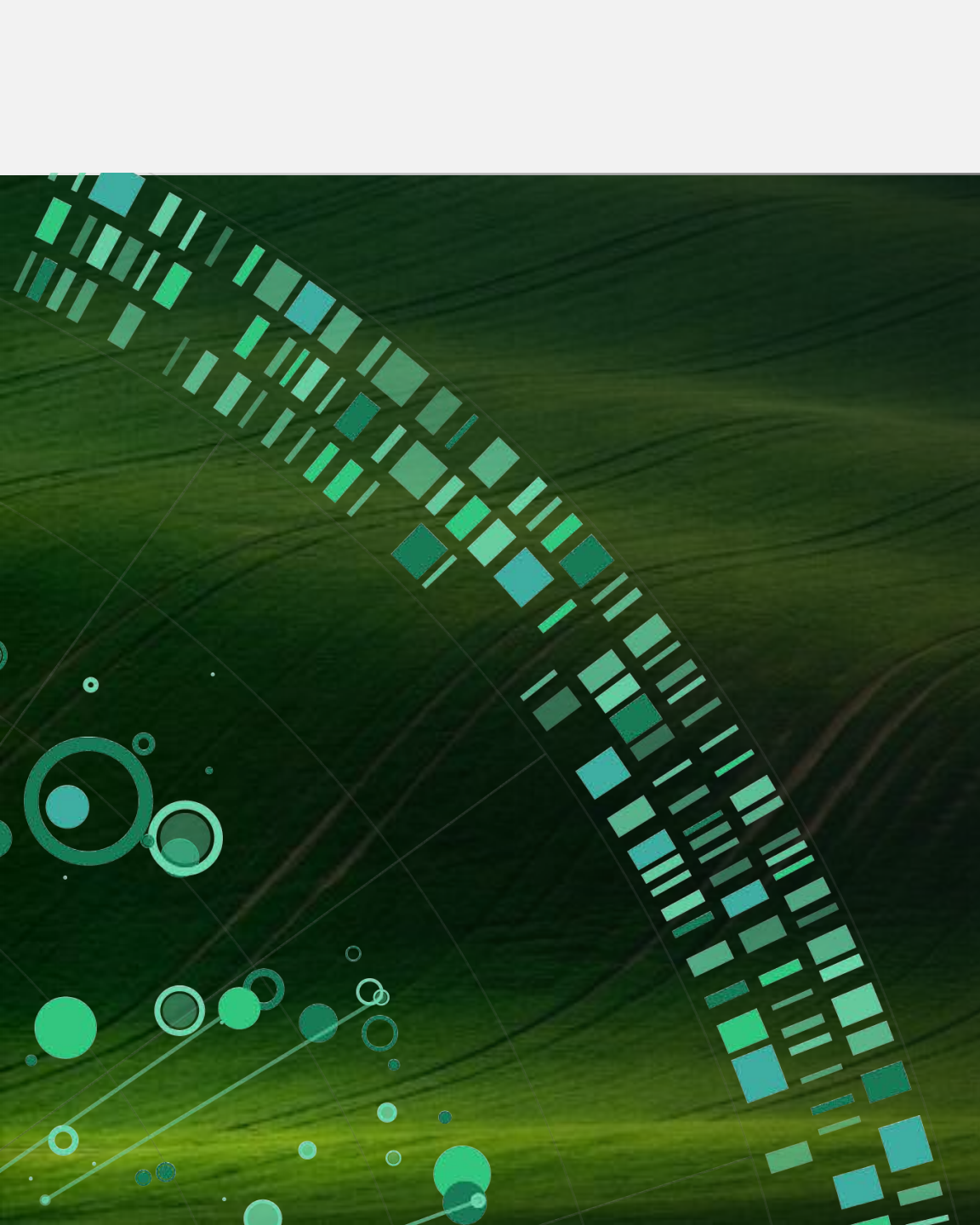
Introduced ESG³ in supplier evaluation to drive suppliers to take CO₂ emissions reduction measures

30M+
tons

of CO₂ emissions reduced by suppliers participating in the program⁴

COVID-19 crisis provides a unique opportunity to accelerate climate actions in the new reality





Guide for leaders

Impact of COVID-19 on climate

Call to action for a green recovery

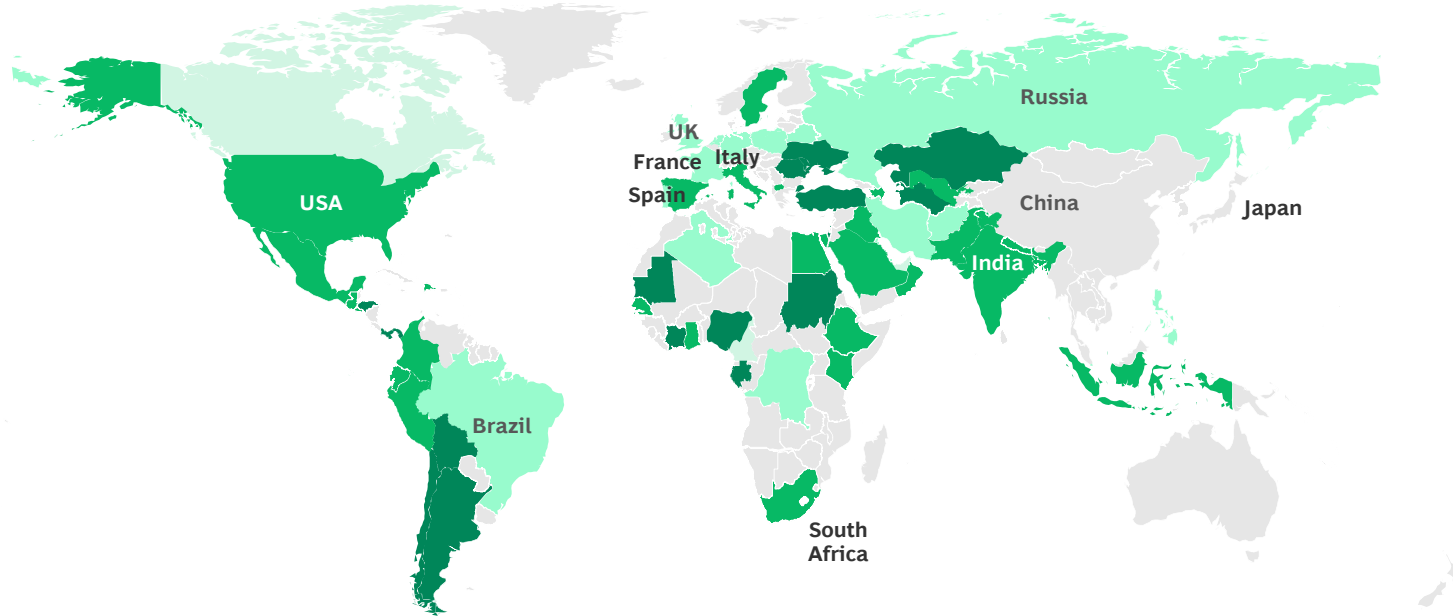
Updated analyses and impact

Epidemic progression and virus monitoring

Economic, business, and climate impact

~4.2M reported recoveries so far;
growth rate of daily new cases at ~2%¹

As of 18 June 2020



Less than 100
daily cases¹

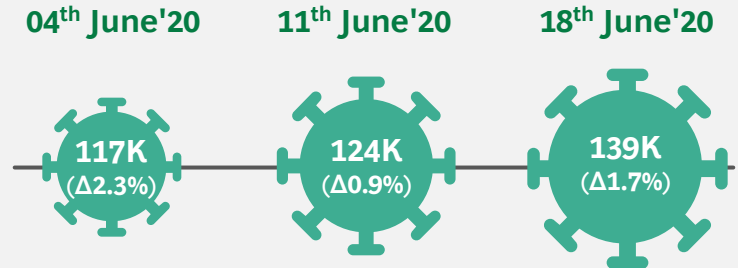
Daily cases' growth (≥ 100 daily cases)¹

<-5% -5%-0% 0-5% >5%

185
Countries with cases³

8.5M [$\Delta 1.8\%$]⁴
Confirmed cases globally

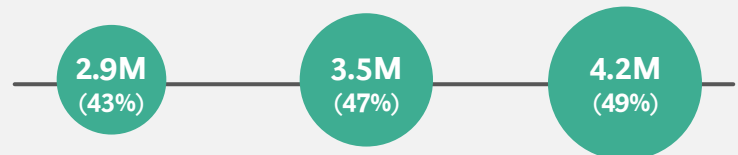
454k [$\Delta 1.1\%$]⁴
Fatalities globally



of daily new cases (growth rate%)¹



of days of case doubling² globally



Total # of recoveries (as % of confirmed cases)

Note: Continued cases and fatalities are subject to different testing, propensity, reporting standards and hence are imperfect measures

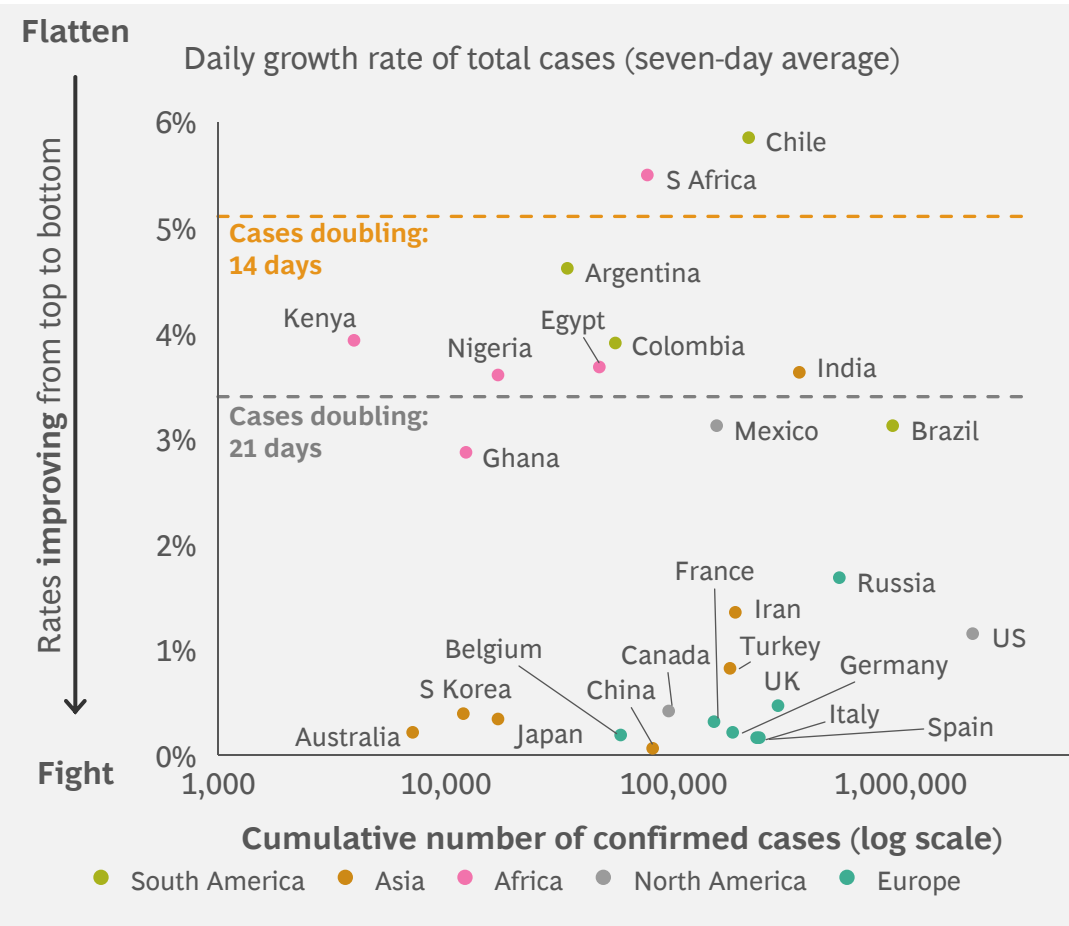
1. # of daily new cases calculated as 7-day rolling average; growth rate calculated basis 7-day average; 2. No. of doubling days calculated basis 7-day average growth rate of total cases; 3 Basis Johns Hopkins CSSE; 4. Daily growth rate basis 7-day average

Source: Johns Hopkins CSSE; Our world in data; BCG

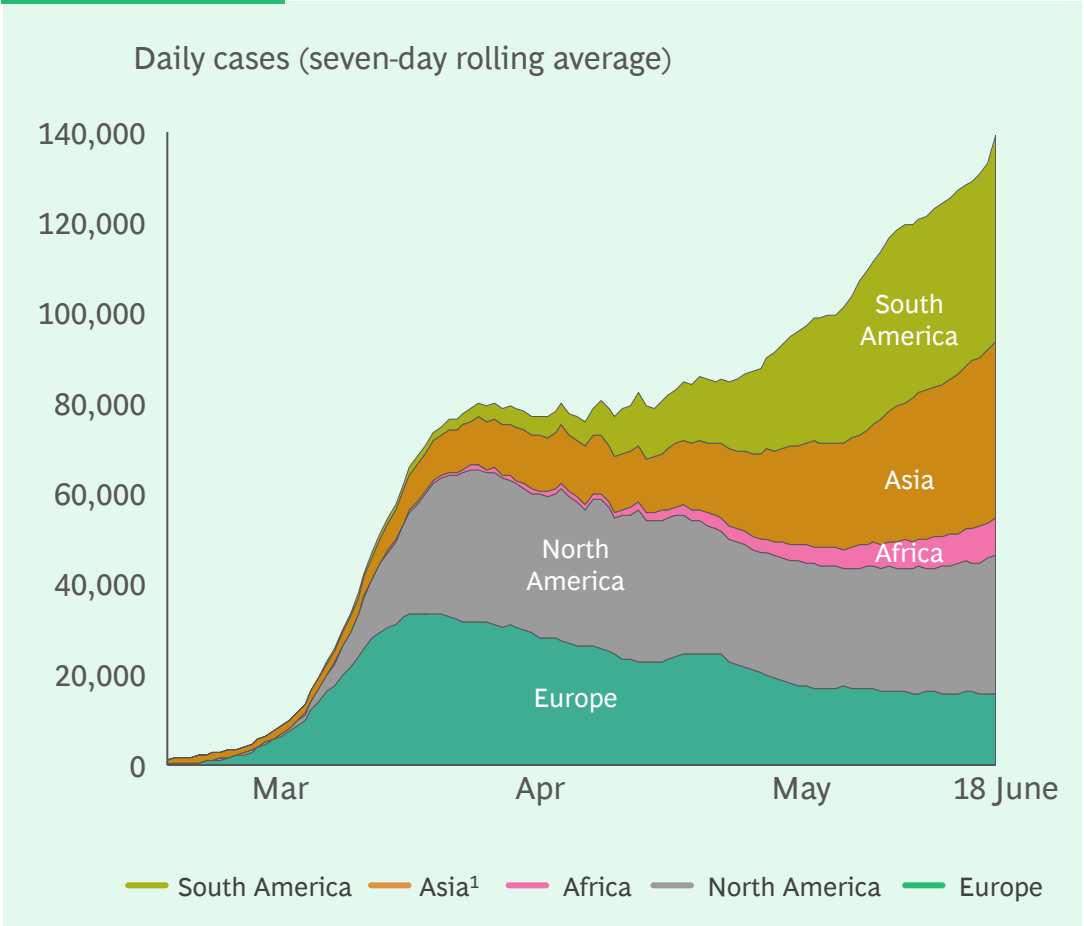
Daily new cases are increasing globally; propelled by South America, Asia, and Africa

As of 18 June 2020

Several European and North American countries continue to improve doubling rate...



... but countries in South America, Asia, and Africa witness an increase in daily new cases

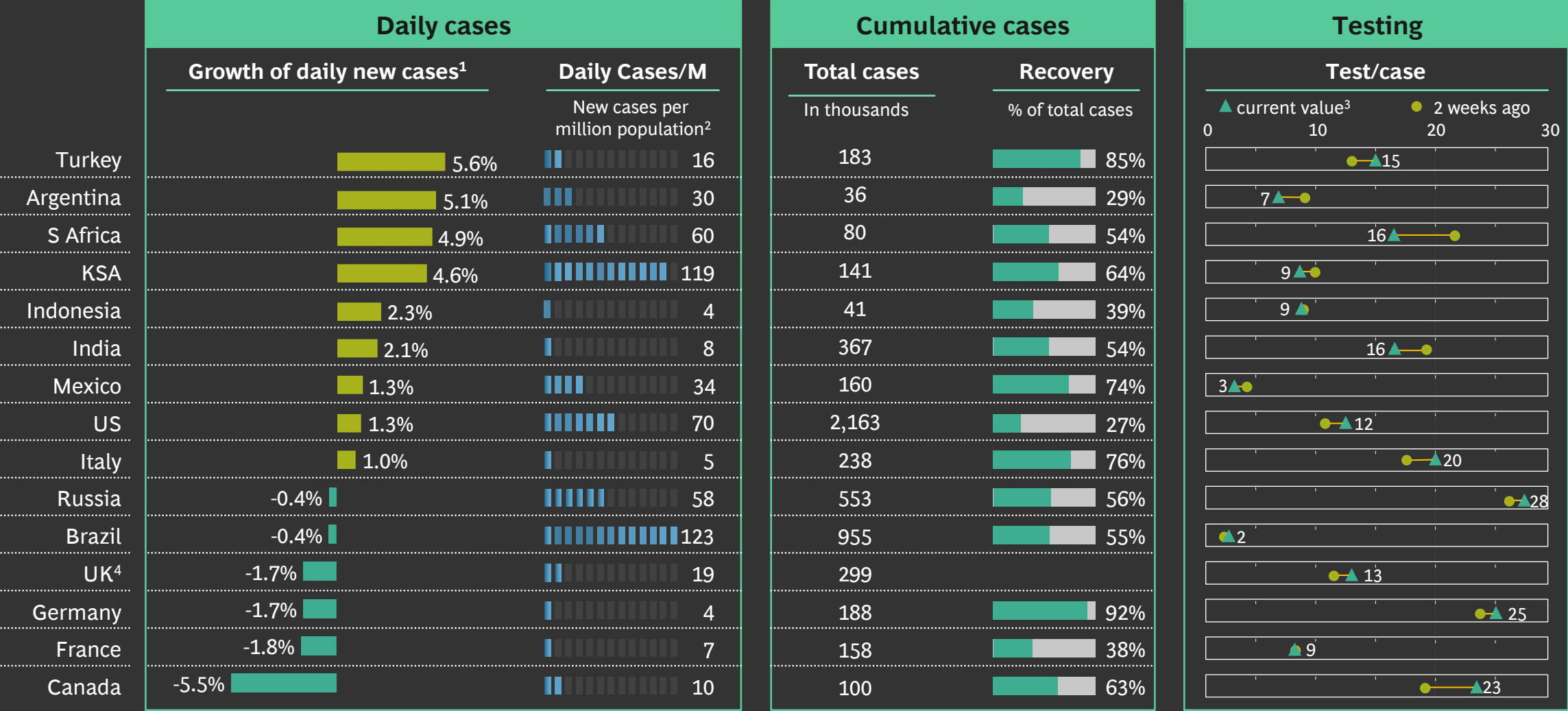


1. Includes Middle East & Oceania
Source: Johns Hopkins CSSE; Our World in data; BCG

Epidemic progression snapshot

As of 18 June 2020

Data shown only for G20 countries with 100+ daily new cases



1. Growth rate calculated basis 7-day rolling average of new cases; 2. 7-day rolling average; represented scale rounds up daily case/m to next 10th place; 3. Test/case data is not updated daily for a few countries, data represented is within last 1 week; 4 UK recovery data not available; Source: Our World in Data, John Hopkins, Worldometers, BCG

Vaccine fast movers | 12 vaccine candidates already in clinical trials

EPIDEMIC PROGRESSION
& VIRUS MONITORING

As of 18 June 2020

1 Phase II/III

Oxford Univ. & AstraZeneca

Phase III recruitment underway; planned supply build-up of 400M+ doses by end of year (if approved)

2 Phase II

CanSino Biologics

Phase II advancement since Apr 2020; follow-up expected by Oct 2020

Moderna

FDA fast track designation in May 2020; Phase III on 30,000 patients planned for July 2020

155 Pre-clinical

167 Total

4 Phase I/II

BioNTech & Pfizer



Phase I/II data exp. by July 2020, with start of Phase III; distribution possible by Dec 2020 (if approved)

Novavax

Phase I/II started in May 2020; data expected in July 2020 and final completion by Nov 2021

China National Biotec¹



Phase II trial in June 2020; expected completion of final trials by Nov 2021

Sinovac



Phase II trial in June 2020; expected completion by Aug 2020

5 Phase I

Chinese AMS²

CureVac³



Imperial College London⁴



Inovio⁵

Gamaleya Institute⁶



"By the beginning of 2021, we hope to have a couple of hundred million doses. I'm cautiously optimistic with the multiple candidates we have with different platforms."

Dr. Anthony Fauci, Member, White House Coronavirus Task Force



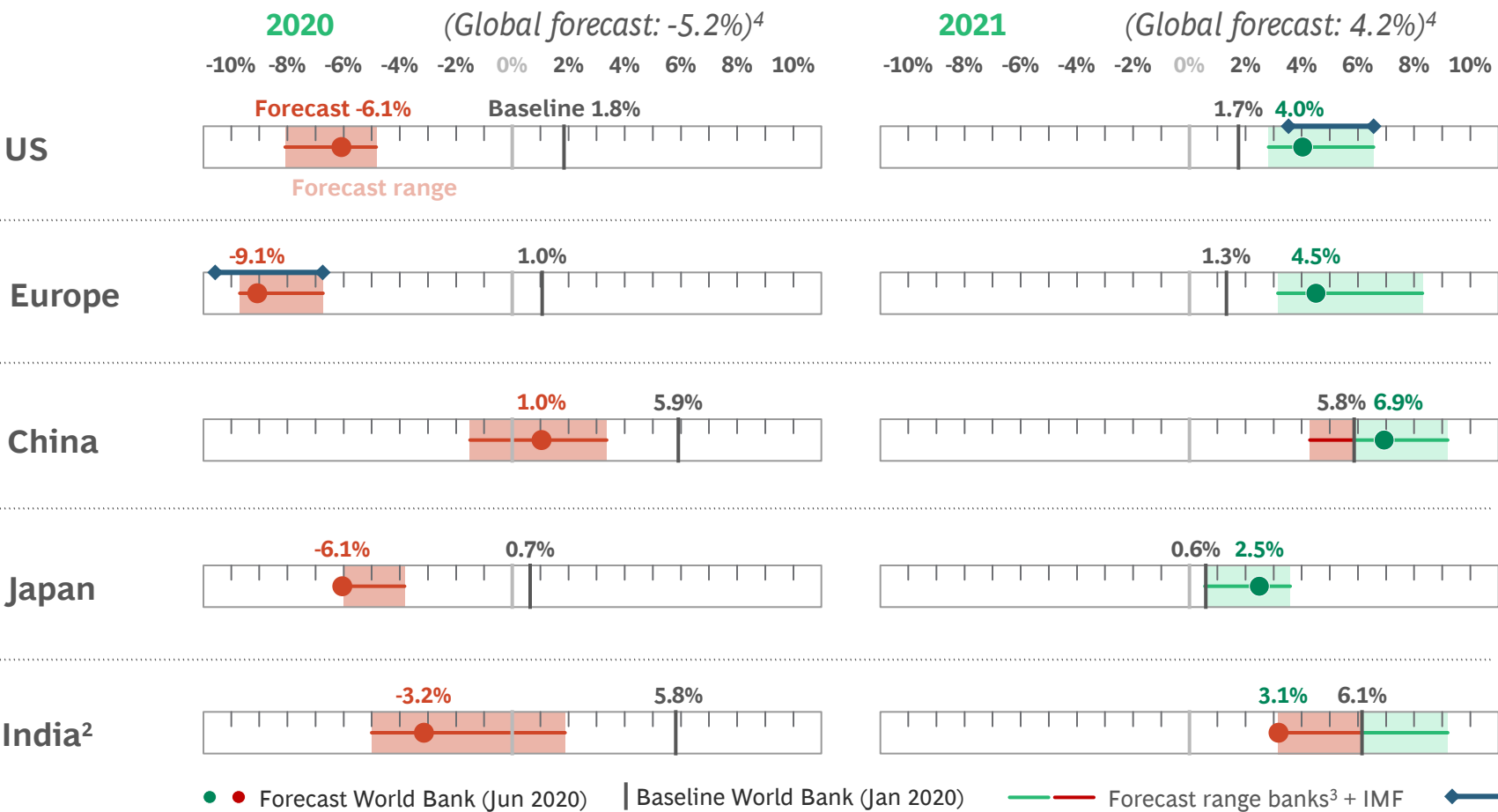
Movement across phases, or update on on-going trial; in the last two weeks

1. Listed as two candidates by WHO: Beijing Institute of Biological Products / Sinopharm & Wuhan Institute of Biological Products / Sinopharm; 2. Chinese Academy of Medical Sciences and Institute of Medical Biology; Trial started in Mar 2020 with final completion expected by Apr 2021; 3. Phase I starting in June 2020; 4. Phase I funded by UK Government started June 15th 2020; 5. Phase I initial data expected in June 2020; Phase II/III trials start July/August 2020; 6. Called Gamaleya Research Institute; Trial started in June 2020 on 76 patients in Russia. Source: WHO (June 16th), Citeline Pharma Project (June 18th), Milken Institute (June 17th), Telegraph, Bloomberg, BCG

Economic forecasts point toward severe downturn in 2020; rebound of global GDP not expected before 2021

As of 18 June 2020

GDP growth forecast vs. baseline



GDP level forecast¹

EOY 2021 vs. EOY 2019

97-100%

96-99%

107-112%

96-99%

101-108%

Note: As of reports dated 31 March 2020 to 18 June 2020, YoY forecasts 1. Range calculated with 25th & 75th percentile values of forecast range; 2. For India, forecast is for financial year; for other countries, the forecast is for calendar year; 3. Range from forecasts (where available) of World Bank, International Monetary Fund (April 2020), Goldman Sachs, JP Morgan Chase; Morgan Stanley; Bank of America; Fitch Solutions; Credit Suisse; Danske Bank; ING Group; HSBC; 4. Based on World Bank forecast Jun'20; Source: Bloomberg; World Bank; IMF; BCG

Only Pharma and Semiconductors currently at pre-crisis TSR levels; 7 sectors with significant share¹ of companies with >15% default risk

ECONOMIC, BUSINESS,
& CLIMATE IMPACT

As of 18 June 2020

Based on top S&P
Global 1200 companies

Categories based on TSR & net debt/enterprise value²

		TSR performance ³			Companies with probability of default >15% ⁴		
		21 Feb 2020 - 20 Mar 2020	21 Feb 2020 - 18 June 2020	04 June 2020 - 18 June 2020	21 Feb 2020	18 June 2020	04 June 2020 - 18 June 2020
Healthier sectors	Pharma	-20%	1%	→	0%	0%	→
	Semiconductors	-30%	0%	→	0%	0%	→
	Household Products	-16%	-1%	↗	0%	0%	→
	Software	-30%	-4%	→	9%	8%	→
	Tech Hardware	-26%	-4%	↘	0%	0%	→
Pressured sectors	Retailing	-40%	-6%	↘	0%	35%	→
	Food/staples Retail	-10%	-6%	→	0%	0%	→
	Materials	-32%	-8%	↘	4%	11%	→
	Health Equipment	-31%	-8%	↘	0%	0%	→
	Food & Beverage	-23%	-8%	→	0%	0%	→
	Prof. Services	-30%	-9%	↘	0%	0%	→
	Telecom	-17%	-10%	↘	0%	8%	→
	Media	-36%	-11%	→	0%	8%	↘
	Capital Goods	-35%	-13%	↘	2%	4%	→
Vulnerable sectors	Financials	-35%	-13%	↘	0%	0%	→
	Utilities	-30%	-14%	→	0%	0%	→
	Transport	-34%	-15%	↘	0%	32%	↗
	Auto	-41%	-15%	↘	0%	24%	↗
	Durable Goods	-39%	-17%	↘	0%	0%	↗
	Insurance	-39%	-21%	↘	0%	0%	→
	Real Estate	-39%	-25%	↘	0%	17%	→
	Banks	-39%	-25%	↘	0%	4%	→
	Energy	-52%	-28%	↘	0%	21%	→
	Hospitality	-44%	-29%	↘	0%	21%	↘

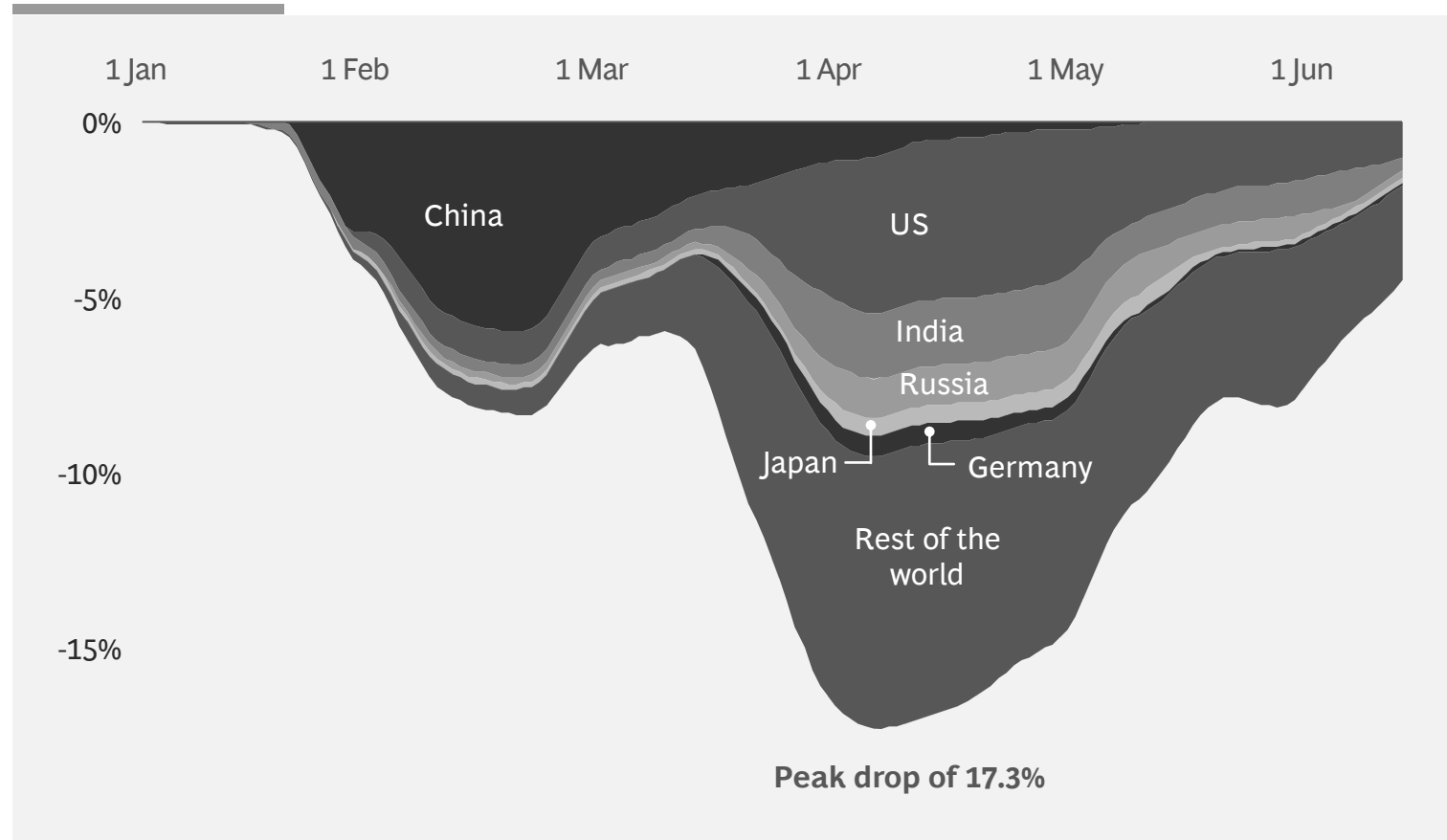
Note: Based on top S&P Global 1200 companies; Sectors are based on GICS definitions; 1. Retailing, Materials, Transport, Auto, Real Estate, Energy, Hospitality with > 10% of companies with probability of default > 15%; 2. Net debt & enterprise value from latest available balance sheet; Categories defined based on comparison with S&P Global 1200 median: healthy = TSR & debt/EV > median, pressured = TSR or debt/EV < median, vulnerable = TSR & debt/EV < median; 3. Performance is tracked for two periods, first from 21 February 2020 (before international acceleration of outbreak) to 20 March 2020 (trough of the market) and from 21 February 2020 through 18 June 2020 based on median; 4. Implied by 5-year Credit Default Swap based on median
Source: S&P Capital IQ; BCG ValueScience Center; BCG

↗ Pos. trend ≥ 2%
→ No sig. change
↘ Neg. trend ≥ 2%

Drop in emissions witnessed due to slowdown in surface transport and economic activity is reverting to pre-COVID-19 levels

As of 11 June 2020

Daily drop¹ in CO₂ emissions (%) during the year 2020



As countries restart, global CO₂ emissions are reverting

- from a drop of 17.3% in early-Apr
- to a drop of 4.5% in mid-Jun

Changes in surface transport contributed to ~50% of the drop

Annual drop in emissions to range from 5-10%, depending on restart variations across the world

Emissions rebound is a stark reminder that more needs to be done to tackle climate change

1. Mean 2009 emission of 100 Mtons / day is taken as base and 0% value. Data on the chart, thus, is analogous to Mtons/day
Source: Integrated Carbon Observatory System, Mature Climate Change, Global Carbon Project, The New York Times

Investors want companies to prioritize ESG¹ agenda; net flow in ESG-focused mutual funds & ETFs² higher than traditional funds

As of 07 June 2020

BCG COVID-19 investor pulse check

51%

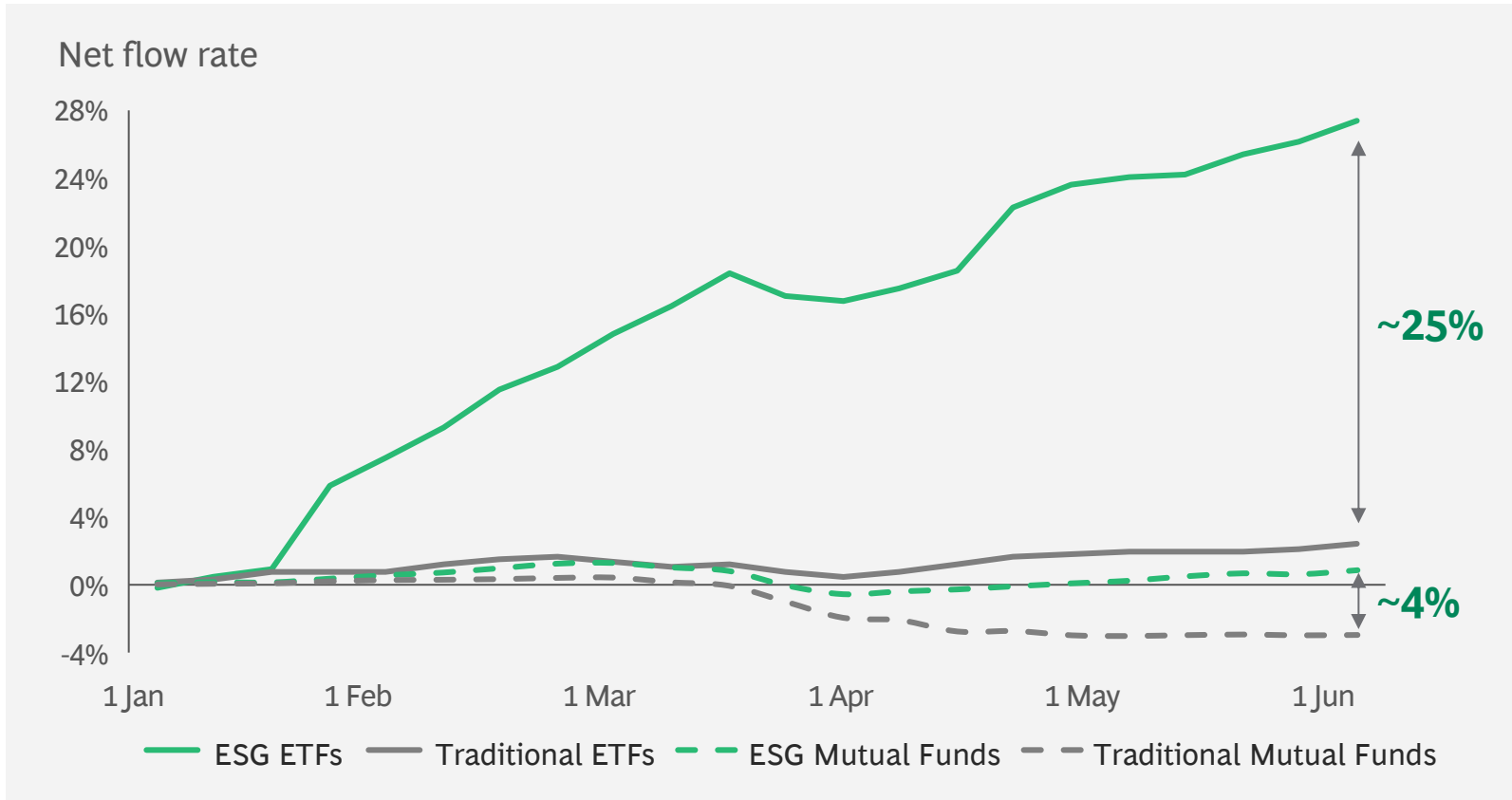
of investors believe companies should fully pursue their ESG¹ agenda as they navigate the crisis

Investors (%) who agree that “it is important for healthy companies to continue to fully pursue their ESG¹ agenda and priorities as they navigate the crisis, even if it means guiding to lower earnings per share or delivering below consensus”

As of 3 June 2020

ESG¹ funds show higher net flows than traditional ones

Cumulative net flow rate of mutual funds & ETFs²; % of end of year 2019 assets under management



1. Environmental, Social, and Governance; 2. Exchange Traded Funds;
Note: ESG funds aim to reflect investors' moral and ethical values through investments screened for or based on issues including the environment, alcohol, gaming, tobacco, civil/human rights, religious views, etc. Traditional funds are any other ETFs not considered sustainable; Analysis based on US, European (incl. offshore) and Asian (Japan, South Korea & Thailand) mutual fund & ETF products; Data reported represents ~60% of total US, ~75% of total European and ~75% of Asian country subset (~45% of total Asia [excl. China and Australia]) mutual fund & ETF market AuM; Money market funds excluded; Source: BCG's COVID-19 Investor Pulse Check, June 7, 2020; n = 150; Strategic Insight – Simfund; BCG analysis

Additional perspectives on COVID-19

COVID-19 BCG Perspectives



Edition #10

Value Protection & Acceleration Roadmap to Win in the New Reality



Edition #7

Sensing Consumer Behavior & Seizing Demand Shifts



Edition #4

Accelerating Digital & Technology Transformation



Edition #9

Future of Global Trade and Supply Chains



Edition #6

Restructuring Costs, and Managing Cash and Liquidity



Edition #3

Emerging Stronger from the Crisis



Edition #8

Galvanizing Nations for the New Reality



Edition #5

Revamping Organizations for the New Reality



Edition #2

Preparing for the Restart



Climate & Environment

Climate Should Not Be the Virus's Next Victim



Urban Infrastructure

How COVID-19 Will Shape Urban Mobility



Healthcare

Learning from COVID-19 to Transform Global Health Systems



Climate & Environment

Why Climate Change Is No Prisoner's Dilemma



People & Organization

Meetings and Email Are Here to Stay, So Make the Most of Them



Public Sector

Generating the Right Returns from Stimulus Packages



Climate & Environment

The Net-Zero Challenge: Fast-Forward to Decisive Climate Action



Social Impact

Unlocking Tomorrow's ESG Opportunities



Agriculture

Signs of Rebound Forecast a New Era for Agriculture

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