



## **Build back better! A call for a Green Deal and a green Marshall Plan for the Global South to tackle the two-fold Coronavirus and climate crises**

*Thomas Hirsch* gives a critical analysis on the combined effects of climate change and the ongoing pandemic on the Global South. He emphasized on the European Green Deal and Green Marshall Plan to tackle the ongoing global crises.

### **Summary**

COVID-19 has thrown the world into an unprecedented crisis. Its public health and socioeconomic consequences will be painfully palpable for years. And so far, we have only experienced the tip of the iceberg. Whilst many nations of the Global South are still suffering from the first wave of infection, East Asia, Europe and North America are wisely bracing for a second wave due this fall, if not earlier. It would be foolish to count on the development of a vaccine before that, let alone in the quantities that would be required to lessen a second wave's impact. But even if a vaccine were to be developed in the next year, the social and economic devastations that the pandemic has already wrought across the world will have profound and long-lasting effects.

The rate of infection may be decreasing in most of Germany and Europe. The socioeconomic crisis, however, has only just begun. It will provoke a deep shift in the way the world is run. The world of tomorrow will no longer be the world that we knew before COVID-19. Many of our habits and approaches to solving problems will need to be rethought. The health care systems and supply chains that have focused on efficiency and cost-reduction so far will have to begin to prize flexibility and resilience. There is much to suggest that pandemics like the one caused by COVID-19 will reoccur in the future for many reasons, for example, because the habitats are shrinking of many of the wild animals that harbor zoonotic pathogens. Scientific projections suggest that by the end of this decade, the challenges that climate change will be confronting us with will dwarf those of the current COVID-19 crisis.

Since the end of the Cold War, we in Germany and Europe—unlike in the developing world—have forgotten the extent to which our societies are in fact risk societies. This new Coronavirus threat, however, has returned to us a sense of risk in which the individual feels powerless. But that is not necessarily our fate. We can defeat it. And we need preventative action on the societal level, not collective denial. Changes, even painful ones, can be creative if they promise a new beginning.

COVID-19 is changing the world and undermining our societies in a way that parallels climate change. The difference, however, is that there is no end of climate change in sight, unlike of COVID-19, which eventually will subside when a vaccine is discovered or herd immunity is achieved. To deal with climate change, the only choice is containment at an early stage. But containment is precisely what the world, with a few positive exceptions like Taiwan, failed to do with COVID-19 because the vast majority of countries did not take the threat seriously soon enough. How much human suffering, and what economic damages and financial costs would humanity have been spared if the world had succeeded in containing COVID-19 as quickly and effectively as Taiwan had?

We must learn from our mistakes in our response to COVID-19 if we are to mitigate climate change. We must decisively limit global warming to 1.5°C. We have ten years for it, which is approximately the period that it will take us to fully process the economic and financial consequences of COVID-19. Our only choice is to link our strategies in dealing with the Coronavirus and climate crises. Any attempt to deal only with the former by relying on established approaches to monetary, fiscal, industrial, and economic policy, and thereby ignore the imperative for transformation in the face of climate change will inexorably end in defeat. Firstly, every further delay in undertaking ambitious climate action further diminishes the small window of time in which containment (that is, the limitation of global warming to 1.5°C) is at all possible. Secondly, the global costs involved in a recovery strategy for COVID-19 will be so high and will lead to so much debt that it will scarcely be possible to make similar or higher investments into climate change mitigation soon. And thirdly, conventional stimulus programs that ignore climate policy unavoidably will lead to stranded assets and bankruptcies due to no longer viable business models, to unemployment, social disintegration, poverty, and further political polarization.

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Conversely, we can overcome both the Coronavirus and the climate crises if we start on the right path today. We must create stimulus packages that focus on promoting sustainable, future-proof business models. We must raise instead of lower the ambition of our climate policies, and accelerate instead of delay the transformation of the energy, transportation, and agricultural sectors, as well as of our buildings and cities. Finally, we must couple these stimulus programs with short-term emergency packages and long-term structural reform. This crucial decade could become a decade of transformation. We could contain the crisis of biodiversity, protect the planetary boundaries, and put an end to the harrowing increases in global inequality. If this opportunity is taken advantage of right now, humanity will one day be able to look back at the Coronavirus and climate crises, strengthened. Our success, however, depends on designing the right strategy, the characteristics of which will be expanded upon in the following.

### Global challenges know no borders: We must act together, not as individual nations

‘Diese Krise kann kein Land alleine lösen’—‘This crisis cannot be solved by any one country’ declared by the German chancellor Angela Merkel at the start of this year’s World Health Assembly in May. According to a poll by Forsa in mid-April 2020, three quarters of all Germans concur with her sentiment, and believe that a higher level of international collaboration will make the management of this crisis more successful.

The Coronavirus crisis has made plain the vulnerability of our societies, and the global economic system. No nation can deal with a crisis of this magnitude by itself, neither the public health, nor economic aspects of it. The world economy is too interdependent for any one country to be able extricate itself from its fabric. International cooperation must become qualitatively better, and strong dependencies in key sectors like health, energy, and food must be reassessed and diminished.

The same holds for dealing with climate change. No country is immune to the consequences of climate change, no country is by itself capable of withstanding the climate crisis. From that realization follows the need for far greater multilateral cooperation, and the Paris Agreement has created an effective and fair framework for all. Whoever undermines its integrity, resists its policies and bets on independent national approaches, is blind to the challenge of climate change, damages itself and others in the process, and is doomed to fail.

### Science-based solutions instead of propaganda and lies

The enlightenment ideal and hallmark of modernity that not made-up truths, but evidence-based facts

should determine political decisions and inform the handling of risk is being seriously questioned by our responses to climate change and COVID-19. In both cases, false information and conspiracies are being spread and quickly multiplied across social media to discredit the authority of experts. These disinformation campaigns are being fueled by power and short-term profit seekers. They must be fought decisively to ensure that political solutions are based on science. That is a prerequisite both to fight the pandemic, as well as to contain climate change.

### Prevention as a head start

The prevention of a catastrophe prevents untold suffering and is, by orders of magnitude, safer and cheaper than dealing with it and its consequences after the fact. In Taiwan, consistent preventative measures succeeded in dodging a wave of COVID-19 infections that would have strained the health care system for weeks in much the same way as those of Wuhan or New York which could not avoid already tens of thousands of deaths. In much the same way, to avoid uncontrollable and relentless climate change with unforeseeable consequences spanning all continents and many generations, it is imperative to do everything possible to limit global warming to 1.5°C.

### No stronger than the weakest link in the chain

A society is as resistant and safe as its most vulnerable members. The same is true in a globalized world society. Risk groups bear the highest health risk, the poorest bear the highest economic risk. When for the latter neglecting social distancing becomes inevitable for economic reasons, the pandemic will become unstoppable. In much the same way, people will stop at no border when their only choice is to flee from the consequences of



climate change. Whether we want it or not: we are all in the same boat. We can make the best of it and act in solidarity with each other, whether from a sense of altruism or naked self-preservation—or we will go down together. Whether it's a pandemic or climate change: only with solidarity will make progress reliably.

### **The poorest are the worst affected. They deserve our utmost solidarity**

UNDP, the United Nations Development Program projects the losses in income caused by lockdowns in developing countries to be at least \$220 billion. The pandemic risks developing into an economic and humanitarian crisis of unprecedented global extent. More than half of all jobs in the African continent could be lost. The world's poorest could be thrown back by five to ten years of development progress. Climate change makes the same threats, but incomparably more gravely and on a far longer term.

Both crises immediately and existentially affect billions of people. In both cases, famines of biblical proportions are to be feared. In the case of COVID-19, the United Nations World Food Program (WFP) has warned that up to 130 million people in three dozen countries could die of starvation. In ten of these countries, a million people each are already acutely threatened by starvation because they lost the basis of their existence. This number could increase greatly as a result of a deep economic recession.

The International Monetary Fund (IMF) has counted five global recessions since World War II in 1975, 1982, 1991, and 2009. Of these, the last was by far the worst, with a decrease of 2.9% of world GDP in 2009. The recession caused by COVID-19, however, will dwarf that figure. As early as late March 2020, the Center for Economics and Business Research in Britain projected a decrease of world GDP of at least 4% as a result of this crisis. Even China, although already on its way to economic recovery, may perhaps achieve only very modest growth at all for 2020. As a result, in April, the Chinese government declined to set a growth target for this year for the first time in decades. In May, the head of the Federal Reserve warned of a recession in the U.S. deeper than ever experienced before in modern history if the country experiences a second wave of infection this fall.

It is to be expected that the overwhelming majority of developing nations will end lockdown measures by June 2020 at the latest to prevent an economic catastrophe, all at the cost of hundreds of thousands of deaths. The world will be divided into those countries that can afford to contain the pandemic and those that out of economic necessity, will have to accept a premature opening. The situation of the climate crisis is comparable. Particularly those that have to invest in climate resilience because they are exposed to the highest risks can often not afford to take precautions against climate risks. Without enormous amounts of international support, in both cases, they risk a deadly spiral that will affect the poorest most severely.

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### **Global challenges both required and possible systemic change**

COVID-19 is a global threat more encompassing and immediate than anything else the world has experienced since World War II. The almost global lockdown has suddenly shut down large parts of public life. The personal habit changes that it precipitated are far-reaching. The predictable socioeconomic consequences that result from the lockdown and persistent changes will be disruptive. To enable something positive to grow out of this shock, all of our energies must be focused on a recovery that is future-proof, and, crucially, climate-proof. The required mobilization and effective realization of the transformational measures—from the short-term emergency aid to the mid-

term stimulus programs to the long-term structural reforms—is only achievable in times of crises like this one. It requires strong and effective governance, a broad societal consensus, and a willingness to change individual behaviors. All of these conditions are present in the current Coronavirus crisis. They can be used creatively for a transformation that overcomes not only the Coronavirus, but also the climate crisis.

### Fossil fuels will not survive COVID-19

In 2020, CO<sub>2</sub> emissions are projected to fall by 5-11%, possibly even more because of the pandemic. The reason is history's greatest single drop in demand for fossil fuels. The negative prices for crude oil achieved in the short term as a result of collapsing futures contracts demonstrate the extent of the dreadful economic state fossil fuel corporations are in, whose business model is also being undercut by competitive renewable energies. In the fight to maintain competitiveness, many fossil fuel companies have accepted high risks and ever-growing new rounds of debt. That is especially the case for the U.S. fracking industry. The industry's 27 largest producers alone have had to service \$26 billion in credits.

Meanwhile, the industry's total debt exceeds \$100 billion (Ross, 2020). But the U.S. coal industry is likewise financially pinned to the wall, so to speak. It is beset by a free fall in demand, especially from its largest industrial customers and persistent resistance to spending from consumers as a result of skyrocketing mass unemployment. Investment markets are witnessing massive losses of capital. Institutional investors are making divestment decisions, seemingly a never-ending stream of them. Debts, the competitiveness of renewables,

significant investments flowing into hydrogen fuel technologies, and rising prices on CO<sub>2</sub> emissions all are additionally contributing to a lasting dampening of the industry's demand for coal.

The oil industry is similarly plagued, but it also suffers from a collapse in demand from the industrial sector as well as all branches of the transport sector. Although fuel stores are full to the brim and tankers everywhere are becoming floating fuel stores, it is not currently expected that economic recovery will be quick or that air and marine travel will rise to their pre-crisis levels of activity anytime soon. In the face of a foreseeable longer-term recession, the fossil fuel industry is fighting for its very survival. Without enormous bail-outs, which in the U.S., for example, would come at the price of a no less dramatic further ballooning of national debt, they cannot survive. And even then, the fossil fuel industry's capacity to return to its previous highs is questionable. Most fossil fuel corporations will not survive the Coronavirus crisis.

In order to fill the emerging gap in energy supply quickly, security, and cheaply, it is crucial to design proper stimulus packages. With strategic investments into technologies for the future in energy production, efficiency, mobility, and infrastructure, we can bring the economy back onto its feet, but also create future-proof jobs and accelerate the transformation into a carbon-neutral world.

### A green stimulus package is the motor of an economic transformation into a carbon-free and climate-resistant future. It must be national, European, and global

Without the largest economic stimulus program in history, an unfathomable number of companies will go bankrupt, hundreds of millions of jobs will be



lost, and millions of human fates will worsen all over the world, but especially in those place where lockdowns were not enforced long enough. The hardest-hit are countries in the Global South, where almost all jobs are in the informal sector, where social safety nets are at best rudimentary, where people have either no savings at all or only insufficient ones, where supply chains, for example in the textiles industry, are the first links to break. To support those economies with stimulus packages is not only an ethical imperative of global solidarity. It also helps the economies of the Global North that otherwise risks losing their supply chains as well, resulting in inevitable economic damages.

But only if the economic and financial measures taken to fight the Coronavirus crisis are coupled with a transformation of our economies into a carbon-neutral and climate-resistant ones will the jobs that may be generated by the stimulus program be sustainable. The agricultural sector must be reformed, biodiversity protected, cities made more resilient and livable. Digitalization must be pushed forward and critical infrastructure sectors such as the healthcare must be made more resistant to crises. If the largest aid package in history—as of April 15, 2020, \$8 trillion have been earmarked—is not made to ultimately focus on achieving carbon neutrality, there will be a rollback to the dirty technologies that have precipitated our predicament. The window in which we can still contain global warming to 1.5°C will be forever closed.

In the following weeks, the world will be deciding whether the COVID-19 aid and stimulus packages are supporting or undermining the goals of the Paris Agreement's climate targets. The head of the International Monetary Fund (IMF), Kristalina Georgieva, decided that the IMF by the end of May will have made decisions on over 50 of the over 100 financial aid applications at the meeting of the G20's finance and central bank ministers in early May. Soon it will be clear how dozens of nations that have been granted freezes in debt payments choose to invest the money. In the face of further measures of the IMF, Georgieva cautioned that

[We will need to step up even more. As you know, we project a deep recession in 2020 and only a partial recovery in 2021. To help countries steer through the depth of the recession and support their recovery, we are prepared to use our full toolbox and \$ 1 trillion firepower [...]. Second, to assist our low-income countries, we plan to triple our concessional lending. [...] Third, we will concentrate both lending and policy support to reduce the scarring of the economy caused by bankruptcies and unemployment, in order to support a speedy recovery. And, [...] to help our members steer through this crisis and come out of it more resilient.]

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At the Petersberg Climate Dialogue, Georgieva stressed that these measures must additionally serve the fight against climate change:

[It would be a mistake to 'pause' action on climate change while responding to coronavirus. We are about to deploy enormous, gigantic fiscal stimulus and we can do it in a way that we tackle both crises at the same time... If our world is to come out of this (coronavirus ) crisis more resilient, we must do everything in our power to make it a green recovery.]

Likewise, in April the World Bank began to steer investment decisions in the context of recovery programs toward, on the one hand, strengthening resilience and climate-relevant adaptation capacity, as well as decarbonisation efforts, and on the other, on sustainable development. They developed a checklist to evaluate the projects based on the following criteria:

- Is the intervention consistent with and supportive of existing long-term decarbonization targets and strategies? (If such targets and strategies do not exist, does the intervention contribute to the respective government's

‘Nationally Determined Contribution’ and the eventual decarbonization of the economic system?)

- Does the intervention create or amplify a lock-in of carbon or energy-intensive development patterns, or does it represent a future stranded asset risk due to decarbonization, technology change or other market trends?
- Does the intervention remove or reduce financial market, tax, and regulatory obstacles to decarbonization?
- Does the intervention contribute to developing or piloting low-carbon technologies, making them more widely available, or reducing their cost?
- Does the intervention provide the technical means to better integrate or employ low-carbon technologies or strategies?
- Does the intervention increase local or national energy security?

If these criteria are applied to all investments—backed up with measurable indicators of progress, this stimulus round could well accelerate decarbonisation efforts. Moreover, the IMF’s criteria make sound economic sense, as IRENA, the International Renewable Energy Agency, has shown in their Global Renewables Outlook in April 2020 (IRENA, 2020). They projected that although full decarbonisation would cost \$120 trillion by 2050 in the energy sector alone, it would also create millions of new jobs and would increase world GDP by \$98 trillion versus a ‘business as usual’ scenario.

If the international community can invest over \$10 trillion of tax payers’ money to deal with COVID-19 and thereby accept unimaginable amounts of debt—debt that, moreover, will Seriously restrict governments’ investment options over the next two decades—, it is more than legitimate to demand that these investments be made in such a way that not only fights the Coronavirus crisis, but also the

climate crisis, which will present a far larger problem for current millennials and future generations. From this principle, two criteria in fact suffice to ensure an appropriate recovery plan:

1. Accordance with the climate targets of the Paris Agreement, including the halving of global emissions by 2030 to give us a fair shot at avoiding global warming above 1.5°C. That implies that a carbon budget must be determined for each country. At the very least, the G20 countries that produce four fifths of global emissions, as well as all other OECD countries and upper middle income countries must make absolute and not just relative deep cuts to their emissions across all sectors. The Climate Action Tracker (CAT) has put forward good guidelines in this respect (Climate Action Tracker, 2020). The areas of activity that would come into question include a ramping up of renewable energy production and storage, improvements in efficiency of buildings and industry, scaling of the use of green hydrogen technology, smart energy systems, transformation of cities, climate-friendly transportation for both people and goods, and improving the sustainability of agricultural practices. Many of the requisite technologies are almost ready to enter the market. They require, however, the planning security that a level economic playing field guarantees, as well as some initial funding to achieve a quick breakthrough. Stimulus programs that set clear and strategic goals make such projects more interesting to private investors.
2. Internationally coordinated stimulus packages must also take into account the needs of the Global South, especially those on the African continent that has the youngest and fastest-growing, but also poorest population. Multilateral development banks, but also



BOX 1: 'European Green Deal'				
Aim/Goal	Policy Areas/ Specific Proposals	Significance	Impacts	Limitations
<ul style="list-style-type: none"> <li>• Make European Union 'climate neutral' by 2050.</li> <li>• To make EU's economy sustainable;</li> <li>• Boost the efficient use of resources by moving to a clean, circular economy;</li> <li>• Stop climate change;</li> <li>• Regress biodiversity loss;</li> <li>• Cut pollution; reductions in carbon emissions.</li> </ul>	<ul style="list-style-type: none"> <li>○ Circular Economy</li> <li>○ Building Renovation</li> <li>○ Zero Pollution</li> <li>○ Ecosystem &amp; Biodiversity</li> <li>○ Farm to fork strategy</li> <li>○ Transport</li> <li>○ Money</li> <li>○ R&amp;D innovation</li> </ul>	<ul style="list-style-type: none"> <li>- Stimulates an eco-innovation</li> <li>- Makes sustainable economy for European economy</li> <li>- Aims to turn climate and environmental challenges into opportunities across all policy areas</li> <li>- Creates scope for green and inclusive economy</li> </ul>	<p><b>Economic Impact-</b> provide scope for economic recovery and transform EU's economic model; promote sustainable development</p> <p><b>Environmental Impact-</b> reduce carbon footprint; help to achieve carbon neutrality; promote low carbon technologies; phase down climate-warming.</p>	<p><b>Legal Limitations-</b> Lack of consensus from EU member states regarding climate law, target's adjustment and the agenda of the goal.</p> <p><b>Financial Limitations-</b> financial allocation of the Deal is unclear; possibility of 'greenwashing' of the allocated funds; in absence of sustained international cooperation, introduction of carbon border tax may hinder exports from the Global South and cause 'tariff wars' with other major economies.</p>

governmental and private donors are called upon to make available the necessary capital at fair conditions in the form of subsidies or very cheap, long-term credits for investment in resilience infrastructure, and the industries of the future. In this respect, the experiences from the Marshall Plan can be learned from. Then as much as today, it has become essential to see the big picture and leave nobody behind.

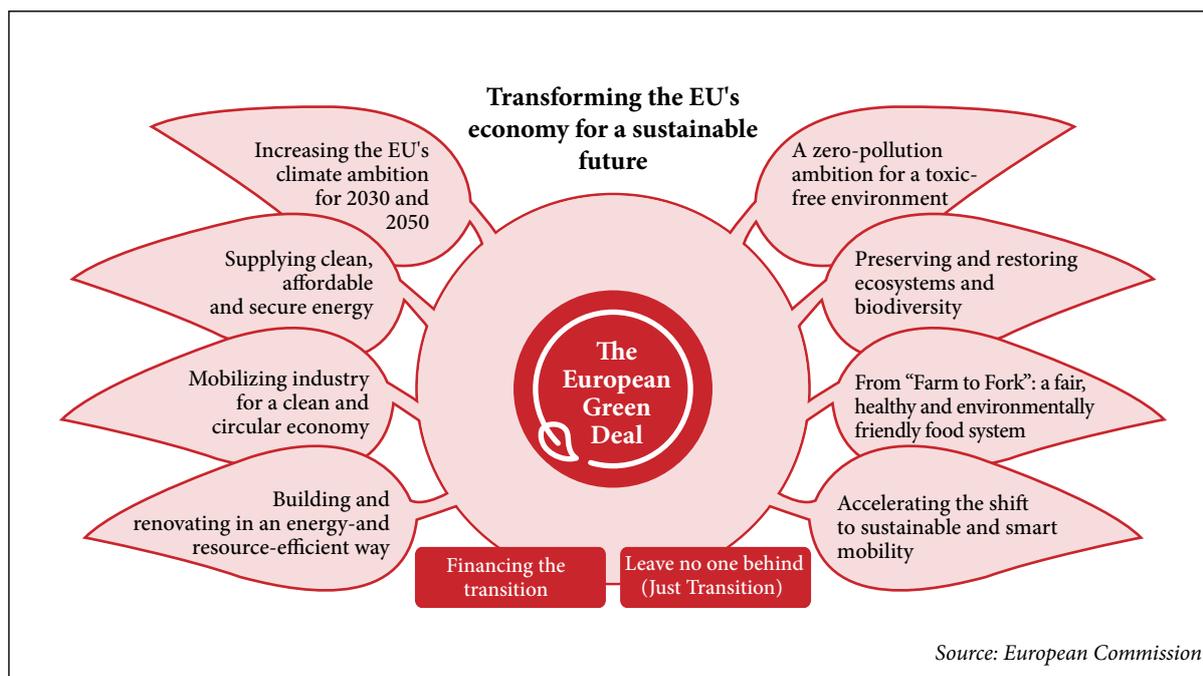
### A forward-looking design of the German stimulus program would secure jobs, modernize our economy, and be good for our international partners

No country in Europe and hardly any country elsewhere is protecting its economy to an extent similar that Germany is. That is why Germany's response measures are being very closely watched, both in Germany and in the rest of the world. Are they forward-looking? Are they socially balanced? Are the burdens shared fairly? Do they support Germany's cooperation with European and other global partners?

"Diese Krise kann kein Land alleine lösen"—"This crisis cannot be solved by any one country" declared the German chancellor Angela Merkel at the start of this year's World Health Assembly in May."

—Angela Merkel  
German Chancellor

'Der Doppelte Booster' ('the double booster'), a study by the think tanks Agora Energiewende and Agora Verkehrswende has shown how a stimulus program of over €100 billion could be made to achieve relief from the Coronavirus crisis at the same time as working toward climate targets (Agora, 2020). The 'double booster' would proceed by a reformation of the law on renewable energies (Erneuerbare-Energien-Gesetz (EEG)); a step, moreover, which has already been recommended by the environmental ministry (Bundesumweltamt) and promoted by various business associations (Handelsblatt, 2020). It would strengthen the purchasing power and lower the prices for small and mid-size firms, would change the regulations surrounding building renovations to encourage them to more easily be updated to higher efficiency standards. Industrial sectors would receive investment support to improve their energy



efficiency. Green hydrogen would be pushed as the fuel of the future, along with an electrification of all forms of mobility. A European investment program, accelerated environmental licensing and qualification programs, as well as many other elements would be promoted. Only by taking such steps will the currently unfolding bailout avoid locking into place industries and business models that are irreconcilable with plans to achieve decarbonisation by 2050. Such an investment program would be designed for long-term effect and would be calculated to be compatible with the European Green Deal. But for it to become trendsetting, it must happen fast. Fresh capital must be made available quickly.

Many corporations support a green stimulus program. They demand that climate targets be not ignored during the crisis, but conversely that reforms be accelerated. If governments' investments are not coupled with the European Green Deal and the goal of limiting global warming to 1.5°C, stranded assets will be the consequence. 5'000 members of the Entrepreneurs4Future have advocated the creation of a Transformation Fund for climate investments, an acceleration of the deployment of renewable energies, an increase and expansion of CO<sub>2</sub> charges, minimum prices for emissions trading, and other measures in the sectors of transportation, efficiency, and automation, all complemented with further support for developing countries.

### **The solution must be European**

A quick and sustainable economic recovery can only succeed if the effort proceeds across Europe and is built on European solidarity and cooperation.

That requires its member states to prioritize the big picture over national interests. On the short term, the economically more powerful countries will have to make larger contributions. The economically poorer countries, however, will have to accept that these investments are targeted very specifically on greening their economies. A powerful start of the European Green Deal with a total volume of €1 trillion over the next 10 years, combined with a massive program of the European Central Bank to purchase bonds of the same extent this year will give the European economy the necessary push to not only get out of the recession but also make great leaps toward carbon neutrality.

Ottmar Edenhofer, the director of the Potsdam-Institut für Klimafolgenforschung (PIK) is to be applauded for demanding, as part of the recovery program, the creation of a European investment Fund which would be both extremely long-term (some fifty years) as well as low in interest (e.g. 1%) to make available high-risk capital for investments in sustainable, climate-protecting projects. The European Union is at its most critical moment in history. It must decide to either concentrate all its efforts and make it out of the crisis, or else fall apart. If the wrong decisions are taken now, the European Union could become history within a year, or become weakened to the point of no return. In that case, everybody would end up losing out, including the solvent member states. Not even the economically most powerful of them all, Germany, could compete in a global economy by itself, especially as the U.S. and China wrestle to become the world's preeminent superpower. In this situation,

Europe is more dependent than ever on cooperation to not lose independence in this global power struggle. The Coronavirus crisis is an accelerator in this respect.

### **A plea for a green Marshall Plan for the Global South**

China has begun making massive investments into the technologies of the future such as 5G networks and charging infrastructure for electric mobility. If China continues along these lines, it will become the market leader by 2030 in these and other areas such as AI, biotech and renewable energies.

For the overwhelming majority of developing countries, in contrast, the two-fold Coronavirus and climate crises threaten to undo five to ten years of development successes, and thereby miss the opportunity to become an integral part of the world of the future. Already dramatic global inequality would further grow and thus open the door to new conflicts between and within countries. This would additionally fuel nationalism and populism, which have been on the rise since the 2010s, and thus weaken the global and multilateral capacity to deal with this and other crises.

The Coronavirus crisis discredits populists because they have no solutions to offer. If Europe, together with other countries like Canada and New Zealand put together a Green Marshall Plan that supported developing countries in areas like renewable energies, sustainable land and resource use, climate resilient infrastructure, health care, and digital networks and technologies, these countries will overcome the crisis more quickly. That will strengthen European partnerships, not only economically, and will take away the populists' support.

A Global Green Investment Fund could be created along the lines of the European Investment Fund advocated for by Edenhofer: Very long-term and cheap capital to fund projects in the Global South that support the Paris Agreement, SDGs, biodiversity, and marine protection. Such a fund would have to be open to contributions from foundations, private investors, and institutional lenders, all also coming from developing countries themselves. Cooperation with multilateral development banks could further strengthen the investment fund and result in a green Marshall Plan for the Global South. The initial capitalisation of the fund should be at least €100 billion. Similar to the Marshall Plan after World War II, the fund must leverage substantial private and public support in the Global South to increase the investment volume. Such a fund would be an important addition to the short-term aid, emergency credit and debt relief that may be critical to ensure the stability of societies and economies right now, but do little or nothing to make societies and economies more sustainable in the long term. A fund, however, would enable investments that are connected with longer-term goals, such as a reduction of subsidies for fossil fuels, a long-term strategy (LTS) for decarbonization, and a 100% renewable energy supply system, much like the 'double booster' strategy for Germany.

A green investment fund would also be an appropriate answer to the appeal of the UN general secretary, who reminded us that

[We have a responsibility to recover better than after the financial crisis in 2008. We have a framework for action – the 2030 Agenda for Sustainable Development and the Paris Agreement on Climate Change. We must keep our promises for people and planet.]

"European Green Deal with a total volume of €1 trillion over the next 10 years, combined with a massive program of the European Central Bank to purchase bonds of the same extent this year will give the European economy the necessary push to not only get out of the recession but also make great leaps toward carbon neutrality."

### The strengthening of (climate) resilience as a solid element of crisis response

COVID-19 has demonstrated the vulnerability of our globalized world, despite all the achievements of modernity. The consequences of the pandemic have made every economic empire tremble, have destroyed fortunes, and are threatening the sources of income of billions of people. In addition to the healthcare, economic, social and political consequences, the psychological ones will have lasting consequences. Until recently, the promise of an ever-improving future was taken for granted in many parts of the world. But this dream of development as a unidirectional stream toward progress and growth is being seriously threatened by the Coronavirus crisis. We are now experiencing what always has been and always will remain possible. At any time there could be a pandemic of this extent. And yet, this is all just a taste of the damage that the climate crisis will inflict. Both the pandemic and the climate crisis proceed in just the same way: by severing the connections that our complex system of global economic interdependencies live by. What that really means has never been more palpable than today.

To 'build back better' means to improve our resilience with respect to risks through preventative action so that future damages and expectable shocks can be absorbed. Health care systems must be improved by arming populations with emergency pharmaceuticals. Supply chains must be strengthened by taking down one-sided economic dependencies. To build resilience against the next pandemic is as important as building climate resilience.

Although emissions reductions promise long-term protection, a quick decarbonization will not be sufficient because many damages have already become unavoidable, even if we limit global warming to 1.5°C. That is the reason why the climate resilience of our critical infrastructure on the coasts and in the cities, but also in agriculture and water supply is crucial. These considerations must be reflected in recovery programs.

### The crisis is an opportunity for innovation

Crises change mindsets and generate the willingness to make radical steps. That is an opportunity. Even the International Energy Agency (IEA), which is not exactly famous for being a 'green' institution is calling on governments to take advantage of this 'historic opportunity' to aggressively accelerate the transition to clean energies through the stimulus programs that are being drawn up everywhere (Farand, 2020a). Mark Carney, the head of the Bank of England, calls the zero-emissions goal the greatest economic opportunity of our times, adding that 'We need fifty shades of green to catalyse and support all companies toward net zero' (Farand, 2020b). For example, support in the automotive industry should be made dependent on electrification efforts.

Digitalization will continue. Patterns of mobility will continue to change. We recognise the opportunities of remote working, and also recognize that our working habits will continue to change in innovating ways after the pandemic. We can expect more videoconferences and work from home, fewer business trips, more local and regional travel, a strengthening of shorter and more diversified supply chains, decentralised procurement strategies, a strengthening of circular economies, a prizing of flexibility as the foundation for resilience, a new perspective on what really are essential goods and services, and higher investments into healthcare, education, research, and food.

In order for the opportunities for innovation to be used effectively, however, the framework for transformation must be changed fundamentally. One-off stimulus packages do not suffice. For their effect to not dissipate after a few years, we need long-term structural reforms. That will lead to resistance from those whose business models are not future-proof. To achieve 100% renewable energy by 2050, we will have to work continuously until then to succeed in restructuring the electrical grid entirely. Storage capacity will have to be ramped up. A new regulatory framework will have to be created to accelerate the electrification of heating, transportation and industrial processes.



Unfortunately, this development will have to contend with a crash in the price of crude oil that will bring about a long-term depression of fossil fuel prices, which in turn will somewhat reduce incentives to switch to renewable and strive for efficiency. Initial funding will be critical, as well as improved conditions for investment, minimum prices for CO<sub>2</sub> across all sectors, and further measures to improve planning and investment security. That is the only way to accelerate the transition to a green economy and to avoid the rollback that fossil fuels executives are so fervently hoping for.

### May a decade of transformation follow the lost decade of the 2010s

The 2010s were characterized by a resurgence of nationalism that plunged multilateralism into a deep crisis. It saw the renaissance of populism to conspiracy theories that have tried to undermine the role of science and science-based politics; a growing level of social aggression at the price of tolerance, democracy, minorities, and human rights; a dramatic growth of economic inequality in favor of a few global superrich; and, finally, an amazing increase of climate risks resulting from a lost decade of weakening efforts to lower global emissions. The emissions gap has widened so far that, if we want to limit global warming to 1.5°C, we will have to have reduce emissions by 7% per year this decade, which is double the reductions that we would have had to make if we had started in earnest in 2010 (UNEP, 2020).

The Coronavirus crisis, however, could make it easier to tackle this challenge, but not because of the emissions reductions that accompany it. The reason is that it can alter our awareness of risk, and thus may heighten our willingness to make the greatest efforts possible to prevent the next catastrophe. It is not, however, a sure-fire success. It depends on our willingness to act transformationally. Let's do our part!

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