



Developing and updating indicators for sustainable development

Lessons learned based on the German
Sustainable Development Strategy

On behalf of:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by:
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH
Registered offices
Bonn and Eschborn, Germany

Köthener Straße 2
10963 Berlin, Deutschland
T +49 61 96 79-0
F +49 61 96 79-11 15

info@giz.de
www.giz.de

Project description:
Support Project for SDG Review and Implementation Processes

Responsible:
Ursula Becker
ursula.becker@giz.de

Author:
Dr. Stefan Wilhelmy

Layout:
EYES-OPEN, Berlin

On behalf of
German Federal Ministry for the Environment,
Nature Conservation and Nuclear Safety (BMU)

The digital version of the publication was published in November 2021.

November 2021

Contents

0.	Executive Summary	3
1.	Introduction	5
2.	Objective and methodology of the analysis	8
3.	Key development milestones of the indicator system of the German Sustainable Development Strategy	10
4.	Attributed function and appropriate scope of indicator systems for national sustainable development strategies	17
5.	The process of updating the indicator system and indicator-backed targets in the context of an evolving sustainability architecture	20
6.	Challenges identified for the future development of the target and indicator system	25
7.	Recommendations and lessons learned	28
	Endnotes	31
8.	Annex:	33
a.	List of sources	35
b.	Sustainability Management – A comparison of structure and actors between 2008 and 2021	36
c.	Overview of NSDS and GSDS indicators	38
d.	Experts interviewed as part of this study	50
e.	Lead questions for semi-structured interviews	51
f.	Notes on terminology	52

List of abbreviations

BMEL	German Federal Ministry of Food and Agriculture
BMU	German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety
BMVEL	German Federal Ministry for Consumer Protection, Food and Agriculture
BMZ	German Federal Ministry for Economic Cooperation and Development
BSE	Bovine Spongiform Encephalopathy, also referred to colloquially as ‘mad cow disease’
CSD	Commission on Sustainable Development
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSDS	German Sustainable Development Strategy
IMA	German Government’s Interministerial Sustainability Indicators Working Group
NRW	North Rhine-Westphalia
NSDS	National Sustainable Development Strategy
RNE	German Council for Sustainable Development
SDG	Sustainable Development Goal
UAL	Sub-divisional director
UBA	German Environment Agency
UNCED	United Nations Conference on Environment and Development
WSSD	World Summit on Sustainable Development



Executive Summary

The adoption of the 2030 Agenda and the Sustainable Development Goals (SDGs) in 2015 again shifted the focus of political and scientific debate to the importance of efficient management instruments and appropriate indicator systems for sustainable development. Since then, the discussion about suitable SDG indicator systems, not only for the international and national levels, but also for the subnational and municipal level – has intensified globally, along with the objective of localising the global SDGs. Against this backdrop, this analysis into the development of the indicator system for Germany's Sustainable Development Strategy presented here provides insights into the design as well as opportunities and challenges of corresponding (updating) development processes.

On 10 March 2021, the German Government ratified the Update 2021 of its German Sustainable Development Strategy (GSDS). At its core, the GSDS has a system of some 75 'key indicators' that are intended to reflect the status of sustainable

development in 39 areas specified in the 2030 Agenda, the objective being to leverage the findings to determine the need for action in terms of political steering options and requirements. The indicator system thus constitutes a cornerstone of evidence-based policy-making (EBP) and is a central tool for managing the GSDS and German Sustainability Governance.¹

First introduced in 2002 as the National Sustainable Development Strategy (NSDS), the strategy and its associated process of sustainability management, including the indicators and the indicator-backed targets, has developed considerably, fundamentally realigning with the 2030 Agenda and SDGs as the overarching frame of reference and changing its name to the German Sustainable Development Strategy (GSDS). This has allowed the strategy to attain greater stakeholder acceptance. The formal, consistently updated sustainability architecture is generally regarded positively by the experts.

Embedded in a national sustainable development strategy, indicators and indicator-backed objectives can be a highly relevant political approach for realising sustainable development, provided they are worded ambitiously, pursued consistently and applied effectively. Whenever a target looks to be veering off track, political action should be instigated immediately to address it.

It should be noted that the quality of the indicator and target system is not dependent on its scope; what counts most of all is the quality of the indicators, their strategic selection and a focus on key areas of transformation. Transparent, scientifically based criteria for the selection of individual indicators can increase the indicator system's relevance and acceptance overall. Also decisive are an appropriate response to any identified need for action, the nature of interaction between the various measures and transparency about any conflicting interests and interrelationships.

On their own merit, indicators and indicator systems initially serve to measure the extent of developments in specific subsectors. Ideally, this allows us to draw conclusions about the efficacy of political measures taken in advance or also about the negative effects of a previously specified target (target value or direction). The individual indicators, and the system of indicators as a whole, only become an efficient steering instrument once the quantified developments are directly linked up with the political will and capacity to respond to them appropriately. For this to be the case, ownership of the German Sustainable Development Strategy (whereby the emphasis here is on 'strategy') has to be mainstreamed at a uniformly high level in the individual federal ministries and agencies. This in turn necessitates a 'strategy for implementing the national strategy'. On the one hand, this implies that each ministry should draw up its own in-depth ministerial strategy for achieving the specific targets that fall under its responsibility and/or its joint influence. On the other, this strategy should also set out the responses to be taken if an indicator is found to be on a negative trajectory or might potentially miss its target. Targets and indicators that cannot be attributed to a specific ministry or a political management level constitute a particular political challenge. Making implementation generally more binding thus

necessitates close links between national budget planning and national sustainability targets along with close coordination with other political levels (for Germany for example, primarily coordination with municipalities and federal states and the EU).

In this sense, the GSDS should be regarded more as a macrosocial *strategy* and less as an (accountability) *report*. Given that sustainability is a task for society as a whole, it is important that not only the national but also subnational government levels (federal states and municipalities) are involved intensively in the process of setting targets and planning measures. In this context, it is imperative to determine what way the various levels – all under their own respective responsibility – actually 'invest' in these targets. This calls for coordinated (but not necessarily the same) indicators and monitoring instruments.

It is important to stress in this context that indicator systems and indicators, as well as the processes that lead to their development and updating, cannot replace the political negotiation processes required to define the qualitative targets and quantitative target values. This has to be done accordingly in a preceding stage of the procedure. As things stand, these processes sometimes tend to overlap each other in Germany. When developing/updating sustainability strategies, it is important to ensure that the political discussion focuses on the development and/or specification of political targets and on resolving any conflicts of interest that need to be addressed at a political level to secure target achievement. In contrast, the task of deciding which indicators to select for monitoring development should mainly be more of a technical and/or scientific one.



Introduction

With the 2030 Agenda, the international community has set itself an ambitious plan for global sustainable development. In all states, achieving the Agenda's 17 Sustainable Development Goals (SDGs) goes hand in hand with considerable processes of transformation. And the decisive 'Decade of Action' for implementing them is already under way. The 2030 Agenda essentially has to be realised at the national and subnational level. National sustainable development strategies and reporting systems are of central importance here with respect to steering and monitoring success. International exchanges of knowledge and experience and the sharing of strategic learning experiences, as promoted by the transnational network *Partners for Review* (P4R) for example, contribute greatly to the ongoing development of these strategies.

Germany can look back on around 20 years of experience in this sector, including an internationally respected updating process. Based on Agenda 21 and the Rio Principles, Germany presented its first National Sustainable Development Strategy (NSDS) in 2002. In 2016, the strategy underwent a major overhaul to align it with the 2030 Agenda, changing its name to the German Sustainable Development Strategy (GSDS). Throughout, the UN Conferences repeatedly provided impetus for the German sustainable development process and the indicator system's evolution.

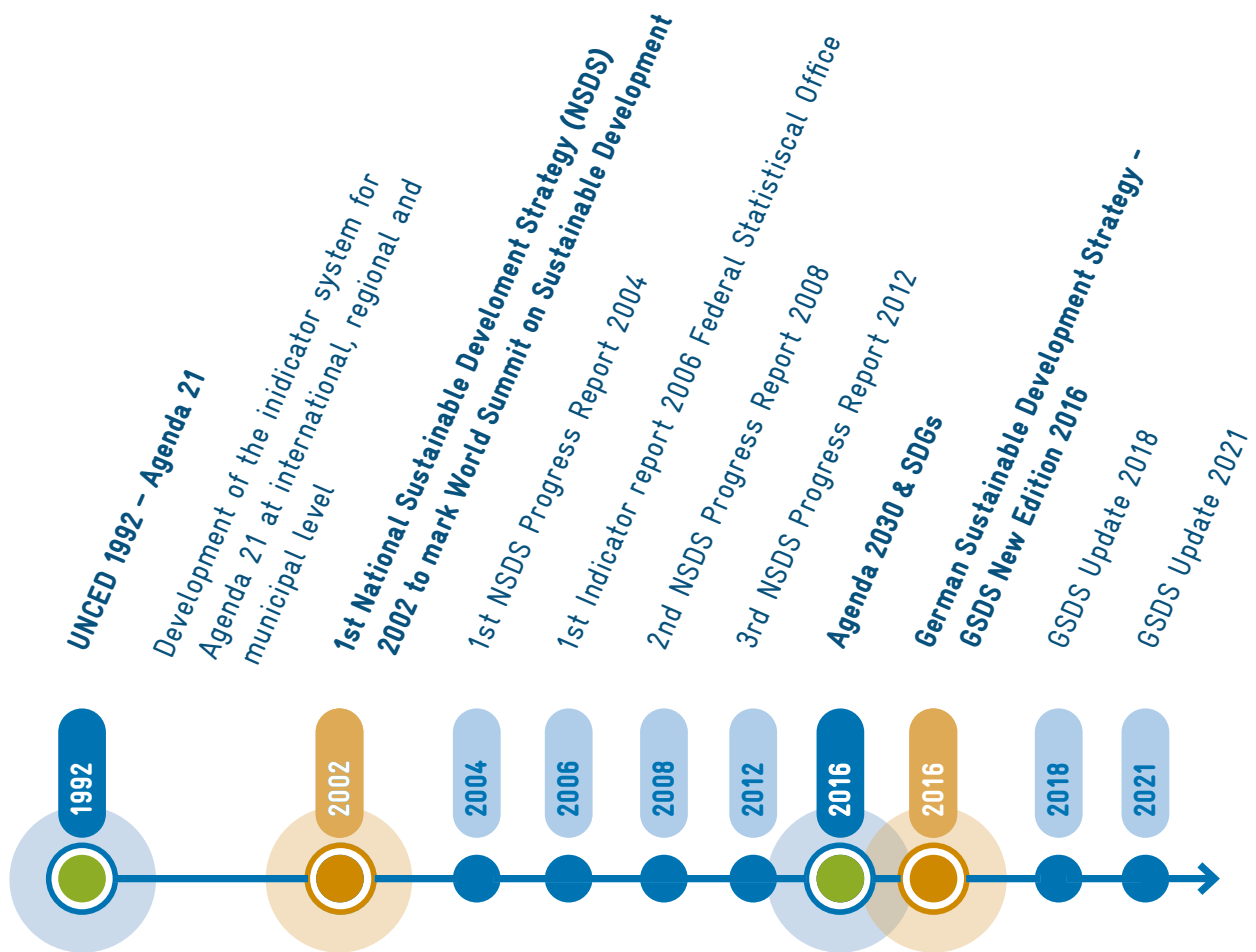


Figure 1: German Sustainability Strategy – historical stages of development

Source: author's own presentation

The Sustainable Development Strategy and its associated ‘sustainability architecture’ have already been the subject of an international peer review three times over.² Furthermore, continuous updating has resulted in a complex sustainability management

system (see Figure 2 and Annex 8b). It is within this framework that the development of the entire ‘strategy’ takes place, including that of its intrinsic target and indicator system.

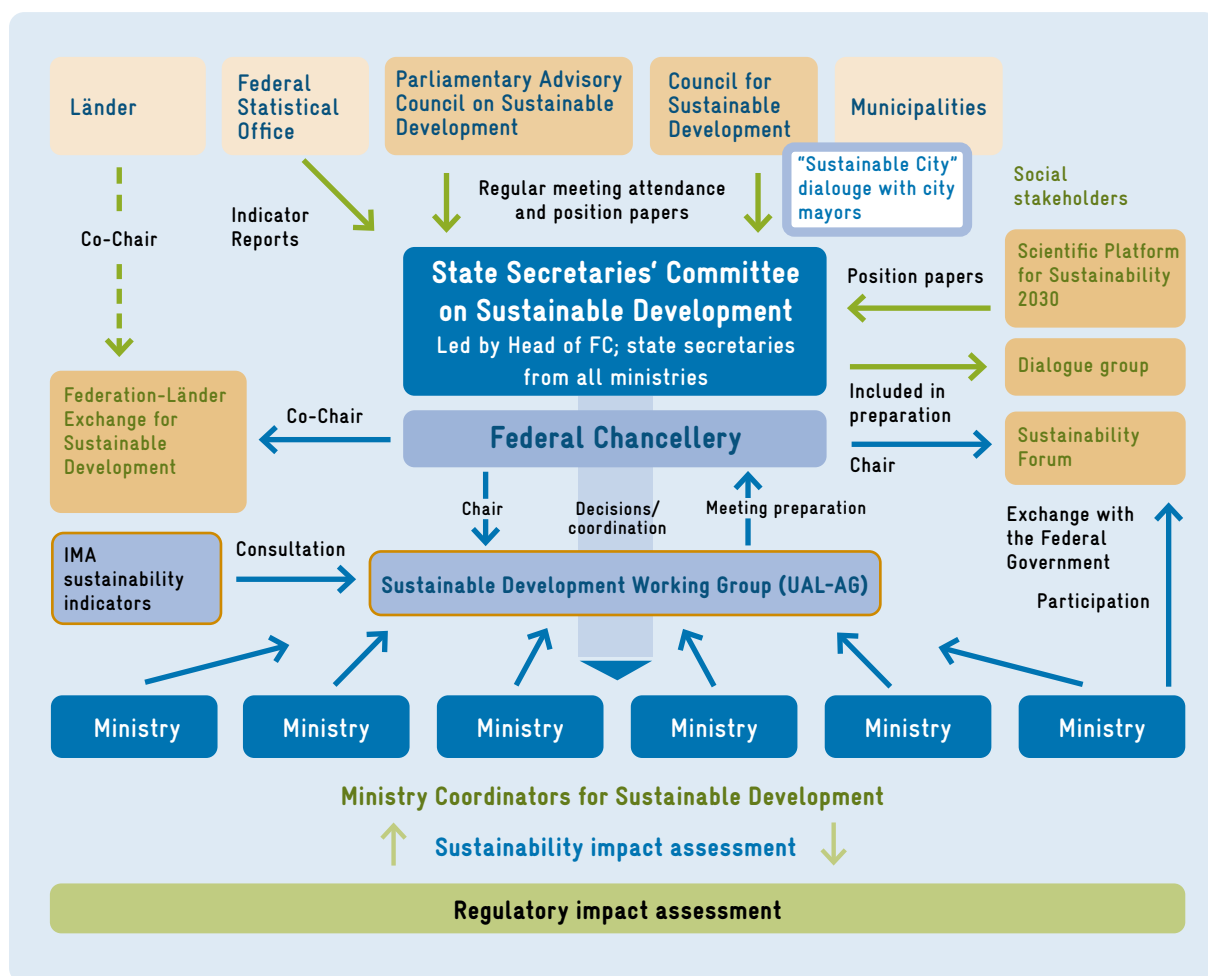


Figure 2: Overview of institutions that make up the German sustainability management system (2021)

Source: German Government, ed. (2021): German Sustainability Strategy, Update 2021, p. 70

The indicator system forms the core element of Germany's Sustainable Development Strategy (N/GSDS) and has evolved considerably since the first strategy was presented – both in terms of contents and also with respect to its actual process of development 2001/2002 and the updates in the years that followed. Figure 2 illustrates the special role of the German Federal Government's Interministerial

Sustainability Indicators Working Group (IMA NH-Indikatoren), the central function and involvement of the German Federal Statistical Office and the specialist exchange with the federal states. Germany is an important driving force for the design and updating of (national) sustainable development strategies – both internationally and also within Germany at the level of the federal states and municipalities.



Objective and methodology of the analysis

The analysis under review examines the process involved in developing and updating the system of indicators for the GSDS by way of a case study from which lessons can be learned and then subsequently shared in international exchanges of experience. Furthermore, its findings can also be leveraged for further updates of the GSDS.

The methodological approach kicked off with an evaluation of written primary and secondary sources. The results were discussed in semi-structured interviews with selected experts (for a list of interviewees, see Annex 8.d and for the questions, Annex 8.e).

The following was evaluated to identify the key development milestones of the GDSD's target and indicator system:

- The Sustainable Development Strategies and Progress Reports for the years 2002, 2004, 2008, 2012, 2016), the Update 2018, and 'Dialogue Format 2021' and the current final version of the 'Update 2021'.³
- The seven indicator reports by the German Federal Statistical Office published at two-yearly intervals in the period 2006 to 2018 in parallel with the National/German Sustainable Development Strategy; the eighth Indicator Report 2021 and the attendant web portal (www.sdg-indikatoren.de).

- Strategies and reports by individual German federal ministries
- Written comments by stakeholders from the participation processes and peer review reports on the GSDS
- Specialist literature and academic papers

Evaluating literature in this way made it possible to identify the key developmental milestones of the GSDS's target and indicator system and to pinpoint core elements of its specialist content (including the system's scope and the fundamental approach used to arrive at the selected indicators). Furthermore, the choice of indicators, nature of cooperation between key players (above all, the German federal ministries and German Federal Statistical Office) and the opportunities for involving other stakeholders were all examined, providing a basis for the key questions to be asked in the interviews. The focus here was on the generalisable experience the experts had gained when developing and updating the indicator system. In the case of a sustainable development strategy, this is closely linked with the system of qualitative targets, which is why the study also uses the term target and indicator system. Where 'target' refers to a quantitative target value for a specific year, this is made clear accordingly.⁴

This expert report was produced in the period from mid-October 2020 to the end of February 2021. The interviews were mostly conducted in January 2021 and evaluated afterwards. The delays in finalising the GSDS Update 2021 meant that not all the interviewees identified were available. Generally speaking, it must be said that this analysis does not claim to be exhaustive in terms of its evaluation of written sources, its interview results and the recorded stakeholder perspectives. Indeed, this study is not intended to be a scientific, extensive appraisal or even a final evaluation of the processes and documents reviewed but is designed to prompt exchanges about the processes and their further development and, to this end, has analysed initial learning experience for the purpose of sharing experience at the international level.



Key development milestones of the indicator system of the German Sustainable Development Strategy

The 'National', (now) 'German' Sustainable Development Strategy is constantly changing. In other words, it is to be regarded as a 'work in progress', both with regard to its content and its choice of visual presentation.

The strategy's **external image and structure:** From 2002 to 2016, the titles, creative design and structure basically varied widely from one version to the next. The Federal Statistical Office adopted a completely different approach to its 'Indicator

Reports' on sustainable development in the period 2006–2014, making them essentially identical in terms of their form, layout and structural breakdown. Starting in 2016, the reports switched to their new format which is aligned with the SDGs and the GSDS; this practice has remained unchanged. The uniform methodology and structure are characteristic of many Federal Statistical Office publications. Branding and content anchoring among a wider public audience would appear to be easier using a

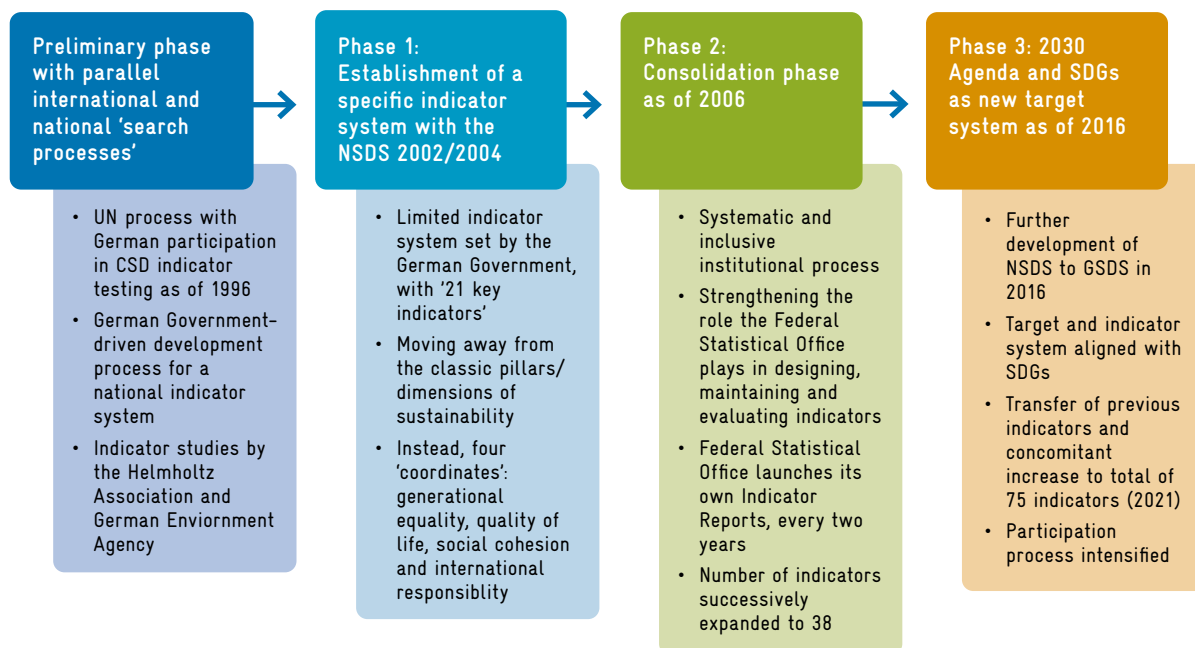


Figure 3: Phases of the German Sustainable Development Strategy and the associated target and indicator system

Source: Author's own diagram

(more or less) standard presentation format. In contrast, changing formats makes it difficult even for readers with a professional grasp of the subject to get their bearings. Without wishing to overinterpret this initially external aspect, there are two things that come to mind here: First, the fact that the GSDS still has not found its final 'form' and second that, to date, each German Government administration has shaped the strategy to fit its purpose and perhaps even tried to 'reinvent' it. This struggle to present the GSDS in part reflects the inputs to the development process made by actors and interest groups during the public consultations.

With regard to **process design** and the respective characteristics of the target and indicator system, the German Sustainable Development Strategy can roughly be broken down into **four phases**.

The **preliminary phase** shown here did not bear any discernible relevance to the structure and content of the NSDS first presented in 2002, but it does exhibit some basic parallels to the framework chosen for the target and indicator system in 2015/2016. There are possibly some useful lessons to be learned here – which is why it is also briefly outlined. Part 1, Chapter 8 of 1992's Agenda 21 provided for the drafting of national strategies for sustainable development. This was to be done 'through the widest possible participation' and was to reflect the consensus of society as a whole (cf. Chapter 8.7 of Agenda 21). In this regard, reference is made to the importance of indicator-based systems for the ongoing monitoring and evaluation of progress towards sustainable development.⁵

Founded by the United Nations (UN) in 1992, the Commission on Sustainable Development (CSD) was mandated with developing and testing a system of indicators. Germany was among the 22 test countries that helped develop and test this CSD indicator system over a period of several years. The complexity of this process can also be seen in the fact that the Germany's National Sustainable Development Strategy (NSDS) was not published until 2002, some 10 years after the adoption of Agenda 21, even though intensive efforts to develop a national indicator system were started in 1996 at the latest. With the target and indicator system for its first NSDS 2002, Germany however embarked on a fundamentally different route. The NSDS management concept was mainly built around research projects conducted by the Helmholtz Association and the German Environment Agency (UBA). Nonetheless, experience from the intensive CSD testing, consultancy and discussion process did go into its development, which is why the UN process can be acknowledged as vital preliminary input.⁶

From 2002 through to 2012, the indicator system was then consistently updated as part of the National Sustainable Development Strategy. In this connection, it is a sign of institutional learning that in 2016 already, one year after the adoption of the 2030 Agenda and the SDGs, it was possible to embed a target and indicator system into the German Sustainable Development Strategy (DNS) that was both aligned with this UN Agenda and also largely based on the NSDS indicators. Another linchpin for the development of the German indicator system, besides the German Federal Statistical Office and the aforementioned research project stakeholders, is the German Government's Interministerial Sustainability Indicators Working Group (IMA NH-Indikatoren) which is discussed in more detail in Text box 1.

The emergence phase of the 2002 National Sustainable Development Strategy in 2002 and the minor modifications resulting from the 2004 Progress Report (Phase 1) were formative for the NSDS target and indicator system. In the interviews, the target and indicator system in this phase was described as a system stipulated by the executive branch and one which the various dialogue and participation formats essentially had no influence over.

This corresponds, inter alia, with the NSDS 2002's statement, whereby the four 'coordinates' of generational equality, quality of life, social cohesion and international responsibility which the State Secretaries' Committee for Sustainable Development had developed as the strategy's guiding principles were indeed the subject of controversial debate but ultimately taken on board. In the German Government's opinion, these 'coordinates' ultimately elicited greater consensus than the sustainability dimensions that had generally been used up to that point (ecological, economic and social dimension analogous to Parts 1 and 2 of Agenda 21).⁷ The intention here was to make these more abstract and/or technical dimensions more communicable at the political level. At the same time, the dimensions were to be regarded in more integrative terms rather than focusing on what separated them from each other, i.e. 'silo thinking'. This was a decisive aspect with regard to the choice of indicator system and one that led to intensive discussions in the Interministerial Working Group.

In addition, the key indicators that were put forward by the German Council for Sustainable Development (RNE), by representatives of social stakeholders and, via internet dialogue platforms, by the public at large were also discussed very intensively. In spite of the many proposals, the German Government – in agreement with the German Council for Sustainable Development – largely limited the number of key indicators.⁸ The German Government merely adopted proposals for indicator amendments in five cases. These changes consisted in extending the species protection indicator, the initial version of which was the subject of dispute among experts anyway, and in adding a supplementary indicator for agriculture that was to cover conventional agriculture as well. On top of this, as a result of the dialogue process on the 2004 Progress Report, genderspecific differentiations were made to three indicators.⁹ However, the dialogue formats and comments on the NSDS 2002 and 2004 had only minimal influence on the indicator system overall.¹⁰

The start of Phase 2 is marked by the first Indicator Report of 2006. This was the first time – following the German Government's reports of 2004 and 2005 – that the Federal Statistical Office had independently analysed the status of the sustainability

Text box 1:

Pooling capacities – The key role of the German Government's Interministerial Sustainability Indicators Working Group

The German Government's Interministerial Sustainability Indicators Working Group (IMA NH-Indikatoren) was set up in 1996 to coordinate the United Nation's test phase for the application of CSD sustainability indicators in Germany. Since then, this working group has been chaired by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). All of Germany's ministries along with the Federal Statistical Office and the German Environment Agency (UBA) are represented in this working group which convenes irregularly, as required. The ministries generally request experts from downstream line authorities to take part, sometimes also researchers, too. Since the 2010s, the Interministerial Working Group also holds regular meetings with representatives of the German federal states.

Since the late 1990s, the Interministerial Working Group and the Federal Statistical Office have jointly discussed issues such as: Which indicators are relevant for sustainable development? Which ones showcase the trends for entire thematic areas, are so-called 'key indicators' (identifying key indicators is intended to keep the number of indicators as manageable as possible)? What is the correct mix of status and action-related indicators that delivers information on the system as a whole? Can such indicators be attributed to political – as far as possible quantified and timed – targets?

At the same time, the premise of the discussions by the Interministerial Working Group's experts is essentially one of maintaining target and indicator continuity, their aim being to make monitoring success transparent and the longterm trends critical for sustainable development visible. Moreover, they also aim to continue limiting the number of indicators.

The Interministerial Working Group bases its discussion on a multitude of comments by citizens, associations, the German Council for Sustainable Development, the Parliamentary Advisory Council on Sustainable Development and on the latest information and proposals issued by the ministries and their downstream authorities.

The Interministerial Working Group communicates its results in written form (minutes and tables) as well as orally through reports by the presiding ministry (BMU) to the Sustainable Development Working Group (UAL AG). Using this as a basis, the UAL AG discusses and then decides which group of indicators and targets are to be presented to the State Secretaries' Committee for approval and/or to the German Federal Cabinet as part of the four-yearly update of the GSDS.

indicators in relation to the targets in the 2002 strategy.¹¹ As a rule, the Indicator Reports have since been issued every two years¹² as an independent publication with a uniform layout; they constitute a central component of the National Sustainable Development Strategies for 2008 and 2012.

The creation of a new and more inclusive institutional structure for the ongoing development of the indicators is particularly noteworthy here. As of September 2007, the Interministerial Sustainability Indicators Working Group (IMA NH-Indikatoren) engaged in discussions with the Federal Statistical Office about the need to adapt the indicators and targets. According to the German Government, numerous comments from citizens groups, associations, the German Council for Sustainable Development (RNE), the Parliamentary Advisory Council on Sustainable Development, along with information from various federal ministries, were included in further specialist discussions. In particular, the dialogue formats that followed the publication in May 2008 of the draft version of the Progress Report contributed to the discussions. Based on this exchange, the Interministerial Working Group concluded that, in 2008 too, the catalogue of indicators covered the main topics of sustainable development. In spite of this verdict, the Interministerial Working Group did, in certain cases, still call for some deletions and for changes to be made to the structure along with improvements in presentation and the inclusion of new and improved indicators.¹³ In the context of stakeholder dialogue, the 2012 Progress Report refers separately to the coordination processes with the federal states regarding indicators.¹⁴ In the interviews conducted as part of the analysis, the federal states' possibilities for engagement and for exerting their influence was still described as unsatisfactory.¹⁵ Following revision of the indicator system, the number of indicators went up to 35 in 2008 and to 38 in 2012; the number of so-called 'sustainability postulates'¹⁶ remained the same at 21.

Phase 3 is marked by the 'New Edition 2016', published as the 'German Sustainability Strategy' (GSDS). The title already is intended to make it clear that the strategy's realisation is not just a national task for which the German Government is responsible,

but a challenge that necessitates a whole-of-society response. The concomitant thorough revision of the indicator and targets system got under way in 2014 already in parallel with the international negotiations on the 2030 Agenda. In September 2014, the State Secretaries' Committee for Sustainable Development resolved to (...) update the Sustainable Development Strategy in all key aspects in line with the 2030 Agenda. In terms of content, the State Secretaries' Committee for Sustainable Development also pointed the way forward early on: namely, in June 2014 already, it stipulated that the existing strategy should place more emphasis on measures and on the international dimension of sustainability. The State Secretaries' Committee for Sustainable Development came to this conclusion based on a comment by international experts on Germany's sustainability policy (peer review).¹⁷ This shows that in 2016, as in 2002 already, the framework and structure of the indicator system was determined by the German Government. The German Government ratifies, and is responsible for, the Sustainable Development Strategy, and thus the indicator system, by virtue of its vested authority.

All of the experts interviewed for this expert report are unanimously positive about the 2016 GSDS being aligned with the 2030 Agenda and the SDGs as its frame of reference. Overall, the indicators and targets were also evaluated positively, including their accompanying determination process. GSDS alignment with the SDGs thus makes for more attention and support than was the case hitherto with the targets of the National Sustainable Development Strategy (NSDS). In addition to the German Government, numerous federal states and a growing number of municipalities have aligned their sustainable development strategies and reports and/or indicator systems with the SDGs (also in terms of presentation and communication).¹⁸ Irrespective of the differences at all the different levels, referencing a common SDG framework enhances the visibility of the sustainability targets and strategies and mutually reinforces public perception in keeping with the 'joint effort for sustainability' postulated by the German Government.

This new alignment of GSDS with the 2030 Agenda and the 17 Sustainable Development Goals (SDGs) was not only described as meaningful in the interviews but sometimes also as ‘the only way forward’. Compared with the Millennium Development Goals (MDGs), the significantly broader approach of the 2030 Agenda and SDGs, which links up with Agenda 21, offers a more suitable frame of reference for dialogue with civil society actors across the entire spectrum of sustainable development. In contrast, the MDGs would have tended more to promote the segmentation of the actor landscape. GSDS alignment with the SDGs has thus been a major contributory factor in making non-governmental and sub-national actors more aware of the GSDS and its political significance. While there are many reasons for this, those stated in the interviews were: first, the ‘solitary’ positioning of the NSDS was not very effective, given that it lacked any directly discernible link to the strategies of the federal states and municipalities in terms of an overarching strategy and a meaningful multi-level approach; second, the postulated targets have not been perceived as being sufficiently binding hitherto; and third, the actors had become frustrated at what they considered to be their fundamentally inconsequential participation in the process overall. The last point especially shows that stakeholder dialogue and participation processes have a tangible impact on the outcome and that there must at least be some feedback that not only makes it clear which inputs were not taken on board (which in many cases in the NSDS/GSDS is at least summarised) but, as far as possible, must also explain why certain demands were not taken up in the strategy update. Although probably not feasible in the case of every individual or specific comment, the interviewees in this study did consider this a reasonable expectation for contributions by politically important stakeholders, such as the federal states, civil society associations and alliances or academic institutions. In this regard, the interviewees also associated the GSDS New Edition 2016 and the Dialogue Format 2021 with the idea of a ‘new beginning.’ For current strategy roll-out, it can thus be deduced that the 2030 Agenda has developed a momentum that can be leveraged further.

The further development of the GSDS indicator system subsequently led to the reformulation and expansion of the Federal Statistical Office’s role. Following

the update of the GSDS by the German Federal Cabinet in November 2018, the Federal Statistical Office was commissioned to provide data from its own official statistics to back up the German contribution to global indicator measurement and to coordinate the integration of data by other authorities.¹⁹

It is too early to say whether or not this will have a stabilising effect on the choice of indicators in future, and on the associated strategic level of observation or scope and composition of the indicator system. To date, the number of indicators has increased with virtually every version of the Sustainable Development Strategy, although consistency and limiting the number of indicators does play a key role in the Inter-ministerial Working Group’s discussions. While the first National Sustainable Development Strategy 2002 started out with 21 key indicators for the 21st century,²⁰ the last ‘National’ Sustainable Development Strategy of 2012 contained some 38 indicators. Following the fundamental switch over to the ‘German’ Sustainable Development Strategy (GSDS), which takes the SDGs as the new frame of reference, the number of indicators shot up significantly in 2016 to 63. The 2018 and 2021 Updates resulted in another slight uptick, bringing the number of indicators up to 75 at present (see also Annex 8c for an overview of indicators).

This constant increase in the number of indicators is viewed very critically in places. In the interviews conducted as part of this study, it was sometimes stated that the continual increase in indicators meant it was not possible to discern a clear strategy or strategic target setting. Moreover, especially with regard to indicators whose relevance would appear limited, the interviewees voiced their concern that the system of indicators was being ‘frayed’ in places and that, as a result, the overall system’s relevance for macro-social steering was not always clearly discernible. Indicators mentioned in this context included ‘Number of projects to secure, register and destroy small arms and light weapons carried out by Germany in affected regions of the world’ (indicator 16.2) and Members of the Textiles Partnership (indicator 8.6). The criticism voiced by the experts can be illustrated using another example, namely indicator 11.4 on the Number of objects in the German Digital Library, a new addition of 2021.²¹ What political or professional deliberations

led to the inclusion of this new key indicator relating to SDG 11 – Sustainable cities and communities – cannot be reconstructed from the information available. As listed in the Update 2021, the increasing number of objects in the German Digital Library is directly related to a joint German Government-federal state digitalisation project: In the period from 2011–2020, the German Government and federal states jointly spent €15.1 million to set up this Digital Library.²² Already, the comparatively small sum of around €3 million per year raises doubts as to whether it is a national key in terms of sustainability in cities and communities. In results analysis categories, this is an output indicator at project level linked to monetary input which would be regarded as a weak indicator even for this level, as it says nothing relevant about the outcome and even less about the impacts.

As a rule, monetary yardsticks of this kind do not satisfy the requirements for an impact-related indicator that we should definitely expect of a national indicator system. At best, they can serve as short-term ‘place holders’ to anchor certain key topics early on in the sustainable development strategies, also within the

indicator system. Impact-oriented indicators sometimes require a high degree of research, corresponding investments and a sufficient time frame if they are to take account of the global dimension, as demanded by many experts in the SDG context. BMU has, for many years, implemented projects with the Federal Statistical Office and other partners to develop coefficients for the input/output tables for environmental economic accounting. These are used, say, to estimate total raw material productivity or the global environmental impact of private household consumption. The complexity of this undertaking, and the amount of time needed to get it right, can also be seen in the fact that, for the Update 2021, it has not been possible to complete the development and testing of four out of six so-called control indicators commissioned for development with the Update 2016.²³



Attributed function and appropriate scope of indicator systems for national sustainable development strategies

Various functions can be attributed to indicators and indicator systems for sustainable development, and also to their associated targets. These functions can then be met, or not, in a number of different ways. The interviews therefore enquired about the respective expectations the experts had of NSDS/GSDS indicator setting, so as to be able to classify the answers accordingly. The answers essentially concurred, albeit with

varying levels of prioritisation, on the following main functions for a target and indicator system for a sustainable development strategy:

- Political steering function,
- Accountability and reporting function,
- Communication function.

In the first NSDS 2002, the German Government already presented indicators and targets (along with management rules and monitoring) as one of the three core elements of the concept for managing sustainable development – with a particular focus on the steering and reporting function.

The 2012 Progress Report also stresses the communication function, while also pointing out the German Government's very limited technical responsibilities for implementing the individual indicators and targets. As communication and discussion instruments, the sustainability indicators cannot however be limited to areas that are only determined by the German Government.²⁴ To strengthen the communication function, a four-level system of weather symbols was introduced with the 2008 Progress Report already (sunny, sunny/cloudy, cloudy, stormy) in a bid to illustrate the development of the respective indicator values and thus the degree to which the target is likely to be achieved. This makes complex issues easier to understand.

In this context, some interviews referred in particular to the targets for climate and energy-related indicators, and to the so-called 30-hectare target for the indicator concerning daily increases in landtakes for settlements and transport infrastructure. This target, which the German Government at the time believed was achievable by 2020 (starting from a landtake of around 130 hectares/day in 1999/2000) triggered a comparatively wide public and political debate on its inclusion in the first NSDS 2002, leading to the target being broken down to individual federal states where it was incorporated into state strategies (e.g. as a 5-hectare target in North Rhine-Westphalia). For the first time, the GSDS 2016 presents the individual indicators along the lines of a stronger steering approach by directly attributing them to activities by the German Government, whereby a distinction is made between previous measures and planned measures. Expanding the indicators in this way, the GSDS 2016 places greater emphasis on a special feature of the land area indicator than earlier sustainable development strategies did: achieving the 30-hectare target – especially in urban development practice – is primarily a task for the federal states and municipalities.²⁵

With respect to communication, the indicator and its respective target value are advantageous in that they clearly illustrate a complex problem situation driven by a number of different factors.²⁶ The fact that the indicator for landtake was represented by a cloud in the 2008 and 2012 progress reports respectively, but by a sun in the GSDS 2016 (i.e. was directly rated two levels higher, even though the 2014 value of 69 ha/day was more than double the original value scheduled for achievement in 2020) is due, not least, to the target year being set as 2030. As a result, simply from a computational point of view, if the trends continue to evolve along the same trajectory, achieving this target is more likely than before, even without any additional measures.

This speaks to a general point of criticism levelled at the effectiveness of the German Government's sustainable development strategies that was voiced more or less consistently in all interviews, and also in many of the written comments from the individual dialogue phases. The accountability/reporting function and steering function are closely linked. The accountability/reporting function goes hand in hand with the expectation that the indicators will keep track of the implementation status and report on trends driving developments of strategic importance for the country's sustainability, while also accounting for any deficits and undesirable developments. In terms of steering, this linkage with indicatorspecific target values highlights the need for action at the political level. Ideally, the indicators are not only attributed measures scheduled for target achievement but also a review mechanism (where appropriate with interim targets) that triggers corrective measures if it looks likely the targets will be missed. For the sake of transparency, and to make all relevant actors more aware of the targets, these additional measures can also be stipulated in advance (cf. the case in section 5).²⁷

Regarding the number of indicators and targets needed for the GSDS indicator system, the interviews did not result in a uniform response. Some experts are of the opinion that the current volume of more than 70 indicators is better suited to a national system than the 21 indicators for the 21st century in the first strategy of 2002.²⁸ For others, the constant hike in the number

of indicators increasingly risks overloading the system and making it too technocratic. In all the interviews, however, it was stressed that it is not the scope of the indicator system that is responsible for its quality but the strategic choices made, along with a focus on key areas of transformation, appropriate responses to any need for action, the visible interactions and conflicts of interest and the interplay of the various measures. The GSDS thus comprises the following areas of transformation:

1. Energy transition and climate action
2. Circular economy
3. Sustainable construction and the transformation of transportation
4. Sustainable agricultural and food systems
5. Pollutantfree environment
6. Human well-being and capabilities; social justice

According to the experts interviewed, these six areas of transformation and their relevant indicators and targets merit special attention, having been identified as priority areas for the years ahead. According to the German Government they were suggested by the German Council for Sustainable Development, the Scientific Platform for Sustainability 2030 and the German Sustainable Development Solution Network (SDSN) and other organisations.²⁹ In the final version of the GSDS 'Update 2021' adopted in March 2021, these demands were taken into greater account, also in the presentation, as a consequence of the dialogue process.³⁰



The process of updating the indicator system and indicator-backed targets in the context of an evolving sustainability architecture

The process of updating the NSDS/GSDS target and indicator system cannot be seen in isolation but as an integral component of the process of updating the German Government's Sustainable Development Strategy and management approach. In the interviews, as well as in numerous written comments, the process of updating the strategy is regarded as a continuous improvement process. This is consistent with the central statements in the Peer Review 2018. The adoption of the 2030 Agenda and SDGs by the UN in 2015

constitutes a decisive milestone in this process. The 11 recommendations in the Peer Review 2018³¹ all have a certain relevance to the indicator and target system of the GSDS, but some are a lot more closely related to it than others, which was reflected in a similar manner in the expert interviews:

- Shape the institutional architecture for implementing the German Sustainable Development Strategy more effectively (recommendation 2).

- Set own targets more ambitiously (recommendation 3).
- The German Government needs to strengthen its central coordination and resolutely address serious deviations from its own targets (off-track indicators). (recommendation 5)
- Parliament: Greater parliamentary scrutiny is required (recommendation 6)
- Bring communication up to date (recommendation 8)
- Indicators: Expand budgets and monitoring activities (recommendation 10)

The New Edition 2016 and the further development of the GSDS, the Update 2018 and GSDS 2021 go hand in hand with some fundamental and very far-reaching direct and indirect changes:

- The 17 Sustainable Development Goals (SDGs) now form the standard international frame of reference for indicators, replacing the four ‘coordinates’ of generational equality, quality of life, social cohesion and international responsibility and the 21 sustainability postulates attributed to them.
- The number of indicators was expanded considerably in 2016, taking the total to 63. Where on hand, targets were essentially formulated for the target year 2030 (in places without altering target setting for the previous target year 2020).
- At least one indicator-backed, quantified target is formulated for each of the 17 SDGs.
- Each indicator is now directly linked to a description of the activities that the German Government plans to undertake to achieve the target; this includes previous measures conducted to date and measures planned for the future.
- Presenting the measures at three levels is intended to lend greater emphasis to the global dimensions: measures with impacts in Germany, measures by Germany with global impacts, measures with Germany, for example within the framework of international cooperation.³²

- The dialogue formats were extended, and societal actors can participate via the Science Platform Sustainability 2030, the Dialogue Group and the Sustainability Forum (see also Figure 1). The Dialogue Group has been involved in preparations for the State Secretaries’ Committee since 2018 already.³³
- The introduction of the Ministry Coordinators for Sustainable Development in 2017 (where possible at department management level) is intended to improve cross-ministerial cooperation.³⁴
- ‘Ministry Reports’ are meant to help strengthen the systematic implementation of the respective targets.³⁵

Against this backdrop, the experts interviewed as part of this study all said the formal, consistently updated sustainability architecture was a good thing. The fact that the Federal Chancellery is in charge of process management is also generally viewed positively. The resources (financial, HR, political anchorage) are however mostly regarded as insufficient in view of the complexity and significance of the task at hand. Moreover, the interviewees pointed out the interface between the management of the GSDS as an overall process and the updating of indicators by the Inter-ministerial Working Group (IMA-NH). The experts stated that the Sustainable Development Strategies did state transparently which indicators and targets had been changed, cancelled or retained and which official inputs were made by the respective stakeholders, however it was not always clear what political deliberations and influences actually shaped the decisions in each case.

This mirrors a fundamental challenge, namely that the political discussion about the qualitative targets to be pursued, their level of ambition and political responsibility is a decisive factor that shapes the indicator system and therefore must come before indicator development. In practice however, the political debate is sometimes transferred to the indicator level. The process of designing and updating indicators cannot supplant the political negotiation process however. Thus, problems are being transmuted to the technical level where they can simply not be resolved, since they are inherently political issues that must be decided at the political level.

The dialogue process with stakeholders is seen as evolving positively. The interviewees acknowledge that the process has become more participatory and binding and that, in addition to the large-scale meetings, very good and politically high-level points of access are available to many stakeholders. Nonetheless, criticism was levelled at the fact that the written comments generally had no impact politically and especially with regard to the indicators and indicator-backed targets. They also stated that the dialogue sessions were not really efficient or adequately results oriented, as they were often not a 'dialogue' about the strategy overall, or about individual priority topics defined in advance, but a platform on which individual stakeholders mostly talked about their particular topics without referencing anyone else's position. Thus, this did not constitute a dialogue in the true sense. Accordingly, in respect of strategic updating, better use could be made of the time and know-how of the stakeholders involved.

As the interviewed experts see it, ownership of the GSDS (especially as a 'strategy') would still appear to be very different from one federal ministry to the next. The main driving forces are BMU and, increasingly since 2015, the Federal Ministry for Economic Cooperation and Development (BMZ). This is also reflected in the targets and indicators. Cutting to the chase, two ministerial perspectives on the GSDS seem to be most common – first, as a 'reporting obligation' and second as a 'showcase for the ministry's own activities'. Both of these however fall short in terms of leveraging the strategy to politically manage key areas of transformation under the respective ministry's responsibility. For the strategy to be successful as a whole, all of the ministries need to 'practice' sustainability – something that is being done much better already in many municipalities and, to a certain extent, in certain federal states.

The Update 2021 of the GSDS also stresses the fact that sustainability is a challenge for society as a whole and that implementation in Germany must cut across its multi-level political system consisting of the Federal Government, Länder (federal states) and municipalities/local government. The experts are also of the opinion that the measures must definitely interact smoothly with each other. Regarding the vertical integration of indicators, something that was discussed

very intensively in the initial years of the National Sustainable Development Strategy, everyone concurred that a programmatic and nuanced approach was the best way forward. For management purposes especially, the respective governance levels need suitable indicators. These can, but do not have to be, formulated in the same way or lend themselves to vertical integration. Since the German Government reports for Germany as a whole, despite the fact that many topics are under the purview of the federal states or local governments, great importance is attached to vertical coordination and to referencing measures as well as to a joint understanding of the qualitative targets aimed for at the level of the Federal Government, the federal states and municipalities. An analysis by the Federal Statistical Office claims that, of the 63 indicators in the New Edition 2016, around half are directly attributable to the federal state level or can be attributed with certain restrictions; for 31 indicators this would not be expedient.³⁶ This does not mean they cannot be used as national indicators but merely underscores the need to aspire to vertical integration, especially for qualitative targets that are to be determined politically. Suitable technical indicators can be defined at the various political levels to measure them, as required.

The indicator and target system updates are multifaceted and this study can only touch on the core elements. However, the complexity and multidimensionality can be illustrated using a case study that does not set out to assess the contents of the indicator and target system but purely examine the 'technical' aspects. Having been included throughout from the first National Sustainable Development Strategy in 2002 to the GSDS 2021, the target and indicator for organic farming was deemed particularly suitable for this kind of consideration. In this example, it becomes clear very quickly that the indicators and quantitative targets are not just the product of a purely scientific-technical process but ultimately of a process of political negotiation. This example also provides an insight into the Update which constituted a political response to the failure to meet the target: While initially the response only consisted in lowering the level of ambition and/or cancelling the target year, as of 2016 there followed a strategic update that impacted the entire area of action, rolling out new measures and stepping up existing ones. For more information, see Text box 2.

Text box 2:

Indicator case study: Organic farming on agriculturally used land

This indicator has been part of the indicator system since the first NSDS 2002. Since then, it has remained virtually unchanged. It thus satisfies the criterion of ongoing observability of developments over longer periods of time without any statistical breaks while concomitantly contributing to the stability of the indicator system as a whole. It must be determined precisely and based on a sound, reliable dataset. Although the Federal Statistical Office and the German Federal Ministry of Food and Agriculture (BMEL) collected the data in parallel with slightly different definitions, the differences in indicator values (at least for the early years) are minimal and explained in transparent terms in the GSDS and the Indicator Reports of the Federal Statistical Office.

In the interviews, it was pointed out that the indicator was a political decision of 2002. In January 2001, in the midst of the BSE crisis (mad cow disease), Renate Künast (Alliance 90/The Greens) took over from Karlheinz Funke (SPD) as head of the Federal Agriculture Ministry in the red-green government coalition, committing herself to an 'agricultural turnaround'. At that time, the share of organic farming was around 4%.

In September 2001 the German Federal Ministry for Consumer Protection, Food and Agriculture (BMVEL), which had just been newly mandated with consumer protection, introduced the national Bio (organic) label, rolled out an accompanying promotion campaign and launched a federal scheme for organic farming in 2002. Against this political background, the organic farming indicator was included in the 2002 National Sustainable Development Strategy, with a

target of 20% by the year 2010.³⁷ In the German Government's 2004 Progress Report, the target value and target year remained the same, as was the case in the 2006 Indicator Report by the Federal Statistical Office. However, it was already clear from the 2006 data that the target would not be reached if development continued along a linear trajectory. From 2001 to 2005, the share increased by around just one percentage point to 4.7%. With regard to the strategic management of targets and indicators, the development and delta of actual and target value for this indicator ought to have alerted those responsible to the need to substantially strengthen the political management instruments in order to achieve the target. However, Germany's federal system means that key management instruments in this sector are under the responsibility of the federal states (e.g. support for a three-year transition period for farms). Since the instruments can vary considerably in parts from one federal state to another, the German Government's direct management options are curtailed.³⁸ This can have a restrictive impact on political measures, especially if the political majorities at federal state level differ to those at the federal government level.

In the 2008 Progress Report on the National Sustainable Development Strategy, the 20% target remained unchanged, but the target year was cancelled and replaced by the wording: in the coming years. Furthermore, a new argument put forward in the report was that each farm was at liberty to decide whether or not to adopt organic practices.

>>>

Since the increase in the indicator value only averaged 0.2 percentage points per year in 2006 and 2007 too (similar to the period 2001–2005), statistically speaking the target would only have been achieved in 75 years or, under 2008–2010 growth rates (see Progress Report 2012), in over 50 years. It is therefore to be assumed that politically influential stakeholders, economic interests and established structures, along with other agricultural policy aspects, impacted the target and update of the indicator to a greater extent than did the Sustainable Development Strategy the policy field and the actors that shape it.

The alignment of the GSDS 2016 to a frame of reference driven by the 2030 Agenda and the SDGs brought about a clear change in the way this field of action is presented. To increase growth rates in organic farming and achieve a percentage area of 20% in the foreseeable future and not just in decades, the German Government initiated the development of a Strategy for the Future of Organic Farming (ZöL)³⁹ in 2015 which BMEL crafted in an 18-month participatory process parallel to the GSDS.⁴⁰

This future strategy identifies five areas of action as national keys for more vigorous growth in the organic farming sector which it underpins with 24 action strategies whose implementation is documented in a so-called roadmap for the period 2015–2030. The areas of action were chosen pragmatically, the lead question being what can the political side at national level do so that the German Government's GSDS target of 20% more organically farmed area can be achieved in the medium term.⁴¹ The Strategy for the Future of Organic Farming does not stipulate a specific year for achieving the 20-% target but, based on the German Sustainable Development Strategy, it is regarded as a 'medium-term target'.

A target year for achieving the 20-% target was ultimately stipulated in the GSDS Update 2018.⁴² In keeping with the provisions in the coalition agreement for the 19th legislature period, the target value of the corresponding indicator 2.1b was changed to 2030: 'Increase the proportion of organically farmed agricultural land to 20% by 2030'.

Further development of agricultural policy at European level also shapes target development. As part of a Green Deal, the EU Commission presented a so-called 'farm-to-fork' strategy which provides for 'at least 25 per cent of the EU's agricultural land under organic farming by 2030'⁴³. The GSDS Update 2021 does refer to this but does not explain whether and/or what effect this higher target value will have on German measures. As presented in the Update 2021, BMEL's 'Strategy for the Future' contains key procedural steps for a strategic orientation, including an interim assessment at the end of 2019 and, building on this, an evaluation of the effectiveness of measures taken to date and the identification of any possible need for adaptation.⁴⁴

Consistent implementation and updating of BMEL's Strategy for the Future of Organic Farming by way of a contribution to the GSDS still has to prove in the years ahead whether it has any sustainable impact within the meaning of the 2030 Agenda. From a conceptual standpoint however, the above approach of underpinning the national strategy with a ministerial strategy linked with an ongoing updating process could generate important momentum.



Challenges identified for the future development of the target and indicator system

The German sustainability strategy and associated sustainability management process, including indicators and indicator-backed targets, have indeed evolved massively and changed radically since 2002. However, the indicators and the sustainability postulates addressed in the first strategy are proving formidably persistent, even though a great many indicators underwent technical amendments in the various versions of the strategy or were given a different target value or target year.

The qualitative targets (i.e. the indicator areas and the sustainability postulates), such as 'Reduce greenhouse gases' or 'Sustainable land use', including the indicators, have been incorporated into the new SDG-based system. The number of indicators has almost tripled from 2002 to 2021.

The central problem identified by the experts surveyed was that, in the meantime, the indicators now address very different strategic levels and/or political areas of action. For this reason, one challenge that all interviewees agree on virtually without exception consists in establishing a fundamentally comparable political management level for all indicators, the aim being to ensure the overarching political relevance of the indicators and targets while avoiding any thematic specialisation driven by specific ministry. Transparent, scientifically based criteria for the selection of individual indicators can increase the relevance and acceptance of the indicator system overall.

Furthermore, in view of the volume of the indicator catalogue, the second challenge was stated as balancing communicability and efficient realisability on the one hand and adequate coverage of key management areas on the other. While several interviewees consider significantly reducing the number of indicators to be a central challenge (to around one indicator per SDG) and link this with greater politicisation of target setting, also with a view to making targets more communicable across society in general and in the political sphere, other experts interviewed appear to find the current number of indicators to be adequate overall or of secondary importance.

Addressing the priority areas of action in the Sustainable Development Strategy and focusing more strongly on the central fields of macrosocial change as well as on the off-track indicators discussed by the German Government in the dialogue process and in the Update 2021 is considered important. One option put forward in certain interviews was a system of core indicators with additional indicators that complemented the system in general so as to leverage the GSDS more intensively for political priority setting. With such a process, it would be important to guarantee the effectiveness of the respective targets and indicators. As soon as it becomes clear that the targets cannot be achieved with the current political measures, a strategy development process geared to the given area of activity should kick in, enabling the rollout of further measures

or the improvement of existing ones. In this regard, the aforementioned case study on organic farming offers lessons learned on the basic approach as of 2015 – without evaluating it. Another good example in this respect – again from a purely technical perspective without any content-related evaluation – is indicator 12.2 on company environmental management systems pursuant to the European EMAS standard, which was already mentioned as a key approach in the NSDS 2002 and included as an indicator in the New Edition 2016. If the indicator continues on its current linear trajectory, it looks likely to fall way short of its target for 2030. The GSDS does not contain any reference to corresponding strategy development in the ministry responsible. In the GSDS 2021 too, it is not discernible whether or not the target can be achieved by 2030 with the measures described.

On top of this, another challenge stated was the need to establish a stronger connection between indicator-based targets and political discourse. It was questioned whether the sustainability indicator review by the State Secretaries' Committee for Sustainable Development provided for in the German Government's current management strategy, along with the scheduled submission of one Ministerial Report per legislature period to the State Secretaries' Committee for subsequent forwarding to the Parliamentary Council for Sustainable Development are in fact sufficient.⁴⁵ If these review mechanisms are not adequate, the indicator system could be used on a regular basis for political debate in the German Bundestag, namely about the developments in sustainability the system has observed in and by Germany, including positive and negative trends, along with any subsequent management measures that could be derived from this. As the budgetary legislator, it falls to the Bundestag anyway to decide on the volume of funding for the priority areas of action identified.

Last but not least, there exists the fundamental challenge of getting the Sustainable Development Strategy to be perceived more as a macrosocial strategy and less as an (accountability) report.⁴⁶ In this context,

there was talk of a ‘construction error’, i.e. an unfavourable timing in the process steps, which also applies to the strategy’s latest version: the current GSDS Update was published in March 2021, and thus at the end of the legislature period which tends to reinforce the impression that the document is essentially more of an accountability report. Even though, by virtue of its very nature and close alignment with the 2030 Agenda, the GSDS is designed to be overarching in

relation to legislative cycles, this is regarded as a political challenge. There are two standard legislative periods to go before we reach the 2030 Agenda target year. Therefore, whether or not the targets are achieved depends greatly on which political and strategic priorities from the GSDS 2021 the next German Government commits to.



Recommendations and lessons learned

In conclusion, the recommendations and lessons learned from the indicator development and updating process are summarised again below. The objective is to make it easier to transfer and/or use these lessons for future GSDS discussions and updates and for advising partners in this thematic area.

- Effective realisation of the 2030 Agenda calls for the creation and reinforcement of transparent review mechanisms at national level. The Agenda-driven **momentum** in many countries – as seen in many Voluntary National Reviews (VNRs) submitted to the United Nations – can be used to update national processes. The 2030 Agenda and its SDGs offer a suitable frame of reference for formulating new and/or adapting existing national indicators and targets.
- Given that **multiple strategies and plans for sustainable development are already on hand at various political levels**, existing experience can be leveraged for updating purposes, especially for an SDG-oriented indicator system.
- When developing an overarching target and indicator system, it is **essential to build on existing strategies**. A minimum of continuity both for the targets and indicators can ensure effective use is made of past and present policies and interventions while establishing the most stable framework possible.

- Locating **process management centrally at the most senior political level** is meaningful for generating political will, for honouring the overarching importance of sustainable development for the entire policy portfolio, and for ensuring more effective inter-institutional coordination and thus ideally fostering coherence as a result. The resources dedicated to this central management unit (financial, HR and political) must befit this task's complexity and significance.
- **The function a strategy fulfils for a government, and how it is perceived by stakeholders, has an enormous impact.** This also means different expectations are placed on the indicators, indicator-backed targets and political measures. Ideally, a sustainable development strategy should be leveraged as a strategic political management instrument and not limited solely to the role of an accountability report. In this regard, it is all the more important to back up any attributed functions with corresponding, effective measures.
- To effectively harness the strategic management function of a sustainable development strategy, it makes sense to initiate its **conceptual update at the start of a legislative period.** Indicator system-based (accountability) reports on the status of sustainable development during and at the end of the legislative period round off the procedure in a meaningful way. The reporting intervals can be linked up with other standard reporting processes so as to leverage the latest implementation status and/or information generated by the indicator system for other thematic areas too.
- **A long-term orientation that is not restricted to a given legislative term** makes for broad political and societal anchorage and should therefore be a core element of any effective sustainable development strategy, including its target and indicator system.
- For indicators and indicator-backed targets in a national or subnational sustainable development strategy to be able to manifest their political relevance for fostering hands-on sustainable development, they have to be **formulated ambitiously, monitored consistently and used effectively.** This includes communicating the approach effectively to a wider general public.
- Experience has shown that, ideally, **indicators should not only be assigned measures for target achievement but a review mechanism as well** (if appropriate, also with interim targets) which triggers corrective measures if it is likely the targets will be missed. With regard to transparency and acceptance by all relevant actors, it would make sense to communicate these additional measures when introducing the target.
- It has proved effective when updating the Sustainable Development Strategy to have a **'strategy for implementing the national strategy'**. This should cut across all ministries. On the one hand, each ministry should draw up its ministerial strategy in which it details in depth how the targets (or sub-targets in the case of cross-ministerial areas of action) under its responsibility are to be pursued and/or implemented and what responses are required in the event of any off-track developments and/or missed targets.
- The strategies are made considerably more binding when **national budget planning and national sustainability targets are closely linked.**
- In practice, limitations on (financial and political) resources often mean that not all topics can be promoted with the same intensity. For this reason, it is important **to prioritise transformation areas at the political level.** In so doing, it is equally important not to lose sight of the holistic nature of the GSDS, as the various areas of action interact with each other. This is of direct relevance for the individual indicators and the indicator system too, as its steering function depends on the level of political responsiveness to off-track developments.
- Particularly in view of the wide thematic scope of the SDGs, many of the thematic areas covered are in need of new data or corresponding indicators that go beyond the traditional service areas covered

by statistical authorities. Experience has shown that **designing and updating nationally adapted, impact-oriented indicators**, especially if they are to take account of the global dimension, necessitates a **high degree of research, corresponding investments and sufficient time**.

- The challenge when establishing impact-oriented indicators consists in negotiating a more or less **comparable level of quality and an adequate political management level** for all indicators in the system. This secures their overarching political relevance.
- Owing to the complexity, effort and also time involved in designing and updating indicator content and their technical approaches, **cross-ministerial exchange structures and committees set up especially for this purpose have a vital role to play**.
- The technical process of designing and updating indicators cannot supplant the political process of negotiating targets, their level of ambition and political responsibility. For this reason, **the political target-setting process should always come before the technical process of indicator development**.
- **A clear orientation is required to limit the scope of the indicator system**. The number of indicators should also be revised as part of a system update. The indicators should address key areas of sustainability in a given country along with major areas of transformation. However, they cannot cover the complexity of macro-social sustainability in all its facets. The political process, stakeholder influence and individual ministries tend to drive the constant expansion of the indicator system; clear criteria must be put in place to channel this process.
- Given that sustainability is a task for society as a whole, **it is important to involve not only the national but also sub-national government levels** (in Germany this is thus the federal states (*Bundesländer*) and municipalities) in the process of target setting and measure planning in line with their respective responsibilities. This enables

the measures to achieve the highest level of coherence and ensures their smooth implementation. Coordinated (not necessarily uniform) indicators and monitoring instruments also help raise coherence.

- Sustainable development strategies provide an opportunity for **targeted communication** with citizens, which can boost political support. Qualitative targets that address the macrosocial contribution to the SDGs are particularly expedient.
- **Transparent and inclusive dialogue processes can decisively boost the level of ownership among key stakeholders and implementation by society as a whole**. Transparent and inclusive dialogue processes also help incorporate various perspectives and skillsets in strategy and indicator design. This can, not least, significantly increase the strategy's quality. To achieve this, dialogue processes should be professionally supported, and follow a clear structure and procedure. The objectives of each individual exchange format need to be communicated transparently and clearly. To identify suitable formats and learning experience, use can be made of dialogue processes from other policy areas.⁴⁷ The main thing here is that the participants recognise what influence dialogue and participation processes have on the outcome and also why the update/design process cannot take certain demands into account.

Endnotes

- ¹ cf. German Government (2021), pp. 89ff.
- ² More information is available on the website of the German Council for Sustainable Development (RNE): <https://www.nachhaltigkeitsrat.de/en/projects/peer-review/>
- ³ The Update 2021 (Weiterentwicklung 2021) was not published until after the actual period of investigation; wherever possible, any changes in comparison with the 'Dialog Format' (Dialogfassung) were taken into consideration.
- ⁴ Terminology usage varies depending on the specialist approach and over the course of time and, above all, especially during the political discourse. This is dealt with in more detail in the annexed section 'Notes on terminology'.
- ⁵ Quoted from: German Federal Ministry for the Environment (BMU) (1992), p. 68.
- ⁶ One of the priority areas of the CSD's work in the early years was the development of an indicator system for sustainable development as set out in Chapter 40 of Agenda 21. The CSD initially adopted the topics addressed in Agenda 21, and thus the four underlying dimensions of sustainability, as a basis for determining sub-targets for developing an indicator system. For a more in-depth analysis of the CSD process in relation to the National Sustainable Development Strategy (NSDS), see: Wilhelmy (2005).
- ⁷ Cf. German Government (2002), p. 58.
- ⁸ German Government (2002), pp. 59–60.
- ⁹ Cf. German Government (2004), pp. 29–30.
- ¹⁰ Cf. Diefenbacher (2002) p. 996: 'The Federal Government's depiction of the Sustainability Strategy coming about through societal dialogue masks the reality that the German Government's chosen pathway of achieving participation through internet sites and talks arranged at short notice with functionaries of societal groups was not adequate.'
- ¹¹ German Government (2008), p. 36.
- ¹² The latest Indicator Report did not come out in 2020 but parallel to the 'Update 2021' of the German Sustainable Development Strategy in March 2021, cf. Federal Statistical Office (2021).
- ¹³ German Government (2008), p. 36.
- ¹⁴ German Government (2012), p. 58.
- ¹⁵ A further interview scheduled with a federal state representative did not come about.
- ¹⁶ The term sustainability postulate describes a target within the four coordinates and 21 indicator areas of the NSDS. The sustainability postulate in the thematic field of 'climate action' for example is 'reduce greenhouse gases'. For an explanation of the terms used in the NSDS, see Annex 8f.
- ¹⁷ German Government (2017), p. 25.
- ¹⁸ For an overview of sustainable development indicators of the federal states, see https://www.destatis.de/EN/Themes/Society-Environment/Sustainable-Development-Indicators/_node.html;jsessionid=30FD8D9DA122DAD1F249D8028A0C1F59.live712, regarding the anchorage of this topic at the municipal level, see, for example <https://skew.engagement-global.de/zeichnungskommunen-agenda-2030.html> (German only, last accessed on 19 Feb. 2021).
- ¹⁹ German Federal Statistical Office (Destatis) (2018), p. 3, Foreword G. Thiel.
- ²⁰ Given that five of the 21 key areas each had two indicators and targets, the initial National Sustainable Development Strategy of 2002 did in fact have 26 indicators.
- ²¹ https://www.destatis.de/EN/Press/2020/10/PE20_388_325.html, last accessed on 13 February 2021.
- ²² Plus special funding by the German Government amounting to approx. €5 million, See German Government (2021), p. 283.
- ²³ cf. German Government (2021), pp. 92–93.
- ²⁴ German Government (2012), p. 57.
- ²⁵ German Government (2017), p. 159.
- ²⁶ By way of illustration, the hectare size is also often expressed as equivalents of 'football fields' in political communication (i.e. for example, translated into an average value of 0.7 hectares). As a result, the impact of a corresponding indicator in the 2017 GIZ report 'Capturing and contextualising results on a global level' (p. 14) is formulated such that an (agricultural) area of 10 million football fields can be managed more sustainably thanks to GIZ support. Given a factor of 0.7, the NSDS target of 30 hectares/day corresponds to around 42.8 football fields/day or 300 per week and 15,600 per year.
- ²⁷ Cf. here inter alia: Nature and Biodiversity Conservation Union (NABU) 'NABU comment on the German Sustainable Development Strategy 2016', <https://www.nabu.de/imperia/md/content/nabude/nachhaltigkeit/170706-nabu-stellungnahme-nachhaltigkeitsstrategie.pdf>, (German only, last accessed on 31 Jan. 2021), and the joint comment by a wide group of publishers from ten non-governmental organisations, including VENRO and the German Forum on Environment and Development 'Ein Anfang, der nach mehr verlangt: Die Nachhaltigkeitsstrategie muss ehrgeizig umgesetzt und weiterentwickelt werden' of March 2017, https://venro.org/fileadmin/user_upload/Dateien/Daten/Publikationen/Stellungnahmen/DNS_Stellungnahme_2017.pdf (German only, last accessed on: 31 Jan. 2021).

- ²⁸ In this connection, reference was made to an 'alternative indicator system for Germany' consisting of some 64 indicators in 2004 already and that a number of this magnitude certainly appears appropriate given the complexity of the thematic field. Cf.: Diefenbacher et.al. (2004).
- ²⁹ cf. German Government (2020), p. 25.
- ³⁰ cf. German Government (2021), pp. 46–58 and in particular the chart illustrating the areas of transformation, off-track indicators and measures on p. 59, based on the comment by Beisheim (2020).
- ³¹ The German Government also uses international peer reviews as an instrument for updating the NSDS/GSDS, enabling it to get a neutral take on the strengths and weaknesses of its own activities. In this context, three peer reviews were already conducted in the years 2009, 2013 and 2018 whose results were incorporated in the discussions about future NSDS/GSDS updates. Cf. German Council for Sustainable Development (2018).
- ³² German Government (2017), p. 53.
- ³³ German Government (2020), p. 39.
- ³⁴ More information on the challenges facing ministerial coordination is already dealt with in the NSDS Progress Report 2008 on page 12 with its suggestions for improving sustainability management, which also covers the indicators and targets, and the sub-chapter 'Measures' on 'Increasing the capacity of monitoring and control of sustainability' p. 31ff.
- ³⁵ As recommended in the international Peer Review and Dialogue. German Government (2021), p. 82.
- ³⁶ Federal Statistical Office (Destatis) (2019), heading 'Preliminary Remarks'.
- ³⁷ Cf. guest commentary by Gerald Wehde, Managing Director in charge of agricultural policy at Bioland e.V. in the online magazine top-agrar online of 21 January 2021, <https://www.topagrar.com/oekolandbau/news/bioland-cdu-csu-bremst-agrar-wende-seit-20-jahren-aus-12456895.html>; German only, last accessed on 6 February 2021.
- ³⁸ Cf. <https://www.oekolandbau.de/landwirtschaft/umstellung/ablauf-und-planung/foerdermittel/>; last accessed on 31 March 2021.
- ³⁹ German Government (2016), p. 68.
- ⁴⁰ 'The individual stages of work were conducted in close cooperation with an advisory body consisting of representatives of associations and the academic community. Furthermore, two conferences took place during the strategy process at which interim results were presented and discussed. In all, around 200 people were actively involved the elaboration of this Strategy for the Future of Organic Farming. The Thünen Institute, a departmental research institution of the German Ministry of Food and Agriculture (BMEL), was commissioned to design and coordinate the workflow.' BMEL (2019), p. 7.
- ⁴¹ BMEL (2019), p. 6; and on p. 39 it says: 'An expansion of organic agriculture to meet a target of 20% cannot be achieved over night', thus blending out the target set by the German Government in the National Sustainable Development Strategy of 2002.
- ⁴² Already in the New Edition 2016 of the GSDS, the previous indicator 12b was changed to indicator 2.1.b and attributed to SDG 2 'End hunger, achieve food security and improved nutrition and promote sustainable agriculture'. The official formulation since the 2008 Progress Report: 'Farming: environmentally sound production in our cultivated landscapes' was adopted. Up till 2006, this was still formulated under the dimension 'Quality of life' as 'Food: Healthy environmentally friendly food production'. The Federal Statistical Office also provides data pertaining to indicator 12b/2.1b in both online portals for the linked SDG indicators: On the one hand as a global indicator for the SDG target 2.4.1 'Proportion of agricultural area under productive and sustainable agriculture' on the basis of data from BMEL, on the other as a national GSDS indicator – 2.1.b 'Organic farming' on the basis of data from the Federal Statistical Office (whereby since 2016 the two series of data have increasingly deviated from one another). Data from the Federal Statistical Office also goes into the EU reporting system which contains around 100 indicators. See here European Union (2020a): Sustainable development in the European Union. Monitoring report on progress towards the SDGs in an EU context. 2020 edition, Luxembourg.
- ⁴³ European Union (2020b): Farm-to-fork strategy – For a fair, healthy and environmentally friendly food system. Brussels: European Union, p. 10/11.
- ⁴⁴ Cf. German Government (2021), p. 145.
- ⁴⁵ See Update 2021, p. 375. Compared with earlier versions, the off-track indicators are to be monitored more closely (see p. 95): 'The ministries will in future compile a joint report about the status of target achievement and planned measures for the benefit of off-track indicators following publication of the Indicator Reports of the Federal Statistical Office as the basis for treatment by the State Secretaries' Committee on Sustainable Development. This will subsequently be published.'
- ⁴⁶ Cf. Schnappauf (2021) on the importance of transformation areas and on the manner in which missed targets have been dealt with to date, p. 18.
- ⁴⁷ An example in a German context could be the dialogue and participation processes involved in the search for a repository spearheaded by the Federal Office for the Safety of Nuclear Waste Management (BASE), a process that has overall likewise been fraught with complex and numerous conflicts of interest (cf. https://www.base.bund.de/EN/soa/soa_node.html) or the Citizens' Assembly – 'Germany's Role in the World' which was conducted online in January/February (cf. <https://deutschlands-rolle.buergerrat.de/en/>); last accessed on 24 Feb. 2021.



Annex

a. List of sources

References

BACHMANN, GÜNTHER (2017): Die Deutsche Nachhaltigkeitsstrategie 2016 – Stand und Perspektiven. In: Michelsen, Gerd (2017) (Hrsg.): Die Deutsche Nachhaltigkeitsstrategie – Wegweiser für eine Politik der Nachhaltigkeit. Wiesbaden: Hessische Landeszentrale für politische Bildung, Reihe Forum hlz, S. 41–53.

BEISHEIM, MARIANNE (2020): Statement as part of the dialogue process on the German Sustainable Development Strategy, <https://www.bundesregierung.de/breg-de/themen/nachhaltigkeitspolitik/marianne-beisheim-stiftung-wissenschaft-und-politik-swp--1824406>, last accessed on: 15.02.2021.

BERTELSMANN STIFTUNG (Hrsg.) (2015): Developing Successful Sustainability Strategies – Fundamentals – Analyses – Design Options, Bertelsmann Stiftung, Gütersloh.

BERTELSMANN STIFTUNG (Hrsg.) (2013): Winning strategies for a sustainable future. Reinhard Mohn Prize 2013, Bertelsmann Stiftung, Gütersloh.

DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GMBH (Hrsg.) (2017): Capturing and contextualising results on a global level Series: Knowing what works, GIZ, Bonn, 2017

DIEFENBACHER, HANS (2002), 'Die Nachhaltigkeitsstrategie der Bundesregierung', *Journal for German and International Politics* No. 8, pp. 995–997.

DIEFENBACHER, HANS ET AL (2004), *Indikatoren nachhaltiger Entwicklung in Deutschland – Ein alternatives Indikatorensystem zur nationalen Nachhaltigkeitsstrategie*, FEST, Heidelberg.

EUROPEAN UNION (2020a), *Sustainable development in the European Union. Monitoring report on progress towards the SDGs in an EU context. 2020 edition*, Luxembourg.

EUROPEAN UNION (2020b), *Farm-to-fork strategy – For a fair, healthy and environmentally friendly food system*, European Union, Brussels, pp. 10–11.

GERMAN COUNCIL FOR SUSTAINABLE DEVELOPMENT (RNE), ed. (2018), *The 2018 Peer Review on the German Sustainable Development Strategy*, RNE, Berlin.

GERMAN FEDERAL FOREIGN OFFICE (AA) (2018), *Diplomacy for Sustainability. Report by the German Federal Foreign Office on the implementation of the German Sustainable Development Strategy and the SDGs*. German Federal Foreign Office, Berlin.

GERMAN FEDERAL MINISTRY FOR THE ENVIRONMENT, NATURE CONSERVATION AND NUCLEAR SAFETY (BMU), ed. (2000), *Germany Interim Report on Testing UN-CSD Indicators of Sustainable Development in Germany*, BMU, Berlin.

GERMAN FEDERAL MINISTRY FOR THE ENVIRONMENT, NATURE CONSERVATION AND NUCLEAR SAFETY (BMU), ed. (1992), *Agenda 21. United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, June 1992, documents*, BMU, Bonn.

GERMAN FEDERAL MINISTRY OF FOOD AND AGRICULTURE (BMEL) (2019), *'Organic Farming – Looking Forwards' strategy – Towards greater sustainability in Germany*, 2nd edition, BMEL, Berlin.

GERMAN FEDERAL STATISTICAL OFFICE (Destatis) (2021), *Sustainable Development in Germany – Indicator Report*, Destatis, Wiesbaden.

GERMAN FEDERAL STATISTICAL OFFICE (Destatis) (2019), *Sustainable Development in Germany – Feasibility study on presentation of GSDS indicators by Federal States 2010–2017*. Destatis, Wiesbaden (German only). (Excel table).

GERMAN FEDERAL STATISTICAL OFFICE (Destatis) (2006ff), *Sustainable Development in Germany – Indicator Report*, Destatis, Wiesbaden (various years, published every two years 2006–2018).

GERMAN GOVERNMENT (2021), *German Sustainable Development Strategy – Update 2021*, Press and Information Office of the German Federal Government (BPA), Berlin.

GERMAN GOVERNMENT (2020), *German Sustainable Development Strategy – Update 2021, Dialogue Format*, Berlin: Press and Information Office of the German Federal Government (BPA), Berlin.

GERMAN GOVERNMENT (2018), *German Sustainable Development Strategy – Update 2018*, BPA, Berlin.

GERMAN GOVERNMENT (2017), *German Sustainable Development Strategy, New Edition 2016: Status 1 October 2016; Cabinet resolution of 11 January 2017*, The German Government, Berlin.

GERMAN GOVERNMENT (2012), *National Sustainable Development Strategy – Progress Report 2012*, Press and Information Office of the German Federal Government (BPA), Berlin.

GERMAN GOVERNMENT (2008), *For a Sustainable Germany – Progress Report 2008 on the National Strategy for Sustainable Development* Berlin, Press and Information Office of the German Federal Government (BPA), Berlin.

GERMAN GOVERNMENT (2004), *Perspectives for Germany: Our strategy for sustainable development. Progress Report 2004*, Press and Information Office of the German Federal Government (BPA), Berlin.

GERMAN GOVERNMENT (2002), *Perspectives for Germany: Our strategy for sustainable development. Progress Report 2002*, Press and Information Office of the German Federal Government (BPA), Berlin.

MUMM, GERRIT (2016), Die deutsche Nachhaltigkeitsstrategie. Grundlagen – Evaluationen – Empfehlungen, Springer, Wiesbaden.

SCHNAPPAUF, WERNER (2021), 'Die bunten SDG-Kacheln auf den Websites reichen nicht aus (interview)', Verantwortung, 1, 2021, pp. 16–18.

SCHOLZ, IMME (2017), 'Herausforderung Sustainable Development Goals', Michelsen, Gerd, ed., Die Deutsche Nachhaltigkeitsstrategie – Wegweiser für eine Politik der Nachhaltigkeit, Hessian State Centre for Political Education, Series Forum hlz, Wiesbaden, pp. 23–39.

Internet sources:

https://www.base.bund.de/DE/themen/soa/soa_node.html; last accessed: 24 February 2021.

<https://www.bundesregierung.de/breg-de/themen/nachhaltigkeitspolitik> (= www.deutsche-nachhaltigkeitsstrategie.de), last accessed: 26 February 2021.

<https://www.bundesregierung.de/breg-de/themen/nachhaltigkeitspolitik/dialog-zur-nachhaltigkeit-1795666>, (= comments), last accessed: 26 February 2021.

<https://deutschlands-rolle.buergerrat.de>, last accessed: 24 February 2021.

<https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Nachhaltigkeitsindikatoren/Deutsche-Nachhaltigkeit/nachhaltigkeit-laender.html>; last accessed: 19 February 2021.

https://www.destatis.de/DE/Presse/Pressemitteilungen/2020/10/PD20_388_325.html, last accessed: 13 February 2021.

<https://www.nabu.de/imperia/md/content/nabude/nachhaltigkeit/170706-nabu-stellungnahme-nachhaltigkeitsstrategie.pdf> (NABU commentary on the German Sustainability Strategy 2016); last accessed: 31 January 2021.

VON HAUFF, MICHAEL ET AL (2018), Deutschlands Nachhaltigkeitsstrategie, UVK, Konstanz/Munich.

WILHELMY, STEFAN (2005), Theorien und Messkonzepte zur Analyse der Nachhaltigkeit in internationalen Beziehungen: Entwicklung eines Indikatorensystems am Beispiel Deutschland – Costa Rica. Dissertation, Frankfurt am Main: University Library Frankfurt am Main, 346 pages (also available online since 2014 under: <http://publikationen.ub.uni-frankfurt.de/frontdoor/index/index/year/2014/docId/35527>; status: 26 January 2020).

https://www.nachhaltigkeitsrat.de/wp-content/uploads/2018/05/2018_Peer_Review_of_German_Sustainability_Strategy_BITV.pdf; last accessed: 01 August 2021.

<https://www.polsoz.fu-berlin.de/polwiss/forschung/systeme/ffu/forschung/steuerung/strategien/index.html>; last accessed: 24 February 2021.

<https://skew.engagement-global.de/zeichnungs-kommunen-agenda-2030.html>; last accessed: 19 February 2021.

<https://www.topagrar.com/oekolandbau/news/bioland-cdu-csu-bremst-agrarwende-seit-20-jahren-aus-12456895.html>; Guest commentary by Gerald Wehde, Agricultural Policy Managing Director for Bioland in the online magazine top-agrar online on 21 January 2021, last accessed: 6 February 2021.

https://venro.org/fileadmin/user_upload/Dateien/Daten/Publikationen/Stellungnahmen/DNS_Stellungnahme_2017.pdf; last accessed: 31 January 2021.

b. Sustainability Management – A comparison of structure and actors between 2008 and 2021

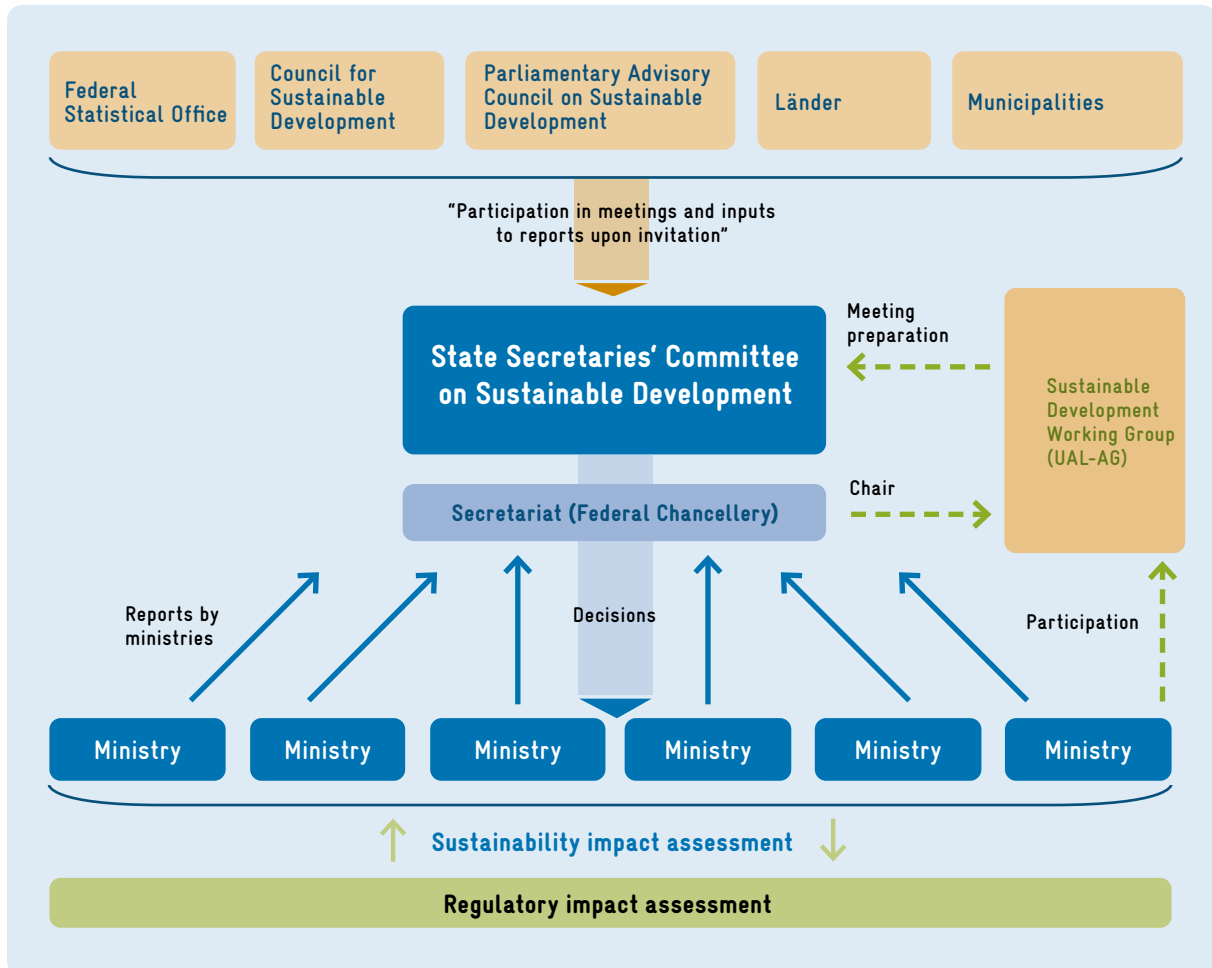


Figure 5: Overview of institutions that make up the German sustainability management system (2008)

Source: German Government, ed., Progress Report 2008, p.34.

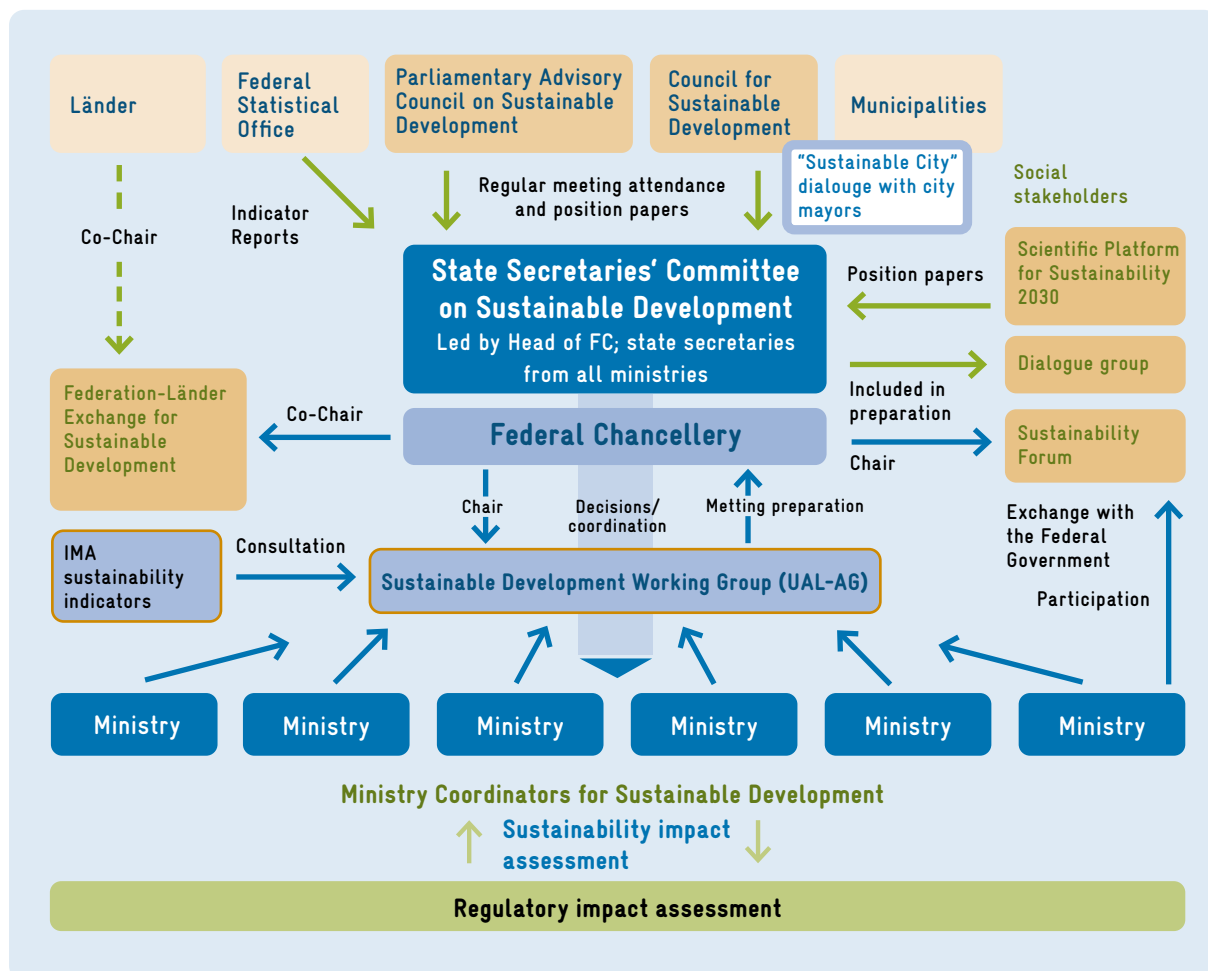


Figure 6: Overview of institutions that make up the German sustainability management system (2021)

Source: German Government ed. (2021), p. 70

c. Overview of NSDS and GSDS indicators

NNS 2002			
Number of Indicators		27	
Indicator Area			
Intergeneration equity	Conservation of resources	1a.	Energy productivity
		1b.	Resource productivity
	Climate protection	2.	Greenhouse gas emissions in CO2-equivalents
	Renewable energies	3.	Share of renewable energy sources in final energy consumption
	Land use	4.	Increase in land use for housing and transport
	Biodiversity	5.	Development of stocks of selected animal species (index)
	National debt	6.	Public finance deficit in percentage of GDP
	Provision for future economic stability	7.	Ratio of gross fixed capital formation to gross national product
	Innovation	8.	Private and public spending on research and development
	Education and Training	9a.	Percentage of school leavers without secondary school qualifications
	9b.	Percentage of students starting degree courses	
Quality of life	Economic prosperity	10.	Gross domestic product per head
	Mobility	11a.	Intensity of freight traffic
		11b.	Intensity of passenger traffic
		11c.	Proportion of rail traffic and inland water transport in total of freight traffic
	Nutrition	12a.	Nitrogen surplus in farming
		12b.	Development of land for organic farming
	Air quality	13.	Air pollution
	Health	14a.	Premature deaths (cases of death under 65 years)
		14b.	Satisfaction with health (opinion poll)
Crime	15.	Number of burglaries	
Social cohesion	Employment	16.	Employment rate
	Perspectives for families	17.	Full-time day care provision for children in the West German Länder (age groups 0–3 years, 3–6.5 years, 6.5–12.5 years)
	Equal opportunities	18.	Women's average earnings as % of men's average earnings
	Integration of foreign citizens	19.	Foreign school leavers not gaining school-leaving certificate (Hauptschule)
International responsibility	Development Cooperation	20.	Share of Official Development Assistance in % of gross national income
	Opening Markets	21.	Imports to the EU from developing countries

Source: Bundesregierung (2002): Perspektiven für Deutschland – Unsere Strategie für eine Nachhaltige Entwicklung (NNS 2002)

NNS 2012			
Number of Indicators		38	
Indicator Area			
Intergeneration equity	Resource conservation	1a.	Energy productivity
		1b.	Primary energy consumption
		1c.	Raw material productivity
	Climate protection	2.	Greenhouse gas emissions
	Renewable energy sources	3a.	Share of renewable energy sources in final energy consumption
		3b.	Share of renewable energy source in electricity consumption
	land use	4.	Built-up area and transport infrastructure expansion
	Species diversity	5.	Species diversity and landscape quality (index)
	Government debt	6a.	General government deficit
		6b.	Structural deficit
		6c.	Government debt
	Provision for future economic stability	7.	Gross fixed capital formation in relation to GDP
	Innovation	8.	Private and public spending on research and development
Education and training	9a.	18- to 24-year-olds without a school leaving certificate	
	9b.	30- to 34-year-olds with a tertiary or post-secondary non-tertiary level of education	
	9c.	Share of students starting a degree course	
Quality of life	Economic output	10.	Gross domestic product per capita
	Mobility	11a.	Intensity of goods transport
		11b.	Intensity of passenger transport
		11c.	Share of rail freight transport
		11d.	Share of inland freight water transport
	Farming	12a.	Nitrogen surplus
		12b.	Land use for organic farming
	Air quality	13.	Air pollution
	Health and nutrition	14a.	Premature mortality men
		14b.	Premature mortality women
		14c.	Smoking rates amongst young
14d.		Smoking rates amongst adults	
14e.		Proportion of adults suffering from obesity	
Crime	15.	Criminal offences	
Social cohesion	Employment	16a.	Employment rate
		16b.	Employment rate of 55- to 64-year-olds
	Prospects for families	17a.	All-day care provision for children (0- to 2-year olds)
		17b.	All-day care provision for children (3- to 5-year olds)
	Equal opportunities	18.	Gender pay gap
Integration	19.	Foreign school leavers with a school leaving certificate	
International responsibility	Development cooperation	20.	Share of expenditure für official development assistance in gross national income
	Opening markets	21.	German imports from developing countries

DNS 2016			
Number of indicator	64		
SDG	Indicator area		
	Poverty	1.1.a	Material deprivation
		1.1.b	Severe material deprivation
	Farming	2.1.a	Nitrogen surplus
		2.1.b	Organic farming
	Health and nutrition	3.1.a	Premature mortality women
		3.1.b	Premature mortality men
		3.1.c	Smoking rate among young people (12–17 years)
		3.1.d	Smoking rate among adults (15 years and older)
		3.1.e	Obesity rate among young people (11–17-year olds)
		3.1.f	Obesity rate among adults (18 years and older)
	Air pollution	3.2.a	Emissions of air pollutants
		3.2.b	Share of the population with increased exposure to PM10 in Germany
	Education and training	4.1.a	Early school leavers (18- to 24-year-olds without a school leaving certificate)
		4.1.b	30- to 34-year-olds with a tertiary or post-secondary level of education
	Prospects for families	4.2.a	All-day care provision for children (0- to 2-year-olds)
		4.2.b	All-day care provision for children (3- to 5-year-olds)
	Equal opportunities	5.1.a	Gender pay gap
		5.1.b	Women in management positions in business
		5.1.c	Vocational qualification of women and girls through German development cooperation
	Water quality	6.1.a	Phosphorous in flowing waters
		6.1.b	Nitrate in groundwater
	Clean water and sanitation	6.2.	Number of people gaining access to drinking water and sanitation through support from Germany

	Resource conservation	7.1.a	Final energy productivity
	Resource conservation	7.1.b	Primary energy consumption
	Renewable energy	7.2.a	Share of renewable energy sources in gross final energy consumption
	Renewable energy	7.2.b	Share of renewable energy in gross electricity consumption
	Resource conservation	8.1.	Total raw material productivity
	Government debt	8.2.a	General government deficit
		8.2.b	Structural deficit
		8.2.c	Government debt
	Provision for future economic stability	8.3.	Gross fixed capital formation in relation to GDP
	Economic output	8.4.	Gross domestic product per capita
	Employment	8.5.a	Employment rate (total) 20- to 64-year-olds
		8.5.b	Employment rate (60- to 64-year-olds)
	Global supply chains	8.6.	Number of members of the Textile Partnership
	Innovation	9.1.	Private and public spending on research and development
	Equal educational opportunities	10.1.	Foreign school graduates
	Distributional justice	10.2.	Gini coefficient after social transfers
	Land use	11.1.a	Built-up area and transport infrastructure expansion
		11.1.b	Loss of open space in m ² /inhabitant
		11.1.c	Inhabitants by area occupied by built-up areas and transport infrastructure (settlement density)
	Mobility	11.2.a	Final energy consumption of freight transport
		11.2.b	Final energy consumption in passenger transport
		11.2.c	Population-weighted average travel time with public transport from each stop to the next medium-sized/large city
	Housing	11.3.	Housing cost overload

	Sustainable consumption	12.1.a	Market share of goods certified by sustainability labels
		12.1.b	Energy consumption and CO2-emissions from consumption
	Sustainable production	12.2.	EMAS eco-management
	Climate protection	13.1.a	Greenhouse gas emissions
		13.1.b	International climate protection funding for the reduction of GHG and adaptation to climate change
	Protecting the oceans	14.1.aa	Nutrient inputs in coastal waters and marine waters – nitrogen input via the inflows into the Baltic Sea
		14.1.ab	Nutrient inputs in coastal waters and marine waters – nitrogen input via the inflows into the North Sea
		14.1.b	Share of sustainably fished fish stocks in the North Sea and Baltic Sea
	Species diversity	15.1.	Species diversity and landscape quality
	Ecosystems	15.2.	Eutrophication of ecosystems
	Forests	15.3.	Payments to developing countries for the verified preservation or restoration of forests under the REDD+ rulebook
	Crime	16.1.	Criminal offences
	Peace and Security	16.2.	Number of projects to secure, register and destroy small arms and light weapons carried out by Germany in affected regions of the world
	Good governance	16.3.a	Corruption Perception index in Germany
		16.3.b	Corruption Perception index in partner countries of German development cooperation
	Development Cooperation	17.1.	Share of expenditure for official development assistance in gross national income
	Knowledge transfer, especially in technical areas	17.2.	Number of students and researchers from developing countries and LDCs per year (semester)
	Opening Markets	17.3.	Share of imports from LDCs in total imports to Germany






Source: Deutsche Nachhaltigkeitsstrategie – Neuauflage 2016 (bundesregierung.de)

DNS 2018			
Number of indicators	67 (indicators that have been added compared to 2016 are highlighted in color)		
SDG	Indicator area		
	Poverty	1.1.a	Material deprivation
		1.1.b	Severe material deprivation
	Farming	2.1.a	Nitrogen surplus
		2.1.b	Organic farming
	Food security	2.2.	Support for good governance in attaining appropriate nutrition worldwide
	Health and nutrition	3.1.a	Premature mortality women
		3.1.b	Premature mortality men
		3.1.c	Smoking rate among young people (12–17 years)
		3.1.d	Smoking rate among adults (15 years and older)
		3.1.e	Obesity rate among young people (11–17-year olds)
		3.1.f	Obesity rate among adults (18 years and older)
	Air pollution	3.2.a	Emissions of air pollutants
		3.2.b	Share of the population with increased exposure to PM10 in Germany
	Education and training	4.1.a	Early school leavers (18- to 24-year-olds without a school leaving certificate)
		4.1.b	30- to 34-year-olds with a tertiary or post-secondary level of education
	Prospects for families	4.2.a	All-day care provision for children (0- to 2-year-olds)
		4.2.b	All-day care provision for children (3- to 5-year-olds)
	Equal opportunities	5.1.a	Gender pay gap
		5.1.b	Women in management positions in business
		5.1.c	Vocational qualification of women and girls through German development cooperation






6 CLEAN WATER AND SANITATION 	Water quality	6.1.a	Phosphorous in flowing waters
		6.1.b	Nitrate in groundwater
	Clean water and sanitation	6.2.	Number of people gaining access to drinking water and sanitation through support from Germany
7 AFFORDABLE AND CLEAN ENERGY 	Resource conservation	7.1.a	Final energy productivity
		7.1.b	Primary energy consumption
	Renewable energy	7.2.a	Share of renewable energy sources in gross final energy consumption
		7.2.b	Share of renewable energy in gross electricity consumption
8 DECENT WORK AND ECONOMIC GROWTH 	Resource conservation	8.1.	Total raw material productivity
	Government debt	8.2.a	General government deficit
		8.2.b	Structural deficit
		8.2.c	Government debt
	Provision for future economic stability	8.3.	Gross fixed capital formation in relation to GDP
	Economic output	8.4.	Gross domestic product per capita
	Employment	8.5.a	Employment rate (total) 20- to 64-year-olds
		8.5.b	Employment rate (60- to 64-year-olds)
	Global supply chains	8.6.	Number of members of the Textile Partnership
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	Innovation	9.1.	Private and public spending on research and development
10 REDUCED INEQUALITIES 	Equal educational opportunities	10.1.	Foreign school graduates
	Distributional justice	10.2.	Gini coefficient after social transfers
11 SUSTAINABLE CITIES AND COMMUNITIES 	Land use	11.1.a	Built-up area and transport infrastructure expansion
		11.1.b	Loss of open space in m ² /inhabitant
		11.1.c	Inhabitants by area occupied by built-up areas and transport infrastructure (settlement density)
	Mobility	11.2.a	Final energy consumption of freight transport
		11.2.b	Final energy consumption in passenger transport
		11.2.c	Population-weighted average travel time with public transport from each stop to the next medium-sized/large city
	Housing	11.3.	Housing cost overload

	Sustainable consumption	12.1.a	Market share of goods certified by sustainability labels
		12.1.b	Energy consumption and CO2-emissions from consumption
	Sustainable production	12.2.	EMAS eco-management
	Sustainable procurement	12.3.a	Paper bearing the Blue Angel label as a proportion of the total paper consumption of the direct federal administration
		12.3.b	CO2 emissions of public sector-owned motor vehicles
	Climate protection	13.1.a	Greenhouse gas emissions
		13.1.b	International climate protection funding for the reduction of GHG and adaptation to climate change
	Protecting the oceans	14.1.a	Nutrient inputs in coastal waters and marine waters
		14.1.aa	Nitrogen input via the inflows into the Baltic Sea
		14.1.ab	Nitrogen input via the inflows into the North Sea
		14.1.b	Share of sustainably fished fish stocks in the North Sea and Baltic Sea
	Species diversity	15.1.	Species diversity and landscape quality
	Ecosystems	15.2.	Eutrophication of ecosystems
	Forests	15.3.	Payments to developing countries for the verified preservation or restoration of forests under the REDD+ rulebook
	Crime	16.1.	Criminal offences
	Peace and Security	16.2.	Number of projects to secure, register and destroy small arms and light weapons carried out by Germany in affected regions of the world
		16.3.a	Corruption Perception index in Germany
	Good governance	16.3.b	Corruption Perception index in partner countries of German development cooperation
	Development cooperation	17.1.	Share of expenditure for official development assistance in gross national income
	Knowledge transfer, especially in technical areas	17.2.	Number of students and researchers from developing countries and LDCs per year (semester)
	Opening markets	17.3.	Share of imports from LDCs in total imports to Germany

Source: Nachhaltige Entwicklung in Deutschland – Indikatorenbericht 2018 (destatis.de)

DNS 2021			
umber of indicators	75 (indicators that have been added compared to 2018 are highlighted in color)		
SDG	Indicator area		
	Poverty	1.1.a	Material deprivation
		1.1.b	Severe material deprivation
	Farming	2.1.a	Nitrogen surplus
		2.1.b	Organic farming
	Food security	2.2.	Support for good governance in attaining appropriate nutrition worldwide
	Health an nutrition	3.1.a	Premature mortaility women
		3.1.b	Premature mortality men
		3.1.c	Smoking rate among young people (12-17 years)
		3.1.d	Smoking rate among adults (15 years and older)
		3.1.e	Obesity rate among young people (11-17-year olds)
		3.1.f	Obesity rate among adults (18 years and older)
	Air pollution	3.2.a	Emissions of air pollutants
		3.2.b	Share of the population with increased exposure to PM10 in Germany
	Global health	3.3.	Germany's contribution to global pandemic prevention and response
	Education and training	4.1.a	Early school leavers (18- to 24-year-olds without a school leaving certificate)
		4.1.b	30- to 34-year-olds with a tertiary or post-secondary level of education
	Prospects for families	4.2.a	All-day care provision for children (0- to 2-year-olds)
		4.2.b	All-day care provision for children (3- to 5-year-olds)
	Equal opportunities	5.1.a	Gender pay gap
		5.1.b	Women in management positions in business
		5.1.c	Vocational qualification of women and girls through German development cooperation
		5.1.d	Proportion of fathers receiving parental allowance
		5.1.e	Vocational qualification of women and girls through German development cooperation

	Water quality	6.1.a	Phosphorous in flowing waters
		6.1.b	Nitrate in groundwater
	Clean water and sanitation	6.2.	Number of people gaining access to drinking water and sanitation through support from Germany
		6.2.a	Number of people with new or improved access to drinking water thanks to German support
		6.2.b	Number of people with new or improved access to sanitation thanks to German support
	Resource conservation	7.1.a	Final energy productivity
		7.1.b	Primary energy consumption
	Renewable energy	7.2.a	Share of renewable energy sources in gross final energy consumption
		7.2.b	Share of renewable energy in gross electricity consumption
	Resource conservation	8.1.	Total raw material productivity
	Government debt	8.2.a	General government deficit
		8.2.b	Structural deficit
		8.2.c	Government debt
	Provision for future economic stability	8.3.	Gross fixed capital formation in relation to GDP
	Economic output	8.4.	Gross domestic product per capita
	Employment	8.5.a	Employment rate (total) 20- to 64-year-olds
		8.5.b	Employment rate (60- to 64-year-olds)
	Global supply chains	8.6.	Number of members of the Textile Partnership
	Innovation	9.1.a	Private and public expenditure on research and development
		9.1.b	Rollout of broadband: number of people with access to gigabit broadband
	Equal educational opportunities	10.1.	Foreign school graduates
	Distributional justice	10.2.	Gini coefficient after social transfers

	Land use	11.1.a	Built-up area and transport infrastructure expansion
		11.1.b	Loss of open space in m ² /inhabitant
		11.1.c	Inhabitants by area occupied by built-up areas and transport infrastructure (settlement density)
	Mobility	11.2.a	Final energy consumption of freight transport
		11.2.b	Final energy consumption in passenger transport
		11.2.c	Population-weighted average travel time with public transport from each stop to the next medium-sized/large city
	Housing	11.3.	Housing cost overload
	Cultural heritage	11.4.	Number of objects in the German Digital Library
	Sustainable consumption	12.1.a	Market share of goods certified by sustainability labels
		12.1.b	Energy consumption and CO ₂ -emissions from consumption
		12.1.ba	Direct and indirect use of raw materials
		12.1.bb	Direct and indirect energy consumption
		12.1.bc	Direct and indirect CO ₂ emissions
	Sustainable production	12.2.	EMAS eco-management
	Sustainable procurement	12.3.a	Paper bearing the Blue Angel label as a proportion of the total paper consumption of the direct federal administration
		12.3.b	CO ₂ emissions of public sector-owned motor vehicles
	Climate protection	13.1.a	Greenhouse gas emissions
		13.1.b	International climate protection funding for the reduction of GHG and adaptation to climate change
	Protecting the oceans	14.1.a	Nutrient inputs in coastal waters and marine waters
		14.1.aa	Nitrogen input via the inflows into the Baltic Sea
		14.1.ab	Nitrogen input via the inflows into the North Sea
		14.1.b	Share of sustainably fished fish stocks in the North Sea and Baltic Sea
	Species diversity	15.1.	Species diversity and landscape quality
	Ecosystems	15.2.	Eutrophication of ecosystems
	Forests	15.3.a	Preservation or restoration of forests under REDD+
		15.3.b	Investments in international soil protection – UN Convention to Combat Desertification (UNCCD)

	Crime	16.1.	Criminal offences
	Peace and Security	16.2.	Number of projects to secure, register and destroy small arms and light weapons carried out by Germany in affected regions of the world
	Good governance	16.3.a	Corruption Perception index in Germany
		16.3.b	Corruption Perception index in partner countries of German development cooperation
	Development cooperation	17.1.	Share of expenditure for official development assistance in gross national income
	Knowledge transfer, especially in technical areas	17.2.	Number of students and researchers from developing countries and LDCs per year (semester)
	Opening markets	17.3.	Share of imports from LDCs in total imports to Germany

Source: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Nachhaltigkeitsindikatoren/Deutsche-Nachhaltigkeit/_inhalt.html

d. Experts interviewed as part of this study

(listed alphabetically)

Prof. Dr **Günter Bachmann**, German Council for Sustainable Development (RNE) (2001–2004/2020), Berlin

Prof. Dr **Hans Diefenbacher**, Research Centre of the Evangelical Community – FEST, Heidelberg

Frank Hönerbach, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

Sven C. Kaumanns, Federal Statistical Office, Wiesbaden/Bonn

Jürgen Maier and **Marie-Luise Abshagen** (joint interview), German Forum on Environment and Development, Berlin

Dr **Marc-Oliver Pahl**, German Council for Sustainable Development, Berlin

Detlef Raphael, Association of German Cities, Berlin/Cologne

Dr **Klaus Reuter**, North Rhine-Westphalian Working Party on Agenda 21 (LAG21 NRW), Dortmund

Prof. **Dr Imme Scholz**, German Development Institute (DIE), Bonn

(Owing to the coronavirus pandemic, the interviews were conducted exclusively by telephone and/or as a video conference in January 2021.)

e. Lead questions for semi-structured interviews

Preliminary remarks: As the core element of the GSDS, the target and indicator system has also evolved considerably since the first NSDS/GSDS was presented – both in terms of content and also with respect to the actual 2001/2002 development process and further updates in the years that followed. Roughly speaking, a distinction should be made between four key phases of learning experience:

1. Emergence phase: Work by CSD and the national CSD working group (as of 1996)
2. The first National Sustainable Development Strategies 2002/2004
3. The NSDS as of 2006 with data analysis by the Federal Statistical Office
4. Current GSDS with 2030 Agenda as new frame of reference as of 2016

Interview questions:

1. Does this division into four phases correspond with the way you see it or do you consider there to be other key GSDS/NSDS development phases? (short response sufficient)
2. Please briefly describe your present and past GSDS-related responsibilities.
3. From your point of view, what is the central function of targets and indicators in a (national) sustainable development strategy? What do you consider to be the primary objective of a target and indicator system? (above all, should it: 1) facilitate communication on sustainability, concretise/break down sustainability and foster societal discussion especially; or 2) fulfil an accountability function, political management function, be used for academic analysis?)
4. How do you rate the NSDS/GSDS emergence phase in terms of these expectations and do you consider this function to have changed in the various phases since 2002?
5. Overall, how do you assess the design and rollout of the development process for the target and indicator system and, from your perspective, what learning experience has been integrated into the process since 2002?
6. How do you rate the interaction between the various ministries and stakeholders and what do you think needs to be focused above all else here when designing corresponding processes?
7. Which factors have or have had a positive impact on the target and indicator system in terms of coherence and the way in which key actors worked together in the respective GSDS phases?
8. Which advantages/difficulties do you think are due to the obligation to link up selected indicators with political targets? To what extent does target setting and the choice of indicators differ/how do they interact?
9. From your perspective, what constitutes a meaningful frame of reference for a national-level sustainable development strategy (above all in terms of the number of targets and indicators) and are those for 2002 and 2016 respectively up to the task?
10. In your opinion, how important is the vertical integration of sustainable development strategies, especially at the target and indicator level, and where do you see any limitations here?
11. How do you rate the current update with the explicit reference to/alignment with the principles of the 2030 Agenda and, above all, with the Sustainable Development Goals (SDGs)?
12. What challenges do you see regarding further updates of the target and indicator system (not of individual indicators) and what do you consider to be the central lessons learned from the process in Germany to date?

f. Notes on terminology

The terminology used in the National and/or German Sustainable Development Strategy differs in part from that used in other approaches. Above all, however, pertinent discussions and, say, stakeholder comments, do not always clearly distinguish between terms such as target and target value. This study attempted to use the terms as stringently as possible; however, the author wishes to point this out given that this lack of precision is also reflected in some of the quotes. In principle, the basic structural design of the various approaches is largely analogous. A widely disseminated approach for operationalising sustainability indicators discussed in the 1990s and 2000s assumes three or more dimensions for the first level of its sustainability and/or sustainable development model (essentially usually the respective ecological, economic and social dimension, sometimes also supplemented by the political, institutional or cultural dimension), to which the same number of qualitative *targets or sub-targets* are attributed, sometimes deliberately (like ‘minimal wastage’ for example, which already presumes a consensus about the ‘sustainable’ direction of the change aspired to). In turn, *indicators* are then accorded to them on the basis of quantitative parameters (for example: ‘Settlement waste in kg per inhabitant and year’), for which a quantitative *target* is formulated that is usually the product of a *target value* and a specific future *target year*. In keeping with the

tradition of development indicator approaches and based on the structure of the Agenda 21, the United Nations adopted a different approach in the 1990s by formulating so-called *topics* and *sub-topics* instead of qualitative *targets* and *sub-targets*. Some indicator systems differentiate between core *indicators* and possible *supplementary indicators*.⁴⁸

Instead of starting out with four *dimensions*, the German NSDS talked of four *coordinates* for sustainable development in Germany which were formulated differently, not only in respect of the terms used but also their content (see below). The *coordinates* were broken down as follows: a total (although the numbers varied depending on the coordinate) of 21 *indicator areas* (e.g. climate action) with 21 *sustainability postulates* (e.g. reduce green-house gases) which were grouped (in principle at first) under one *key indicator*. In turn, these key indicators were then accorded a quantitative political target (*target value* for a specific *target year*). This is often also referred to as indicator-backed target. As of 2016, the respective GSDS *indicator areas* and *sustainability postulates* were aligned with the 17 *Sustainable Development Goals* (SDGs), whereby the terms were retained as categories that continue to be listed as *key indicators* with attendant quantitative *targets*.⁴⁹

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn, Germany

Friedrich-Ebert-Allee 36 + 40
53113 Bonn, Germany
T +49 228 44 60-0
F +49 228 44 60-17 66

E info@giz.de
I www.giz.de

Dag-Hammarskjöld-Weg 1 – 5
65760 Eschborn, Germany
T +49 61 96 79-0
F +49 61 96 79-11 15

On behalf of:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany