
Finding a sustainable pathway out of the coronavirus crisis

Recommendations from the
Science Platform Sustainability 2030
to strengthen Germany's Sustainable Development





Content

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Preamble

This discussion paper prepared by the Science Platform Sustainability 2030 (in German: Wissenschaftsplattform Nachhaltigkeit 2030, short: wpn2030) presents a number of recommendations to the German Federal government on how efforts to tackle the unfolding pandemic can be harnessed to promote sustainable development and bolster resilience to future challenges. These recommendations are of particular relevance to the forthcoming update to the German Sustainable Development Strategy (in German: Deutsche Nachhaltigkeitsstrategie, short: DNS).

Building on insights developed in the wpn2030 Reflection Paper (2019) on the further development of the DNS¹, this paper advocates for a systematic and integrated approach to crisis management and sustainable development, as advocated by the National Academy of Sciences Leopoldina and other institutions.²

This paper is informed, among other things, by the results of an online consultation on the coronavirus pandemic, which was conducted over four weeks by the Science Platform, yielding 75 contributions (www.wpn2030.de/ergebnisbericht-konsultation-corona); contributions from and interviews with members of the wpn2030 Steering Committee and stakeholders from wpn2030 working processes as well as members of the scientific advisory councils of the Federal Government; final reports from wpn2030 working groups and the Reflection Paper published in 2019 by wpn2030 on the further development of National Sustainable Development Strategy; statements and contributions from the scientific institutions supporting the platform's activities (the German Committee for Sustainability Research on Future Earth – DKN Future Earth), the Institute for Advanced Sustainability Studies (IASS), and the Sustainable Development Solutions Network Germany (SDSN Germany)). In addition, the secretariat of the Science Platform analysed scientific papers, statements and position papers from a range of relevant sources, including member organizations of the multi-stakeholder "Sustainability Forum" hosted by the Federal Chancellery. In total, over 80 such contributions were reviewed.

This discussion paper reflects the role of wpn2030 as a science platform and is informed by the findings of independent working processes. As such, it is not intended to represent the position of the wpn2030 Steering Committee.*

* This discussion paper reflects the findings of working processes and scientific debate across the platform, which have been made available here in order to generate further debate. Recommendations for political action have been developed by actors engaging with the platform on an ongoing basis (for example in working groups) and facilitated by the platform's co-chairs and secretariat. The policy-science interface and its structural and qualitative development is something that scientists, policymakers and other representatives of society must build together so that their respective competencies are optimally harnessed to overcome crises and challenges.

Introduction

Humankind has experienced numerous pandemics as well as economic and social crises throughout history, yet none of these events compares in its extent to the coronavirus crisis. This crisis is set apart by the enormous scale and simultaneity of rapidly unfolding interactions between systems around the world and their potentially existential impacts on every single country and person. The coronavirus crisis has highlighted the interconnectedness and fragility of our societal systems (i.e. our economic, health and welfare systems) and highlighted their close interdependency with ecological systems. It is a crisis with wide-ranging implications for sustainability; with diverse impacts across the ecological, social, and economic dimensions of sustainability, this crisis is likely to intensify income inequality and reduce participation in political processes. Accompanying research is needed to address these issues, given that this crisis will reset the stage for sustainable development strategies worldwide.

An unprecedented crisis may become the new normal

Spanning a multitude of interdependent existential threats, this crisis ought to serve as a warning to more urgently pursue sustainable development pathways and, by implication, the implementation of Germany's Sustainable Development Strategy (DNS). The coronavirus crisis has already changed our society, and the upheavals it has precipitated are posing great challenges for leaders in politics and society. As unprecedented as it may seem in comparison to previous crises – such as the oil crisis of the 1970s, the 2008 financial crisis, the depletion of the ozone layer, the HIV crisis of the 1990s and the more recent outbreaks of Ebola – this crisis might well foreshadow the future crises of the Anthropocene³. Whether climate change, biodiversity loss and soil degradation, coupled with growing inequalities and precarious health and social situations in increasingly divergent societies –according to everything we know so far our future is likely to be characterized by extraordinary, destructive feedback mechanisms between ecological and societal systems and within societal systems.

Indifference to the unsustainability of our lifestyles and economic activities could lead to further comparable crises in the future. The current crisis offers us a glimpse of this future and its systemic implications. It is crucial that we learn from this experience. The coronavirus crisis sounds an urgent warning that we must adopt more sustainable development pathways if we are to prevent or mitigate future crises.

The coronavirus pandemic is also a timely reminder of the need to move beyond the "tragedy of long-term objectives" whereby much-needed action to tackle the great challenges of the present is delayed. The open horizons of science and the promise of more and newer knowledge must not tempt us to postpone measures that we already know to be necessary. Equally, the findings of science on issues such as climate change and the biodiversity crisis, and the shrinking windows of opportunity for action to address these challenges, must be considered in policy planning. Measures to strengthen sustainability can only improve our resilience to future crises if they are implemented in time. We must therefore think and act to foster sustainable development in concrete terms of *where* and *when*. We can no longer afford to be distracted by isolated incidents from the task of adopting and implementing a preventive approach at systemic and structural levels.

Finally, it is becoming increasingly clear that the concept of sustainability, which formerly focussed on stability and permanence, must in the future take into account the effects of disruptive change and the role of such events within transformations towards sustainability. Like any disruptive event, this crisis is a call to question established structures. It is in many ways a fundamental crisis that will take us years to fully resolve. This will be both time-consuming and costly, while resources are scarce, and will have consequences for the societal transformations needed to respond to crises such as climate change. Now is the time to place these transformations on a sustainable footing.

Place the German Sustainable Development Strategy at the centre of government policy

Against the backdrop of the coronavirus pandemic and its management, the DNS must be developed further and placed at the centre of government action. This will enable the DNS to play a central role in strengthening societal resilience to crises over the longer term and make sustainability a guiding principle of governance and a compass for actors across all sectors of society. The DNS must actively address global system dependencies and feedback effects as well as the socio-ecological interdependencies evident in the interactions between poverty, hunger, and climate change. We must also acknowledge that the disruption of supply chains by the pandemic, coupled with a subsequent strategy in Germany to foster a regional and circular economy could lead to significant economic and societal turmoil in regions previously linked to value chains that were at least in principle cooperative by design.⁴

Given these circumstances, the Science Platform Sustainability 2030 recommends that the Federal Government pursues a sustainable approach to overcoming this crisis while also expanding the scope of its sustainability policy – in particular through the DNS. These efforts should be combined with future-oriented, near-term measures to make sustainability policy a cornerstone of societal resilience to crises. Sustainability and resilience are interdependent, and their strategic integration within the DNS must reflect this.⁵

To advance this goal, the Science Platform Sustainability 2030 recommends that the Federal Government:

- 1. Strengthen systemic thinking and action in sustainability politics and draw on science**
 - 1.1 Introduce comprehensive foresight and performance assessment mechanisms (360-degree crisis scan) to guide policy development
 - 1.2 Make the science-policy-interface a key focus of the Sustainable Development Strategy

- 2. Strengthen resilience through the Sustainable Development Strategy (DNS)**
 - 2.1 Connect resilience and sustainability within the DNS
 - 2.2 Anchor the roles of risk prevention and preparedness and support essential public services through the DNS
 - 2.3 Adopt a broader understanding of innovation within the DNS
 - 2.4 Use the economic recovery to make a fresh start towards sustainability

- 3. Reinforce the political relevance of the Sustainable Development Strategy**
 - 3.1 Strengthen the organisational function of the DNS
 - 3.2 Introduce leadership competence for sustainability at national level to better utilise the potential of the DNS
 - 3.3 Take advantage of federal dynamics through the DNS and encourage multi-stakeholder initiatives
 - 3.4 Utilise synergies between the European Green Deal and the DNS
 - 3.5 Strengthen international dimensions

- 4. Recommendations for exemplary fields of transformation**
 - 4.1 Work as a field of transformation
 - 4.2 Digitalization as a field of transformation
 - 4.3 Consumption and production as a field of transformation
 - 4.4 Mobility as a field of transformation

Recommendation 1

Strengthen systemic thinking and action
in sustainability politics and draw on science

With its far-reaching impacts and interdependencies, the coronavirus crisis has revealed the need for thinking and action at systems level⁶ and highlighted the importance of foresight and knowledge relating to the causes and contexts of crises as the cornerstones of a systemic approach.⁷ Our capacity to adapt to systemic crises such as the coronavirus pandemic or the looming climate crisis accordingly depends on the successful combination of systemic, orientational and transformational knowledge.⁸ Science has a key role to play here; it must interrogate its practices and role across the entire system of human-environment interactions and initiate changes within the scientific system and in science policy.⁹

Closer cooperation between the scientific and policy communities has played an important role in efforts to address the coronavirus crisis. This is equally important for the translation of the Sustainable Development Goals into the German Sustainable Development Strategy (DNS) – in terms of generating relevant research results, reflecting critically on these new findings, ensuring their dissemination in the policy development space and political debate, and translating them into political action. Cooperation between scientists and policymakers should therefore be strengthened within the framework of the DNS.

1.1 Introduce comprehensive foresight and performance assessment mechanisms (360-degree crisis scan) to guide policy development

Policy measures should be guided to a greater extent by scientific understanding of the broader contexts within which both past and present societal challenges unfold. Equally, when weighing the potential consequences of political action or inaction, the findings of science should be considered more carefully.

This is essential to improving the ability to plan for and manage preparations to deal with potential systemic crises in the future. Achieving this aim will require the development of an effective governance structure linking politics, science and society to facilitate a "360-degree scan for future crises".

The coronavirus crisis highlights the systemic nature of contemporary global crises¹⁰ and the relevance of both foresight and the scientific study of their contexts – not least with respect to recent international debates on Emerging Infectious Diseases (EID), two-thirds of which are zoonotic (i.e. can be transmitted from animals to humans and vice versa).¹¹ The risks arising from the growing number of EIDs cannot be properly understood in isolation and are related – directly and indirectly – to developments such as the biodiversity crisis and climate change.¹²

It is also no longer possible to draw a clear distinction between health policy and environmental issues such as climate protection. Instead, the systemic linkages between ecological and socio-technical dynamics are increasingly taking centre-stage in contemporary research. Reflecting this development, sustainability is clearly not only relevant to issues relating to the effective

management of crises, but also to understanding the causes of pandemics such as coronavirus. Alongside urgently needed efforts to alleviate poverty and hunger, the preservation of resilient natural habitats, the stabilization of regional ecosystems, and the implementation of measures to protect the global climate are all comparatively affordable and effective solutions to prevent future pandemics. In other words, a robust approach to protecting the climate and biodiversity will benefit healthcare.¹³ This thinking underpins new concepts in health research such as "One Health" and "Planetary Health", which acknowledge the elementary relationship between animal, environmental and human health.¹⁴ The SDGs address the interdependent fields of action relevant to such an approach and offer a strategic framework to guide implementation.¹⁵ Approaches such as "One Health" and "Planetary Health" depend on this broad perspective. The role of the SDGs as a framework within this context should be strengthened by the DNS in order to increase their relevance to the issues addressed by different government ministries.

"The German government is currently revising its global health strategy from 2013, providing an opportunity to engage more closely with the Sustainable Development Goals. A strategy for public health within Germany itself has not been previously prepared, nor is one planned. The European Green Deal, which addresses issues of planetary health, among other things, also engages with health objectives in some areas, but social transformation, human well-being and capabilities have so far been excluded. Overall, discourses relating to health and sustainability and the corresponding concepts and strategies have not been sufficiently interlinked."¹⁶ (SDSN Germany)

Unlike the coronavirus pandemic, many systemic crises are not accompanied by a collective experience of disruption or even panic. Action to secure a better future must therefore be motivated by more than the perceptibility of crises, and scientific foresight, in particular, is likely to play a key role.¹⁷ This problem is not new. In the Anthropocene¹⁸, however, its successful resolution will be crucial for efforts to move towards a sustainable and resilient future.

It is also important that we build upon the sense of self-efficacy experienced by many citizens during the coronavirus crisis and connect it with knowledge-based and preventive strategies and related strategies. This holds huge potential in terms of supporting the development of resilient societies "from within", and mobilizing competences and resources embedded within society. These resources can also be applied to address longer-term challenges such as climate change and the struggle against growing social inequality.¹⁹

"At the same time, in Germany and other countries political measures were justified and if necessary adjusted with scientific advice. This approach engaged several factors that play a role in psychological resilience: a conviction of self-efficacy, namely the belief that our actions have the capacity to affect the local and global situation, as well as problem-solving and self-regulatory competences. The most important factor, however, is perhaps participation – the individual's involvement and even participation in events as they unfold – which was promoted, to a degree, by this transparent approach to communication."²⁰ (Jörg Fegert, Vera Clemens)

1.2 Make the science-policy-interface a key focus of the Sustainable Development Strategy

In order to ensure contextual analysis and foresight in policy development, the science-policy interface should be given greater standing within Germany's Sustainable Development Strategy.²¹ The Science Platform Sustainability 2030 (wpn2030) has been integrated into the steering, dialogue and implementation processes for the 2030 Agenda for Sustainable Development and Germany's Sustainable Development Strategy in order to ensure that the debate around sustainability policy is adequately informed by the findings of science.²² Looking towards the forthcoming update of the DNS, the scope of the Science Platform's activities should be broadened to include emerging issues and scientific foresight to address future crises and identify new fields of opportunity.

At the same time, the wpn2030 remains a scientific process – open to all agents – that supports transformations towards sustainability. In addition to its ongoing work in organising dialogues for advisory councils (to the Federal Government), it should be used to establish new formats to foster dialogue with thematically specialized research platforms and programmes for sustainability. Building on cooperation between science and sustainability policy, the DNS should adopt a broad perspective that engages with the Federal Government's various strategies and promote an integrated approach to their implementation.

Within the scientific community, greater attention should be paid to processes that reflect the consequences of crises such as the coronavirus pandemic and which promote engagement with emerging topics and methodologies – both within science and at the interface of science and policymaking. With regard to the prerequisites for successful scientific policy advice, "scientific incentivizing systems should be realigned in order to recognize and promote trans- and interdisciplinary research focused on key social issues and sustainable development".²³

The recommendations developed in dialogue with the scientific advisory councils to the Federal Government in 2019 should be reviewed and implemented. These relate, among other things, to the councils' interactions with the relevant ministries, the receipt of their advice, the development of more effective interfaces, reliable funding, and the dissemination of findings.²⁴

Recommendation 2

Strengthen resilience through the Sustainable Development Strategy

The Sustainable Development Strategy (DNS) provides an instrument to promote systemic policymaking and political action at the national, European, and international levels, strengthening Germany's resilience to crises such as the coronavirus. However, both in its conceptual and political dimensions, the DNS is not yet adequate to the challenges presented by pandemics or systemic crises in general. This deficit has been brought into focus by both the current pandemic and the accelerating pace of climate change. Future iterations of the strategy must engage with the clear need for near-term policies and measure to address the tragedy of long-term goals; i.e. the postponement of efforts to tackle ambitious goals. Likewise, the translation of the SDGs into the DNS remains a work in progress.²⁵

This finding applies to the strategic foresight mentioned as well as to the treatment of systemic changes brought about by i.a. global warming, inequality – including its implications for refugee and migration flows – exclusion from public life, natural resource depletion and biodiversity loss, inadequate health care, and multi-year droughts.²⁶ It is important that the Federal Government seizes on the opportunity presented by the forthcoming update of the DNS to expand the Strategy's conceptual toolbox, enhance its use of review mechanisms, and specify the timeframes for its implementation so that it can contribute to strengthening the resilience of our society.

2.1 Connect resilience and sustainability within the DNS

The coronavirus pandemic has revealed the vulnerability of our social systems in the starkest terms. As a consequence, policies and measures to address resilience and sustainability must be more closely integrated, reflecting interdependencies across systems relevant to the SDGs and the complexity of the challenges facing humanity.

"With respect to resilience: the functioning of critical ecosystem services must be maintained even when the system is under stress. Regarding sustainability: safe and healthy living conditions for present and future generations" should be developed and, where this has already been achieved, their preservation should be ensured.²⁷ The Sustainable Development Strategy should be used as a tool to ensure interaction between resilience and sustainability in Germany, Europe and worldwide and to determine its timing.

"To a large extent, Germany's Sustainable Development Strategy (DNS) assumes a gradually unfolding transformation unaffected by major disruptions. This is understandable and a reasonable approach to achieving the envisaged goals. In our view, the forthcoming update to the DNS, which is fit for the future, should take greater account of the risks posed by extreme events and their impacts on natural and socio-economic systems in order to deliver a risk-aware development strategy. [...] Future revisions to the DNS should as far as possible aim to strengthen societal resilience to these 'hazards'."²⁸ (Markus Reichstein)

It is important that we gain a better understanding of the links between sustainability transformations and resilience, including but not limited to their interaction with extreme

events.²⁹ Transformations are more than implementation processes aimed at achieving pre-defined goals. Rather, they should be understood as crisis-resistant mechanisms or iterative learning processes that must be shaped over the near term through decisive – or even disruptive – action. Opportunities to advance their progress in the context of dynamic situations such as crises should be harnessed where possible.

The coronavirus pandemic has exacerbated existing systemic weaknesses, from the vulnerability of global supply chains to disparities in educational opportunities.³⁰ The Federal Government should conduct a systematic analysis on the basis of the DNS of the various warning signs that heralded this crisis. The insights gained through this should be used to develop the DNS as a central strategic management instrument incorporated within the political decision-making processes. At the same time, the pandemic has also demonstrated that towns and cities are crucial for crisis management and its implementation. The DNS should accordingly be used to strengthen municipal structures, functions, and relevant programmes. Sustainability and resilience management systems must be developed and put into place at this level. The lessons learned in the context of this pandemic can play a crucial role in developing an DNS that is fit for the present and the future and should be properly analysed to ensure their application.³¹

2.2 Anchor the roles of risk prevention and preparedness and support essential public services through the DNS

The current crisis in Germany and abroad highlights the need to make risk prevention the benchmark against which the stability of societies is measured.³² Managing immediate and acute threats and reducing future risks through preparedness are two sides of the same coin, but they differ in terms of their legal consequences, such as temporary restrictions on fundamental rights.

There is a clear role for science to play in identifying the existence of significant risks and the need for their mitigation as well as in assessing the effectiveness of measures intended to address them. At the same time, measures to ensure preparedness must be implemented more consistently than in the past, and long-standing dependencies questioned. The various options that should be reviewed with the support of scientific expertise include the development of more resilient supply chains, the adoption of circular economy principles, regional economic development (in a context of global cooperation), improved stockpiling of medical products, and the establishment of strategic reserves of foodstuffs.

"Sustainability research and scientific debate around sustainable development are and must be a branch of science that focusses in particular on prevention and preparedness rather than follow-up action."³³ (Busso Grabo et al. 2020)

Another consequence of the coronavirus pandemic is a rebalancing of the relationship between public services and intervention, on one hand, and private initiative and responsibility on the other. Government institutions should manage the development of public services and associated technical infrastructures in a manner that supports broader efforts to provide citizens with access to sustainable energy, mobility, housing, and health services. Market-oriented development opportunities should be exploited only where this is likely to deliver clear benefits. Interfaces between these system elements should be governed transparently and uniformly and

subject to robust oversight mechanisms.³⁴ Drawing on the lessons learned from the coronavirus pandemic and through the DNS, a systematic review should be conducted to better align public services with the SDGs.

2.3 Adopt a broader understanding of innovation within the DNS

Innovation plays a central role in making structures resilient and sustainable.³⁵ In general, rather than hoping to find solutions in the form of individual innovations, innovation should be regarded as one element within a systemic transformation process that spans the full spectrum of the SDGs.³⁶

There is an urgent need to consider innovations in terms of their ability to facilitate more sustainable development pathways. If innovation is regarded in isolation, opportunities to promote greater sustainability are likely to be missed as economies are ramped up again, in particular in cutting-edge fields such as mobility and hydrogen technology.

Past successes are proving their worth today in areas that are coping better with the impacts of the current crisis. Digitalization, an interdisciplinary perspective, cross-sectoral and regional economic networks, innovative and resilient communities, entrepreneurial flexibility and a nuanced awareness of actual and latent stakeholders are all important levers for the development of resilient (i.e. future-proof and sustainable) management structures for production and consumption systems.

There is more to sustainable production and consumption systems than technical innovation. The current pandemic has underscored the importance of social innovation. Many civic initiatives contain extraordinary potential to establish or maintain new forms of social intercourse and to strengthen society now and beyond the current crisis. Efforts to build on this potential will require funding, access to resources and other support measures, as well as scientific research, including on development processes and the effects of social innovations on the entire human-environment system.³⁷ Many technical and digital innovations only succeed when development processes are needs- and solutions-focussed and the end-products reflect people's ideas. Accordingly, the design of technical innovations must focus on achieving the SDGs, and therefore address current societal challenges.

Dialogue and cooperation are crucial to the successful development of solutions for highly complex problems and of policy recommendations to strengthen the innovative capacities of industry and science in order to foster sustainable development. The DNS should accordingly adopt and implement an understanding of innovation that promotes the development of socio-technical innovations to advance sustainability at all levels of society and the economy. Innovation is not an end in itself; it must be nudged in a particular direction if it is to offer solutions to societal challenges. The DNS should accordingly play a more prominent role in discourses on innovation: fostering debate across diverse government departments, branches of science, sustainable enterprises, and in interactions with various societal actors.

2.4 Use the economic recovery to make a fresh start towards sustainability

The German government's economic stimulus programme should be used to make a fresh start towards sustainability and a more crisis-resilient society. It should be supplemented by timely reductions in direct and indirect subsidies to climate-harming fossil fuels.³⁸

It is a positive signal that, in addition to short-term relief, substantial resources are to be allocated under this programme to addressing longer-term challenges.³⁹ The anticipated boost to the economy brings with it a particular – perhaps historic – responsibility to prioritize investments that will promote the development of a low carbon, climate- and resource-efficient circular economy, associated lifestyles and consumption patterns, mobility solutions that promote human health, stronger health systems including a "one-health" approach focussed on prevention, and sustainable agriculture and food systems that promote biodiversity.⁴⁰

The recently adopted EU regulation to establish a framework to facilitate sustainable investment (EU taxonomy for sustainable activities)⁴¹ offers a concrete list of criteria for sustainable economic activities to guide policymaking / the German government. In those sectors not yet covered by the taxonomy, the government should seek to adopt binding sustainability targets for stimulus and rescue measures. This will require an impartial analysis to identify areas relevant to transformation fields that have yet to gain sufficient traction in public debate and policymaking to be considered suitable targets for stimulus or investment.

The economic stimulus programme might potentially slow progress on key transformations towards sustainability, but not necessarily. And – as a best case – if the programme will truly promote transformations, a significant challenge will in addition be considered; namely, the fair distribution of the resulting costs and benefits. As with resilience, preparedness, and innovation, this is a fundamental issue that should be actively addressed through the DNS. This applies equally to efficiency, consistency and sufficiency, which should all play a more prominent role in a strategy to promote sustainable development. All of this would infuse the "fresh start" with fresh thinking.⁴²

Recommendation 3

Reinforce the political relevance of the Sustainable Development Strategy

With respect to its political impact, the German Sustainable Development Strategy (DNS) falls far short of the ambitions of its supporters in civil society and of the political expectations of the German government. It is not reaching its full potential in terms of building Germany's resilience to crises. This is not a new problem. The coronavirus crisis should therefore be used as an opportunity to fundamentally rethink the structures and processes of the DNS –in terms of its broader governance and, in particular, the establishment of precise and binding milestones.⁴³

The DNS should be further developed to reflect the need for near-term action and be applied proactively as an instrument for building political programmes and action plans. The DNS should be able to shape and effectively guide sustainability policy at national level in order to initiate and exploit existing federal processes for sustainability and to improve its strategic integration into international and multilateral policies. The timing of the sustainability strategy and key political processes should also be better coordinated with one another, and the focus should be shifted to key transformations and overarching levers.⁴⁴ [SEP]

3.1 Strengthen the policy function of the DNS

Germany's sustainability policy needs to "get ahead of the curve", especially in overcoming the current coronavirus crisis, and for this it must be given a greater role in policy processes.⁴⁵ Up to now, the DNS has measured progress on targets and policy measures with the help of indicators. This approach should be maintained, as it serves an important and hard-won political function.

It is advisable, however, to define the indicators in such a way that they are clearly relevant to the realities of people's lives and ambitiously reflect the SDG sub-targets. The first step would be to identify the most useful indicators and define, where such indicators are still needed, the path towards such desired targets (starting with available data and considering which additional data are needed for the target setting). For example, no-one "experiences" the current DNS indicator on sustainable mobility in everyday life,⁴⁶ unlike the indicators for organic farming or the 30-hectare target (reducing land consumption for building and roads to 30 hectares per day). The former so far remains ineffective, while the market and consumers have already responded to the latter. SDG 3 on health must also be integrated into the DNS in a manner that is both strategic and explicitly addresses its systemic interconnections to the other SDGs.⁴⁷

It is a strategic political challenge to organise the management, reporting and consultation processes of the DNS to ensure that it is not sidelined by ostensibly more urgent matters.

Acute political constraints often cause this to occur precisely when a framework such as the SDGs would be particularly useful as a means to guide innovation and development towards more sustainable solutions.

The DNS should be further underpinned by a series of new and experimental actions from within and outside the federal government that are not necessarily linked to the indicators (for example, because long-term statistics are not yet available). Real labs and Living labs should be applied

here as valuable instruments.⁴⁸ Ministry Coordinators for Sustainable Development across all of the federal ministries should be assigned a joint budget title (cost centre), administered by the Federal Chancellery, to which they may submit competitive bids. It is also recommended that the existing instrument of "lighthouse projects" be developed further.

In addition to the current management-by-objective approach, which involves pursuing agreed goals and targets, the DNS should include a cultural governance (i.e. a cultural dimension, language of art, cultural change, and so-called "soft" factors of governance), as well as the governance of non-profit networks (in particular regional stakeholders, local and regional networking, linking of sustainability networks, for example with recreational sports, as well as large-scale sporting and cultural events, and the use of structured best-practice processes). Special attention should be paid to corporate governance that is committed to sustainable production and management. To achieve all of this, the DNS urgently needs its own access to empirical data (e. g. on the real market penetration of sustainable products) and an action plan to set its own benchmarks for best practice. This must be developed and implemented at the municipal level and integrated into a sustainability governance system that empowers the actors in the multi-level system to act sustainably and resiliently. The SDGs and the DNS are the key instruments to make the actions measurable and enable evaluations. Strong municipalities are a prerequisite for sustainable development - acting not in isolation, but in cooperative and creative interaction and innovation.⁴⁹

Due to the priorities of pandemic control, the German federal government has extended its deadline for updating the DNS. It should not risk a further postponement. The 2020/21 update must now be implemented ambitiously. It should be accelerated in such a way that the new government which will take office following the 2021 elections has the chance to introduce a different policy cycle that can proactively respond to challenges right from the start of the parliamentary term.⁵⁰

The 360-degree crisis analysis recommended at the outset of this paper would offer a suitable foundation for a strategic foresight of risks, opportunities and plans of action. It should be used as a dialogue process at the interface between science and policy, and to use and make transparent the systemic interdependencies of a global SDG strategy.

3.2 Introduce leadership competence for sustainability at national level to better utilise the potential of the DNS

The requirements for sustainability governance are many times more demanding today than twenty years ago, when the DNS was launched with the governance innovations of the Sustainable Development Council and the State Secretary's Committee.

While steering and innovation requirements have grown, as has the significance of these aspects for budgets, the federal government has left its structures largely unchanged. At the same time, public concern around sustainability issues is greater than ever, the public discourse is becoming increasingly sophisticated, and not least, there is scientific evidence that eating habits, mobility behaviour, digital working, digital public participation and social preferences are changing, in some cases rapidly.⁵¹ The coronavirus lockdown has reinforced in many cases these changes and

heightened their visibility. A successful European Green Deal is likely to further amplify these trends, especially among the younger generation.

In this context, the Federal Audit Office released the following statement in 2019: "The government departments should synchronise action and embed sustainability in line with the policy goals defined. This is where the role of the Federal Chancellery comes into play. Care should be taken to ensure that the principle of ministerial autonomy does not undermine a holistic approach."⁵² To this end, it will be necessary to overcome the current paradoxical situation wherein political responsibility is concentrated yet departmental competence and funding are often lacking.⁵³ In revising the DNS, the organisational system for sustainability issues within the Federal Chancellery should be critically examined and concrete improvements implemented. Consideration should be given to strengthen the current arrangement whereby the Head of the Federal Chancellery/Federal Minister and the State Secretary's Committee for Sustainable Development bear all leadership responsibility. For example, it might help to make decision-making processes more transparent and compliant with the principles⁵⁴ of the DNS. To this end, responsibility within the Federal Chancellery would also need to be more centralised. Models for this already exist; for example, in the case of the Advisor on Foreign and Security Policy and the G7/G20 sherpa. The Chancellery itself could ensure that its various departments are consistently guided by the DNS and insist that the same approach be applied in the other ministries, especially when drafting the federal budget. In addition, consideration could also be given to a new management position below the head of the Chancellery, which would co-ordinate the many different areas of work and budgetary resources within the Federal Chancellery and the ministries with regard to the DNS, which the Federal Government is now spending or should be spending on sustainable development policies. This could be defined as a minister of state or commissioner to avoid merely shifting responsibility to a different silo.⁵⁵ An in-depth discussion on this issue is now due, also involving the scientific community.⁵⁶

The overarching goal must be to strengthen the Federal Chancellery in its capacity to set guidelines and ensure operational management of sustainability processes within the government, to support better exchange with Parliament, and to further increase its presence in public and multi-stakeholder networks on sustainability. The legislative process and budget management (including investment and consumption expenditure) should also be more closely aligned with the sustainability goals.^[SEP]

3.3 Take advantage of federal dynamics through the DNS and encourage multi-stakeholder initiatives

Systemic political cooperation across all levels is central to strengthening crisis resilience and sustainability. For example, it became clear during the lockdown and now with the easing of coronavirus measures, that the advantages of cooperation between the federal and state levels far outweigh those of the federal government going it alone.

The crisis has shown how an actively engaged federal government can deal in a cooperative manner with municipal⁵⁷ and state bodies, with EU bodies, neighbouring countries and social forces of all kinds. The federal government should systematically evaluate the value of these

interactions for sustainability policy and strengthen federal dynamics in the long term through the DNS. The wpn2030 provides an excellent opportunity for the federal government to enter into a dialogue with a view to developing and implementing such an analysis.

Municipalities, for example, are currently faced with the task of developing more resilient structures for administration, provision, infrastructure, digitalization, and business and society. Their objective is not only to be better prepared for pandemics, but also to better cope with the major transformation challenges of the future. An exchange of experiences on the ground and between local authorities in Germany, Europe and internationally is crucial for a comprehensive understanding of sustainability and resilience management that takes into account the socio-ecological balance of people's lives. This agility among municipalities is of vital importance to the SDGs and their implementation. At the same time, the SDGs can provide a framework for a precautionary resilience strategy that makes municipalities and people better able to respond to the unforeseen.

The funding provided by the federal economic stimulus package and the European Green Deal to develop green infrastructure should be leveraged in the areas of mobility (filling stations, fleet policy, urban-rural differences⁵⁸), support for organic farming and animal welfare⁵⁹, sustainability management (in municipalities), sustainable lifestyles and consumption, and digitalization for sustainability. This can be done by making use of the informal and automated processes of federal joint projects ("more sustainability for every euro"), for example through a joint federal-state undertaking on "Transformation to sustainability".

3.4 Use synergies between the European Green Deal and the DNS

With the European Green Deal, the EU Commission is pursuing an ambitious programme that can offer a major boost for sustainability across Europe. The fact that the EU Commission sees the coronavirus crisis more as an accelerator than a brake on the pursuit of its "green" and digital transformation agenda is to be welcomed. The German government should, especially while holding the EU Council Presidency, play a strong role in substantiating⁶⁰ and promoting this agenda. For example, the concepts of the circular economy and the bioeconomy should be promoted with the help of the European Green Deal, and mutual learning models between economic regions and municipalities around the world should be developed. A 'made in Europe' approach of this kind could be conducive to a global resilience strategy, combined with minimised material flows and maximised innovation learning curves. As the 2019 Europe Sustainable Development Report shows, linking key European policy areas and concerns with the transformational goals of the 2030 Agenda offers great potential for achieving the SDGs in the EU.⁶¹

At the same time, the revision of the DNS offers the opportunity to establish synergies between the European Green Deal and a sustainability strategy. On one hand, the European Green Deal aims to develop a political dynamic for essential transformation areas, as the wpn2030 also called for the DNS in the past.⁶² On the other hand, the European Green Deal could benefit from a framework sustainability strategy to identify and remedy missing linkages (in particular, organising and promoting Citizens' Agenda processes and linking them to multilateral policy

processes). In this context, the European exchange between experts and senior officials as well as between pioneering municipalities on sustainability should be expanded in order to learn structurally from and for the development of other regions.

Finally, the existing mechanisms for scientific policy advice at EU level (SAM – Science Advisory Mechanism and SAPEA – Science Advice for Policy by European Academies) should be more strongly oriented towards transformations for sustainability. Planning to achieve this – both in terms of staffing and function – is lacking. Enhanced networking of bodies such as the wpn2030 at Member State level, and cooperating with the mechanisms at EU level should also be further promoted.

3.5 Strengthen international dimensions

The coronavirus pandemic has highlighted again the powerful impact of global interdependencies on Germany and how important it would be to shape them through a committed sustainability policy.⁶³ In many developing and emerging countries the pandemic is wiping out the successes of the past years or even decades in the fight against poverty or other 2030 Agenda goals.⁶⁴

In a strategy paper entitled "An effective international response by Germany to COVID-19", the German government has made a commitment to using development cooperation aid in partner countries to support particularly disadvantaged societal groups while taking 2030 Agenda and the Paris Climate Convention as a guideline.⁶⁵ This is to be welcomed and should apply to all of Germany's multilateral engagements, whether in the UN Security Council or the Human Rights Council. Germany's involvement in the G7 (of which it will hold the Presidency in 2022) and G20 should also be guided by the entry points and levers for transformations recommended in 2019 by an independent group of scientists in the Global Sustainable Development Reports 2019 (GSDR)^{66, 67} The German government should also consider which contributions and integrated measures it intends to make as part of the acceleration and catch-up programme for the SDGs for the "Decade of Action and Delivery"⁶⁸, and make a corresponding commitment in its revised DNS.⁶⁹

At the UN High-Level Political Forum (HLPF) in July 2020, integrated measures were also discussed under the motto "Build Back Better". These contribute to crisis management and poverty reduction as well as to climate protection and the achievement of the other SDGs.⁷⁰ The German government needs to develop an inclusive and strategic preparatory process for the HLPF 2021 in order to produce a convincing and ambitious Voluntary National Review in New York next year, based on the revised DNS. In particular, should Germany emerge from the coronavirus crisis sustainably and well, international interest in the German report and the measures presented there is likely to be high.

A continued strong commitment to international cooperation is also necessary for the development of and access to a vaccine, and to ensure the WHO's ability to work.⁷¹ In addition, it is recommended that the German government advocates multilaterally and bilaterally for sustainability criteria with regard to the Covid-19 recovery programmes being launched

worldwide.⁷² It should also support the UN Secretary-General in his efforts to support low-income countries' post-coronavirus development through innovative sustainability projects.

Overall, the issue of sustainability ought to play a much greater role in the German government's bilateral relations. For example, development cooperation partner countries should be given greater support in setting up and expanding scientific institutions devoted to sustainability. Likewise, the German government should make sustainable development a central issue in its bilateral relations with other industrialized countries, as should the EU in its cooperation with other regional organisations.

Finally, the Federal Government should consider strengthening its scientific engagement on the issue of international interdependencies. For example, it could support an international project to investigate and identify suitable ecological, social and economic benchmarks to record and evaluate typically externalised ecological and social impacts in the supply chain. In doing so, researchers would also need to ask whether and how concepts of circular and regional economy, as discussed in Germany and the EU, affect other forms of value-chains both in terms of international cooperation and networking (i.e. value chains of knowledge and competence instead of material flows), and which opportunities for alternative economic development are available to supplier countries.⁷³

Recommendation 4

Recommendations for exemplary fields of transformation

The coronavirus crisis has shown that rapid change is possible in key areas of life, although this is currently occurring as a result of an external pressure on society. Germany is undergoing comprehensive transformation in various fields (such as energy and agricultural policy, the mobility sector, and digitalization), which must be continued even under pandemic conditions in order to achieve the goals of the 2030 Agenda and the Paris Climate Agreement.⁷⁴ At the same time, new challenges must also be taken up and the momentum generated by the debate on the management of the European Union's Green Deal and Germany's EU Council Presidency, as well as the implementation of the German economic stimulus package, must be utilised to the full.

In the following section, we present the recommendations of the Science Platform Sustainability 2030 for the design of exemplary fields of transformation, which are informed by the results of the platform's various work streams. With regard to other key sustainability issues such as decarbonization or defossilization, which are currently not addressed by the Science Platform, reference is made here to the most recent study by the National Academy of Sciences Leopoldina.⁷⁵

4.1 Work as a field of transformation

Recommendation: Include work in all its forms as a cross-cutting theme within sustainability policy

A key insight gained from the coronavirus crisis is that we have to shape our working world differently so that it serves society as a whole and is sustainable in social, ecological and economic terms.⁷⁶ The different worlds of work are closely interwoven and require a forward-looking and sustainable approach. Not only do the ideas and concepts of work urgently need to be expanded and work in all its forms recognised, but structural changes are also needed to organise work in a comprehensive and integrative manner as a cross-cutting political issue.⁷⁷ One can also reflect on systemic interactions *ex negativo*: The high incidence of coronavirus cases in the meat industry in Germany is an example of how quickly poor working conditions and associated precarious living conditions can become an ecological and health hazard for everyone. Social balance and participation, especially in education⁷⁸, are important factors in ensuring that societies have a high degree of resilience.

Recommendation: Lead a societal exchange on systemically relevant activities

The preventive measures taken during the pandemic served to highlight which workers and occupations are fundamental to the functioning of society and to protecting vulnerable groups such as the very elderly and those with pre-existing illnesses. It is important to note that the often-cited "systemically relevant" groups include many workers in poorly paid and insecure employment. The societal debate about which occupations are essential (for example,

ambulatory care and support staff, couriers or long-distance lorry drivers), their working conditions and how they are socially valued and recognised, ought to be sustained and translated into concrete sustainability policy.⁷⁹ Women are particularly affected because the care economy has remained largely a female sector and because women make up the majority of employees in many systemically relevant yet underpaid professions such as nursing, day-care/schools, retail, cleaning services, and health care.

4.2 Digitalization as a field of transformation

Recommendation: Further develop digitalization as a cross-cutting issue in sustainability policy

The coronavirus crisis has also drawn greater attention to digitalization. The digital transformation was already an urgent challenge before the crisis and has now been significantly advanced in certain areas. In order to move from reaction towards a more forward-looking approach to digitalization for sustainable development, it must be understood as a cross-cutting element of sustainability policy.⁸⁰ That the benefits of digitalization are double-edged, for example with regard to the goals of sustainable consumption, must also be systematically considered. An important task ahead of us is to link the coming digitalization push with sustainability issues, for example through the use of IT to improve the management and efficiency of material and energy flows⁸¹ (through, for example, smart grids and mobility) and in connection with principles of Green IT and a recycling-oriented e-waste strategy. Germany can be a pioneer in this field. In addition to the environmental dimension, questions of (unequal) availability and participation in digital infrastructures and services also arise.⁸²

Recommendation: Anchor a holistic strategy for the digitalization of education and the world of work in the DNS

In order to enable equal opportunities and digital inclusion, digital education and digital learning must be anchored firmly and sustainably in schools.⁸³ After all, exclusion is a possible consequence of unsustainable digitalization.⁸⁴ The aim should be to better synchronise human needs with the potentials of digitalization, for example in future modes of work and in forms of digitalization that are sustainable in terms of energy and materials, as well as social and regulatory policies. This change can only be implemented by mature and digitally literate people.⁸⁵ In terms of sustainability policy, the digitalization strategy of the German Federal Government must be geared to the goals of sustainable development, and this must be implemented in particular for the digitalization of education and the world of work.

4.3 Consumption and production as a field of transformation

Recommendation: Seize the opportunity to make supply chains resilient by adapting production and consumption structures

The coronavirus crisis is sending shock waves through the production and consumption of goods and services. Now is the time to make supply chains resilient and to avoid as far as possible negative externalities generated by work and production, without ignoring unsustainable international supply chains. For example, due to the lockdown measures in developing and emerging countries the coronavirus pandemic has increased the risks of child labour and exploitative pay. Sustainability must be ensured along the global value and supply chains (as well as along the now equally global "care chain") – and for this, robust conceptual foundations must be developed.⁸⁶ The UN Guiding Principles on Business and Human Rights provide an international framework for this, though they remain to be implemented by the German government.⁸⁷

The coronavirus crisis has also shown that positive, SDG-relevant added benefits can be achieved through a greater focus on sustainability (e.g. improved air quality in cities⁸⁸). Thus, the crisis has also opened up a window of opportunity "for a concerted political and social debate on how we as a society can shape our consumption in such a way that a good life for all becomes possible within planetary limits."⁸⁹ To make this happen, globally interconnected value creation networks situated at the regional level must cooperate to develop mutual competences and knowledge, possibly based on a division of labour, which can be translated locally into suitable processes for generating value-added led by the SDGs.

Recommendation: Make digitalization of production and consumption more sustainable

With regard to production and consumption, the need to make digitalization more sustainable in the context of the ongoing development of the DNS and German sustainability policy is increasingly evident.⁹⁰ E-commerce and online services (e.g. streaming) will remain important even after the pandemic has passed and will need to be organised in a more sustainable manner.⁹¹ The coronavirus crisis spurs us to critically examine the relationships between local, regional and global production/value added chains, including the role of stockpiling, as well as lifestyles and related consumption patterns.

Patterns of production and consumption are interdependent and must be questioned with regard to their sustainability function in the system and organised in a sustainable manner (e.g. how can a sharing economy or a circular and bio-economy be developed in a globally sustainable manner?)

The pandemic period is also an indicator of where more sufficiency in production and consumption can lead. Some requirements are being questioned (for example, the extent of business travel), while a new emphasis is being placed on others (for example, the quality of social contacts, but also greater digital consumption).

4.4 Mobility as a field of transformation

Recommendation: Promote a transformation of the transport sector by reducing traffic, shifting modes and increasing efficiency

The coronavirus crisis has shown that the steps needed to reduce traffic flows, shift modes of transport, and increase efficiency are feasible in principle, even in the current technological environment.⁹² The avoidance of traffic must be further promoted through accompanying measures, such as the expansion of digital infrastructure or video conferencing. The coronavirus crisis has shown that a modal shift is possible, for example by accelerating the expansion of cycling infrastructure. However, it has also highlighted the risks associated with a shift to motorised private transport, which is perceived as safer, to the detriment of public transport. In this regard, the urgently needed conversion of cities to better quality of living and health-promoting modes of transport must be taken into account.⁹³

The urgently needed decarbonization or defossilization of the transport sector is possible even under the technical conditions prevailing today. The German government's economic stimulus package already contains some steps in that direction, such as a further expansion of charging infrastructure for e-mobility or its hydrogen strategy. However, the pandemic has also revealed considerable gaps that need to be closed, for example with regard to insufficient high-speed rail links between major European cities.

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wissenschaftsplattform nachhaltigkeit 2030

The Plattform

▶ The Science Platform Sustainability 2030 provides a central forum for science to engage with representatives from politics, business, and society on urgent issues pertaining to sustainability policy. The Science Platform Sustainability 2030 was established as an independent organisation and is integrated within the official steering, dialogue, and implementation processes for the 2030 Agenda for Sustainable Development, ensuring its ability to act effectively. The platform is open to all actors wishing to strengthen sustainability policy through science. Research Coordinators are SDSN Germany, DKN Future Earth and IASS Potsdam

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