

Voluntary Local Review 2022

The Implementation of the
UN Sustainable Development Goals
in the City of Bonn

**ZUKUNFT.
FUTURE.
AVENIR.
BONN.**



**GLOBAL
SUSTAINABLE
MUNICIPALITY NRW**



GLOBAL
SUSTAINABLE
MUNICIPALITY NRW

17 Ziele.
Eine Zukunft.



Voluntary Local Review 2022

The Implementation of the
UN Sustainable Development Goals
in the City of Bonn

Table of Content

—	Preface	5
①	Introduction	6
1.1	The 2030 Agenda and the International Voluntary Local Review Movement	8
1.2	Bonn—International Dialogue Hub for Sustainability	10
1.3	Context, Methodology and Structure of this Report	12
②	Steering: Municipal Sustainability Management	16
2.1	Introduction	18
2.2	Strategic and Organizational Approach for Sustainability	19
2.3	Sustainable Administration, Contracting and Procurement	21
2.4	Public Participation for Sustainability	22
2.5	Sustainable Finances	24
2.6	Innovation for Sustainability	26
③	Fields of Action for Municipal Sustainability	30
3.1	Climate Protection & Energy	32
3.2	Natural Resource Protection & Climate Adaptation	40
3.3	Sustainable Mobility	52
3.4	Lifelong Learning & Culture	60
3.5	Social Justice & Resilient Society	72
3.6	Housing & Sustainable Neighborhoods	86
3.7	Decent Work & Sustainable Economy	94
3.8	Sustainable Consumption & Public Health	104
3.9	Global Responsibility & One World	114
④	Overview: Allocation of the Contributions to the Sustainable Development Goals and their Targets	122
⑤	Conclusion and Outlook	130
⑥	Appendix	134
6.1	Reference List	136
6.2	Photo Credits	137

Copyright

Mayor of the Federal City of Bonn,
Office of International Affairs and
Global Sustainability / Office for
Press, Protocol and Public Relations.

Printed on 100 % recycled paper,
certified with the Blue Angel.

<https://www.bonn.de/>

Bonn, July 2022

"Global Sustainable Municipality in North Rhine-Westphalia"

A Project of the Service Agency Communities in One World (SKEW) of Engagement Global gGmbH

Friedrich-Ebert-Allee 40 | 53113 Bonn
www.service-eine-welt.de
info@service-eine-welt.de

In cooperation with
**Sustainability Network
North Rhine-Westphalia e.V. (LAG 21 NRW)**

Deutsche Straße 10 | 44339 Dortmund
www.lag21.de
info@lag21.de

and

German Council for Sustainable Development (RNE)

c/o GIZ GmbH
Potsdamer Platz 10 | 10785 Berlin
www.nachhaltigkeitsrat.de/en
info@nachhaltigkeitsrat.de

Project Management

Dr. Klaus Reuter,
Sustainability Network
North Rhine-Westphalia e.V. (LAG 21 NRW)

Dr. Till Winkelmann,
Service Agency Communities in
One World of Engagement Global

Realization and text design

Sustainability Network North Rhine-Westphalia e.V.
(Dr. Philipp Lange and Kirsten Strehl)

The content of this publication does not necessarily
reflect the views of the Engagement Global or the
Federal Ministry for Economic Cooperation and
Development or the German Council for Sustainable
Development.

Layout

yella park, Aachen

with its

with funding from the

in cooperation with



Dear Citizens, dear Friends of Bonn,
This second Bonn Voluntary Local Review (VLR)
gives you a good overview of where we stand
in Bonn at the beginning of 2022 with regard to
sustainable urban development and the imple-
mentation of the 17 Sustainable Development
Goals (SDGs) of the United Nations. For the first
time, the report combines quantitative indica-
tors with qualitative aspects.

With this VLR, we are testing a new format for
our sustainability reporting, together with ten
other municipalities in North Rhine-Westphalia.
It was developed by the German Council for
Sustainable Development to specifically address
municipalities. We were pleased to break new
ground in this pilot group to further advance
sustainability here in our city and in the inter-
national dialogue.

Sustainability is a priority in Bonn, from global to
local. It is here in Germany's United Nations city
where the UN is shaping a sustainable future
worldwide with as many as 25 entities. In addition,
there are more than 150 organizations and sci-
entific institutions advancing sustainability around
the globe from here. The Council of the City of
Bonn committed to the implementation of the
SDGs back in 2016 by adopting the model reso-
lution of the German Association of Cities. With the
adoption of the first Bonn Sustainability Strategy
in 2019, sustainable action was systematically an-
chored in our municipal activities. In the four stra-
tegic focus areas of climate neutrality, mobility
transformation, social justice and digital trans-
formation, we want to further advance the goals
as laid down in our Strategy. Since 2019, we have
taken many additional sustainability measures,

together with many stakeholders in Bonn's urban
society. Thanks to our sustainability reporting, we
know exactly where we stand, which enables us
to realign our strategies in the process.

With this local review, we are building on our
long-standing sustainability reporting. The
figures from the period up to 2018/2019 are
supplemented by the examination of overarch-
ing steering criteria for sustainable action and
the presentation of activities in nine municipal
sustainability fields of action. This reveals what
has been done since the adoption of the Sustain-
ability Strategy in order to achieve its objectives.

Bonn's second VLR also reveals how important
the commitment of cities is to achieving the
SDGs. As Mayor, I am therefore strongly commit-
ted to strengthening the role of cities in sustain-
ability processes in supra-regional and interna-
tional city networks, for example in the Mayors'
Dialogue "Sustainable City" of the German
Council for Sustainable Development, as well
as in my capacity as Chair for Climate Protection
at ICLEI Local Governments for Sustainability.
We will only succeed in transforming our city if
we involve all stakeholders in our urban society
and seek international cooperation.

I would like to express my sincere thanks to all
who have contributed to this report for their ded-
icated support - especially to the relevant tech-
nical departments of the city administration and
municipal utilities. Thank you also to the Service
Agency Communities in One World, funded by
the German Federal Ministry for Economic Co-
operation and Development, which, with the sup-
port of the Sustainability Network NRW and the
German Council for Sustainable Development,
has enabled us to compile this report.

Finally, I would like to thank our citizens for
joining me in shaping a sustainable Bonn.

Katja Dörner
Mayor of Bonn

Introduction

1.1 — The 2030 Agenda and the International Voluntary Local Review Movement	8
1.2 — Bonn—International Dialogue Hub for Sustainability	10
1.3 — Context, Methodology and Structure of this Report	12

1.1

The 2030 Agenda and the International Voluntary Local Review Movement

In 2015, the United Nations General Assembly adopted the 2030 Agenda and its Global Sustainable Development Goals (SDGs). The 2030 Agenda provides a joint frame of reference for all UN member states, including the North and the South, and represents a universally valid target system for a viable future. Consisting of 17 primary goals (cf. figure 1) and 169 targets, it holistically addresses environmental, social and economic objectives, such as mitigating climate change and the destruction of ecosystems, reducing socioeconomic inequalities, and supporting quality education and decent work (UN, 2015). The UN Global Sustainable Development Report (UN, 2019) demonstrates that urgent action is needed to reach these goals by 2030. Consequently, the United Nations General Assembly has declared the present decade (2020-2030) the Decade of Action.

The 2030 Agenda is designed primarily for application by nation states (although one of its goals, SDG 11 on Sustainable Cities and Communities, is specific to subnational levels). Targets and indicators reflect country-level metrics, and national governments are requested to regularly report on implementation status through Voluntary National Reviews (VNRs).¹ These are presented every year at the UN High-Level Political Forum on Sustainable Development (UN HLPF), the central platform for follow-up and review of the 2030 Agenda. However, there is widespread agreement among practitioners and scholars that the implementation of the SDGs relies significantly on the participation of subnational levels (cf. e.g. UCLG, 2021; Gustafsson & Ivner, 2018).

On the concrete local implementation level—that is, the level closest to the people—decisive steps are taken to achieve the SDG. Since all SDGs have targets directly related to the responsibilities of local governments, the 2030 Agenda emphasizes the critical role of municipal authorities (IUN, 2015, paragraph 45). In the literature, it is frequently mentioned that at least 65% of the SDG targets (105 out of 169) could not be achieved unless local authorities are assigned a clear mandate and role in the implementation process (e.g., OECD, 2020). Local governments are therefore called upon to “break down” the global goals and targets to the specific local context (SDG localization) and make their individual contribution to achieve the goals.² Since the 2030 Agenda does not provide explicit guidance for SDG localization, regional UN organizations, urban bodies and networks, and regions and cities have organically developed individual approaches.

Against this backdrop, more and more municipalities voluntarily initiate an assessment of their progress in implementing the SDGs in the form of Voluntary Local Reviews (VLRs). Unlike national reporting via VNRs, VLRs currently have no official status or mandate from the United Nations or in the 2030 Agenda architecture. Accordingly, there is no formal mechanism to publish a VLR. However, since 2018 (when New York City and the Japanese municipalities of Kitakyushu, Toyama, and Shimokawa officially presented their VLRs), cities and regions worldwide have taken the initiative to monitor their local contributions. The VLR movement is now a global phenomenon, and many new VLRs are published yearly (for a comprehensive list of published VLRs see, for example, UN-Habitat & UCLG, 2021). This process has become an essential complement to national reporting mechanisms by contributing first-hand information on practical experiences on the ground and localizing indicators while strengthening coordination, accountability, and transparency. In this regard, VLRs' potential goes beyond their monitoring and reporting function. VLRs are accelerators of the SDG localization process and levers for bringing about transformation from the bottom up through local innovation and awareness-raising (cf. e.g., Deininger et al., 2019; Pipa & Bouchet, 2020). Moreover, they are essential tools for increasing mutual learning and vertical coherence between



FIGURE 1: The 17 Global Sustainable Development Goals / © United Nations

levels of action. Consequently, the link between VLRs and VNRs becomes more critical—local representatives are increasingly present at the UN High-Level Political Forum, and local government sections in VNRs are frequently co-produced by national and local governments (cf. e.g., German Institute of Urban Affairs & Bertelsmann Stiftung, 2021).

As there are currently no fixed standards for developing a VLR and no generally accepted definition, the published reports differ in structure and content. However, an increasing number of publications provide guidelines and technical assistance in this regard—for example, the Guidelines for Voluntary Local Reviews by UCLG and UN-Habitat, the European Handbook for SDG Voluntary Local Reviews by the European Commission's Joint Research Centre, and the Global Guiding Elements for Voluntary Local Reviews of SDG implementation by UNDESA (cf. UCLG & UN-Habitat, 2020; Siragusa et al., 2020; UNDESA, 2020 - and also IGES, 2021; UNESCAP, 2020). The present Voluntary Local Review 2022 takes these guidelines into account and considers the specific context of implementing the SDGs in German municipalities (cf. section Context and Methodology).

¹ As part of its follow-up and review mechanisms, the 2030 Agenda encourages member states to “conduct regular and inclusive reviews of progress at the national and subnational levels, which are country-led and country-driven” (paragraph 79). Each UN member state is required to submit at least two VNRs before 2030. Countries have presented VNRs to the UN High-Level Political Forum on Sustainable Development since 2016. Germany released its second VNR in 2021.

² In this regard, about 200 municipalities in Germany have signed the specimen resolution “The 2030 Agenda for Sustainable Development: Building Sustainability at the Local Level”, developed to facilitate commitment of local authorities for implementing the SDGs (by the German Association of Cities and Towns and the Council of European Municipalities and Regions/ German Section with support of the Service Agency Communities in One World from Engagement Global).

Bonn—International Dialogue Hub for Sustainability

Bonn, the federal city along the Rhine River, is the second political center of the Federal Republic of Germany. It is the German city of the United Nations and the birthplace of the famous composer Ludwig van Beethoven.

Structural change from capital to German UNO city

Over the past two and a half decades, Bonn has successfully established itself as the German UNO city and a center for international cooperation and sustainable development. Between 1996 and today, the number of United Nations organizations grew to 25. The largest UN agencies in Bonn include the Climate Secretariat, the Secretariat to Combat Desertification and the Volunteers Program. With its mission

statement "Shaping Sustainability", the United Nations in Bonn form a center of a unique sustainability cluster consisting of federal agencies, science-institutions, businesses, development organizations, think tanks and non-governmental organizations. The 2030 Agenda with its 17 Sustainable Development Goals is an important guiding principle for all stakeholders.

Networks such as BION, the interdisciplinary association of internationally oriented biodiversity research in Bonn, and the Bonn Network for Disaster Prevention and Risk Management build further bridges to the United Nations' fields of work. The founding of the Bonn Alliance for Sustainability Research, in which the University of Bonn and six leading Bonn-based scientific institutions have joined forces, further strengthens research in the field of sustainable development and global change. In numerous dialogue formats, impulses for global sustainable development emanate from Bonn.

With a population of almost 336,000 (as of 01/2022), Bonn today has more inhabitants than it did when it was the capital. The city's population is expected to continue to grow significantly in the coming decades. At the same time, the age structure will remain stable with a constant proportion of children



and young people in the total population. Economically, Bonn is also characterized by a long-term positive growth trend. In 2020, for example, the number of employees subject to social insurance contributions was 179,903 and has thus grown significantly more strongly in the long-term trend than the national average. Bonn's population is also characterized by a high level of education and a comparatively high earned income.

In terms of landscape, the city is characterized by its location along the Rhine River and a large stock of green spaces, which cover almost fifty percent of the city area.

Municipality-specific challenges

The future as a growth location, both demographically and economically, places special demands on the organization and distribution of urban space. The rising population is increasing the pressure on the housing market. High rents and limited housing make it difficult for more and more segments of the population to find housing. As efforts are made to create additional housing, pressure on existing open space increases. In addition, there is little additional land available to accommodate growing commercial activity.

In the area of environmental quality and resource efficiency, the focus is particularly on the path to climate neutrality by 2035 and, closely linked to this, the topic of mobility. The goal is to significantly reduce CO₂ emissions and achieve a transition towards more sustainable forms of mobility.

Bonn as a player for sustainability

Sustainability and the 2030 Agenda are the basis of urban action. The sustainability strategy of the city of Bonn, adopted in February 2019, brings together projects, programs and plans in six central fields of action to form a municipal agenda for sustainable action. In so doing, it anchors sustainable action systematically and bindingly for the period up to 2030. A great deal of civic commitment supports progress in the municipal fields of action.

Bonn is also committed to sustainability internationally, for example in city networks such as

ICLEI Cities for Sustainability or in the Climate Alliance of Cities. Bonn works together with other cities, networks and UN agencies for the major concerns of sustainability in different fields. Bonn is also breaking new ground in municipal cooperation with sustainability-oriented project partnerships. Currently, Bonn is working with Bukhara (Uzbekistan), Cape Coast (Ghana), Chengdu (China), Minsk (Belarus), La Paz (Bolivia) and Ulan Bator (Mongolia). In addition, there has been project cooperation with Ramallah (Palestine) since 2017. The focus here is on joint projects and the exchange of experience, particularly on environmental and development issues, as well as cooperation within the framework of climate partnerships.

Context, Methodology and Structure of this Report

Context of this VLR

This report was developed within the project Global Sustainable Municipality in North Rhine-Westphalia (third project term from 2021 to 2022). The project has been implemented by the Service Agency Communities in One World (SKEW) of Engagement Global in cooperation with the German Council for Sustainable Development (RNE) and the Sustainability Network North Rhine-Westphalia (LAG 21 NRW) on behalf of the Federal Ministry for Economic Cooperation and Development. In the first two project terms (2016 to 2020), the focus was on elaborating integrated sustainability strategies for municipalities, while in the third term (2021

to 2022) the emphasis was on the development of local sustainability reports. Within the project, five cities in North Rhine-Westphalia—Bonn, Düsseldorf, Münster, Dortmund and Arnsberg—developed a VLR (see the overview in the relevant map). These new VLRs supplement the VLRs previously published in Germany by different cities in recent years (Mannheim in 2019, Bonn in 2020, and—with a focus on indicators—Stuttgart in 2020).

The basic structuring of the VLRs follows the German Reporting Frame Sustainable Municipality published in 2021 by the German Council for Sustainable Development (cf. RNE, 2021). The German Council for Sustainable Development advises the Federal Government on issues of sustainability policy. Against the backdrop of lacking an official standard for sustainability reporting in German municipalities, the Council initiated a comprehensive multi-stakeholder dialog to develop the German Reporting Frame Sustainable Municipality. This guideline seeks to promote a more uniform and transparent way of reporting and builds on the established German Sustainability Code (a reporting standard in corporate sustainability since 2011). In 2022, the Reporting Frame was applied for the first time by more than 20 municipalities in various federal states in Germany.

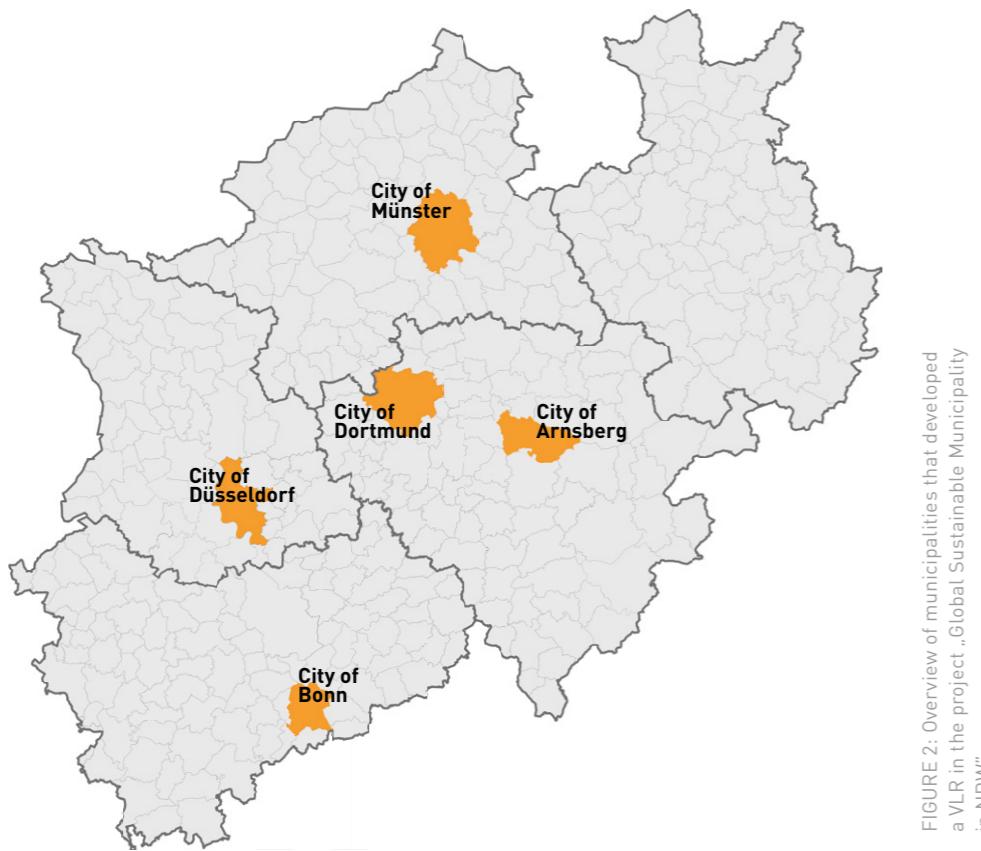


FIGURE 2: Overview of municipalities that developed a VLR in the project "Global Sustainable Municipality in NRW"

Organizational process in the city of Bonn

For developing this VLR, a process was initiated in the city of Bonn that integrated collaboration between all relevant divisions and departments of the municipal administration. This process built on the working structures, which were established already for the development of the city's sustainability structure and included representatives from numerous departments (e.g., planning, health, environment, transport, social affairs, youth, and business development). The working body was locally steered by a coordinator and a deputy, who are primarily responsible for organizing the process within the administration. This approach helped overcome classical administration structures (silo approach) and establish cross-department working formats. Given the interlinked nature of the SDGs, this horizontal integration is crucial.

Stocktaking: qualitative and quantitative analysis

Overall, the information in this report represents the status quo up to April 2022. A comprehensive stocktaking was conducted at the beginning of the project to gather the information needed for this report. This process consisted of both qualitative and quantitative elements. In terms of the qualitative analysis, all core activities in the city that contribute to sustainable development and

represent the status quo were gathered. This procedure included integrated or sectoral strategies and concepts, measures, projects, city council resolutions, specific goals, collaborations and networks, and organizational structures. In addition, overall achievements and results within recent years were mapped. The collection of the activities was structured according to particular topics regarding sustainability (cf. the structuring of the VLR, below.)

In terms of the quantitative analysis, indicators were evaluated that illustrate different developments in terms of sustainability. The indicators comprised a predefined indicator set of 56 "SDG indicators for municipalities". These indicators were developed within a project of the same name (cf. Bertelsmann Stiftung et al., 2020). The objective of the project was to identify suitable indicators to map SDG implementation at the municipal level in Germany and provide corresponding data. Thus, the project used the 2030 Agenda's 231 indicators as an orientation and transferred them to the local level. By an online portal (SDG Portal), centrally assessable data are generally provided for all German towns and cities with more than 5,000 inhabitants. The predefined indicator set was complemented in this VLR by municipality-specific and individually chosen add-on indicators, for which the data was provided by the city of Bonn. These indicators consider the specific context in the city and thus supplement the predefined set. The add-on indicators also enrich the areas with limited predefined indicators (due to a lack of central data availability—for example, SDG 13 and SDG 17 are not currently covered by "SDG indicators for municipalities".)

For the stocktaking, different tools were used to gather the information needed from the different administrative departments, including questionnaires and Excel spreadsheets, in which all divisions could add their contributions according to the predefined topics. With the help of several meetings throughout the project, decisive steps were discussed in the administrative core team, such as how to prioritize the municipal activities and how to choose adequate municipality-specific indicators. The qualitative and quantitative stocktaking results are presented in this VLR in respective qualitative parts (presentation of activities) and quantitative parts (presentation of indicators).

Project "Global Sustainability Municipalities"

The project Global Sustainability Municipalities of the Service Agency Communities in One World supports municipalities in localizing the SDGs through awareness-raising activities, networking and in implementing the 2030 Agenda. We supply information on the options for getting involved in development work, advise on the formulation and implementation of municipal sustainability strategies, and provide forums for designing forward-looking action for results at the local level. We cooperate closely with actors from Germany's federal, regional and local governments, municipal associations and civil society organisations.

Structuring of the VLR

This VLR is structured according to the German Reporting Frame Sustainable Municipality. For structuring the elements of sustainability reporting, this guide introduces two basic categories: overarching steering criteria and thematic fields.

The steering criteria focus on overarching and cross-sectional aspects regarding sustainability and thus cover the overall municipal sustainability management. In this VLR, this part is consolidated into the following sections:

- Strategic and organizational approach for sustainability
- Public participation for sustainability
- Sustainable administration, contracting and procurement
- Sustainable finances
- Innovation for sustainability

These aspects are supplemented by the thematic fields. When implementing the 17 SDGs and their 169 targets on a local level, the challenge is to transfer them to the specific context of the municipalities. Within the Global Sustainable Municipality in North Rhine-Westphalia project, the 17 SDGs are translated into nine thematic fields for municipal sustainability that are

relevant to the specific context of German municipalities.³ These thematic fields represent a synthesis of the SDGs and municipal areas of competence in Germany, which are reflected in the responsibilities of the political committees in the municipalities. All 17 SDGs are considered equally in the localization process to ensure that sustainable development is understood holistically and to account for co-benefits and tradeoffs. The thematic fields developed within the Global Sustainable Municipality in North Rhine-Westphalia project were adopted in the German Reporting Frame Sustainable Municipality. The overview in figure 3 presents these fields of sustainable municipal development together with core references to the SDGs.

The steering criteria and thematic fields both include qualitative and quantitative parts. The structuring of the qualitative parts follows the German Reporting Frame Sustainable Municipality, which presents certain aspects for reporting. These subitems specifically query specific report contents in the sense of a checklist. The quantitative parts include the predefined indicator set of "SDG indicators for municipalities" and the municipality-specific add-on indicators (cf. above). Figure 4 provides an overview of the described elements, forming the structure of this VLR:

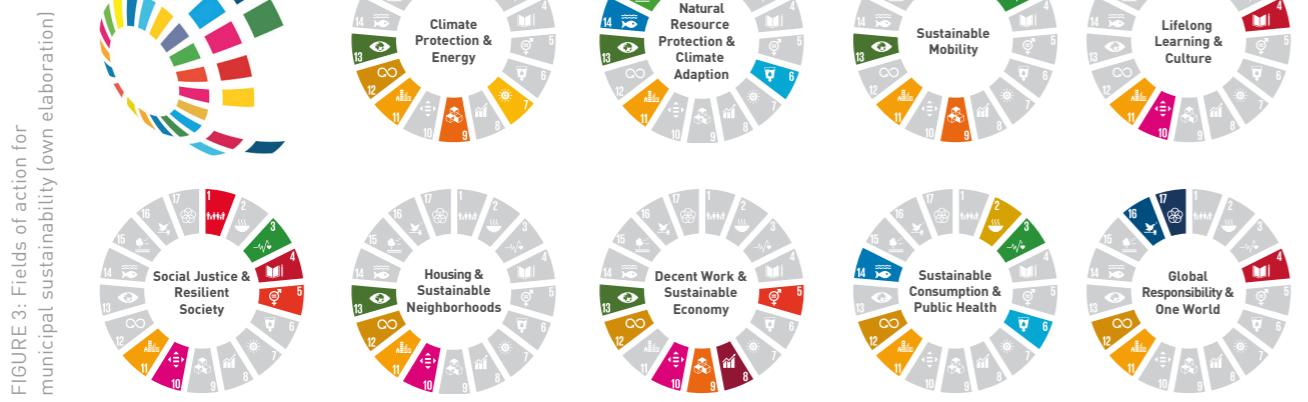


FIGURE 3: Fields of action for municipal sustainability (own elaboration)

Steering Criteria

- Strategic and Organizational Approach for Sustainability
- Public Participation for Sustainability
- Sustainable Administration, Contracting and Procurement
- Sustainable Finances
- Innovation for Sustainability

FIGURE 4: Structural elements of the VLR [own elaboration based on German Council for Sustainable Development, 2021]

Fields of Action for Municipal Sustainability

- Climate Protection & Energy
- Natural Resource Protection & Climate Change Adaptation
- Sustainable Mobility
- Lifelong Learning & Culture
- Social Justice & Future-Proof Society
- Housing & Sustainable Neighborhoods
- Decent Work & Sustainable Economy
- Sustainable Consumption & Healthy Living
- Global Responsibility & One World

Qualitative Aspects and Quantitative Indicators

For each thematic field, one to two practical examples in the sense of flagship projects are presented additionally. In terms of the quantitative indicators, basically the period of the last decade is addressed when presenting the data in order to depict long-term developments. Additionally, an assessment of the trend is presented with the help of a "traffic light system" (green: positive / yellow: neutral / red: negative / grey: no assessment possible). Important indicators are furthermore visualized by graphics. When presenting the qualitative aspects and quantitative indicators, the core SDG addressed by the respective aspect or indicator is highlighted (note that other SDGs can be addressed, too—only the most pertinent one is highlighted). The qualitative contributions (i.e., the core activities in the city gathered by the qualitative stocktaking) are marked by using italics in the text. At the end of each chapter, an overview is given of all mentioned contributions regarding the qualitative aspects, including an allocation to the SDG targets of the 2030 Agenda.

3

The 2030 Agenda addresses three levels of responsibility for municipal action: "In the municipality for the municipality" (measures that lead to impacts in the municipality itself), "In the municipality for the world" (measures with a global impact), and "In other countries and by other countries" (e.g. via partnership projects.)

calculated and extrapolated to the target year. (2) If the set target is likely to be achieved, the assessment is positive, and it is negative if the target is not achieved. (3)

If no politically agreed target values are available, the average indicator value of the previous reporting period is calculated. The percentage deviation from the data for the reporting period

from this average value is then determined.

(4) If the percentage deviation of the key performance indicators calculated for the current reporting period is a value above ten, a positive or negative value is assigned to the respective indicator. For values below 10%, the assessment is neutral.

Steering: Municipal Sustainability Management

2.1 — Introduction	18
2.2 — Strategic and Organizational Approach for Sustainability	19
2.3 — Sustainable Administration, Contracting and Procurement	21
2.4 — Public Participation for Sustainability	22
2.5 — Sustainable Finances	24
2.6 — Innovation for Sustainability	26

2.1

Introduction

UN City and its impact

In Bonn, the United Nations have concentrated their global sustainability activities. Twenty-five UN organisations work from here under the common motto "Shaping a sustainable future", among them the UN Climate Change Secretariat and the UN SDG Action Campaign. The issue of sustainability is a common theme also throughout the many federal institutes, development organizations, NGOs, and scientific institutions based in Bonn. There is probably no other city of comparable size with a similarly large number of organizations committed to sustainability. Interaction between these diverse stakeholders is what sets Bonn apart. Cooperation platforms, think tanks, and networks have emerged, creating a unique cluster that cultivates sustainability from various perspectives.

Sustainability and Agenda 2030 as the basis for municipal action

Since decades, sustainability and global responsibility issues play a central role for the City of Bonn. Global agreements, such as Agenda 21 (1992), the Millennium Development Goals (2000), the Paris Climate Agreement, and Agenda 2030 have always been guiding principles for municipal action. As one of the first municipalities in Germany, Bonn established project partnerships with cities in emerging and developing countries, dating as far back as the 1990s. By doing so, the city made a strong contribution to the successful emergence of development cooperation between cities. As a long-standing Fair Trade Town, Bonn promotes fair trade and sustainable procurement. As a member of the UNESCO's Learning Cities Network, offers for education on sustainable development—such as the annual SDG Days or lecture series on SDGs—are also fixed components of the municipal commitment to sustainability.

The city is particularly committed to the implementation of Agenda 2030 and the Sustainable Development Goals. In 2016, Bonn was one of the first German cities to sign the model declaration of the German Association of Cities and Towns and the Council of European Municipalities and Regions on Agenda 2030. In its endeavours to implement Agenda 2030, a highly committed citizenry and numerous local initiatives, which foster sustainable development at the local level, support the city. Bonn is also active to support Agenda 2030 in its international networks and memberships and is a strong advocate for strengthening the role of cities at the international level.

Sustainability Reporting

Local sustainability reporting is an additional important component, which makes sustainable development measurable. It shows with concrete figures and trends where the city stands on the path towards sustainability. Bonn has a long tradition in sustainability reporting. Since 2005, the city of Bonn has regularly published a sustainability report every three years. In 2020, the fifth Sustainability Report was published for the period 2016 to 2018, using 55 indicators to quantitatively map development in the four guiding categories of "Well-being", "Social Justice", "Environmental Quality and Resource Efficiency", and "Economic Efficiency".

Building on this, Bonn published as one of the first cities in Germany, a first Voluntary Local Review highlighting how the SDGs are implemented locally. The VLR reflected the structure of Bonn's Sustainability Strategy (cf. below) and covered its six fields of action: "Mobility", "Climate and Energy", "Natural Resources and the Environment", "Labour and business", "Social Participation and Gender", and "Global Responsibility and One World". In the report, indicator values and their development were for the first time directly related to the objectives of the sustainability strategy. It thus showed in an understandable and comprehensible way where Bonn stands in the implementation of the 17 Sustainable Development Goals. Focusing primarily on quantitative parts, the report was based on data obtained from the fifth Sustainability Report. The report also incorporated the findings of an international project conducted by the Organization for Economic Cooperation

and Development (OECD), in which Bonn participated as one of nine global pilot locations and regions. With the report, the City of Bonn has also contributed internationally to making the contribution of the local level to achieving the 2030 Agenda visible.

This newly compiled second VLR updates and expands the first VLR from 2020. It now covers qualitative reporting parts and includes the entire range of fields of action for municipal sustainability.

2.2

Strategic and Organizational Approach for Sustainability

In 2019, the Bonn City Council adopted the first integrated Bonn Sustainability Strategy to systematically align municipal action with the 17 SDGs and achieve progress in shaping the future with sustainable development in mind. The City of Bonn drafted this roadmap in a two-year process from 2016 to 2018. The strategy was developed within the model project Globally Sustainable Municipality in North Rhine-Westphalia (NRW), implemented by the Service Agency Communities in One World of Engagement Global (SKEW) in cooperation with the Sustainability Network NRW (LAG 21 NRW). A municipal steering group was established to develop the strategy. Representatives from all administrative departments worked collaboratively with political bodies, civil society, and the scientific and business communities. In so doing, overarching guidelines, strategic and operational goals, and concrete measures were developed. The strategy was then discussed at the policy-making level with the participation of 12 specialized committees. It was adopted by the Bonn City Council on 7 February 2019. With this strategy, Bonn has a comprehensive action plan for sustainable development that is continuously reviewed and further developed with a view to the progressing implementation.

The strategy encompasses six fields of action, the selection of which was based on the following criteria: (1.) What is the current relevance of the topic area?; (2.) How much influence does the municipality have in this field of action?; (3.) To what extent does the field of action contribute to strengthening existing political priorities in Bonn?; and (4.) How is Bonn positioned in the field of action? Figure 4 provides an overview of



2.3

Sustainable Administration, Contracting and Procurement

the overarching guidelines and strategic goals formulated for these fields of action and the addressed SDGs. In addition to this, in 2020, Bonn identified four central strategic focus areas for the further development of the city: "Climate-neutral Bonn," "Transport and Mobility Transformation," "Socially Just Bonn," and "Digital Transformation".

The municipal steering group established to develop the Bonn Sustainability Strategy acts as a central body for implementing and further developing the sustainability goals. All departments are represented in the steering group, along with central in-house companies for

sustainability measures (the public utility company Stadtwerke Bonn, the waste management company bonnorange, and the municipal building management). The steering group is coordinated jointly by the Office for International Affairs and Global Sustainability and the Office for Environment and Urban Greening. The steering group discusses overarching sustainability issues, and its main task is to bundle and consolidate topics. Operational implementation is performed by the respective departments, which are also responsible for the necessary involvement of the respective management level. Topics of central importance are submitted to the Board of Manage-

ment for decisions. Regarding the four central strategic focus areas mentioned above, the Strategic Program Management division was established in the mayor's department together with corresponding program offices, which implement the areas operationally (Program Office Climate-Neutral Bonn 2035, Program Office Mobility Transition, Program Office Social Justice, and Program Office Digital Transformation).



FIGURE 5: Summary of the Bonn Sustainability Strategy 2019 [own elaboration]



The city administration acts as a role model in the implementation of sustainability. For instance, against the background of the city's climate protection targets, the administration is to become climate-neutral by 2035 (see also aspect 1.2). In recent years, various measures have been integrated into administrative actions with a view to sustainable procurement and awarding contracts. The Bonn Sustainability Strategy aims to have all available products procured according to product-specific sustainability criteria by 2030. To this end, procurement is to be expanded to include additional sustainable product groups, information events on sustainability criteria are to be organized, and an audit on requirements and compliance with criteria is to be conducted before each product purchase. Corresponding rules on sustainable procurement have been integrated into the procurement instructions for several years ("Guidelines for the consideration of sustainability, social standards and environmental protection criteria in the procurement of goods, works and services"). In addition, a separate service instruction for sustainable procurement has been created to supplement the procurement service instruction.

In 2020, at the initiative of the City of Bonn, a new digital procurement tool for sustainable procurement was published as part of Compass Sustainability, a cooperative project by the Service Agency Communities in One World and the German Society for International Cooperation. The tool was developed in cooperation with the Department of Procurement Services of the City of Bonn, the organization FEMNET, and a procurement lawyer. The tool guides staff in charge of procurement through critical ques-

tions for sustainable procurement and gives recommendations on how social and ecological criteria can be implemented in the procurement process. Thus, for the first time, procurement officers have the opportunity to make use of individualized digital support for the consideration of sustainability criteria in the award process. The consideration of social standards and environmental protection criteria in the awarding of contracts is fundamentally integrated within the framework of the awarding instructions of the city of Bonn. The city administration uses the instruments of public procurement law to consider sustainability aspects (suitability of bidders, specification of services, evaluation criteria.) The legal framework is designed by the public procurement department, while the responsibility for considering sustainability criteria in award procedures lies with the respective departments.

As part of the “Good work unites” project, Bonn procures sustainable service and protective clothing. In this regard, and in collaboration with FEMNET, the city published the brochure Step by Step—Your Way to Fair Public Procurement of Service and Protective Clothing in 2017. The use of recycled paper has also been established in the administration for many years (see also aspect 11.5). In 2021, Bonn was the first signatory, along with 33 other municipalities, to the Germany-wide resolution on a strong supply chain law. With this resolution, municipalities conveyed their demand for responsible procurement by passing an effective supply chain law.



2.4

Public Participation for Sustainability

Involving the public in implementing sustainability plays a central role in Bonn. From the outset, various stakeholder groups from civil society, science, business, and politics were closely involved in developing the Bonn Sustainability Strategy. Regarding civil society, regular exchange rounds are organized or accompanied by the city. These include, for example, the meetings of the Bonn Network for Development, an association of large and small development policy organizations and initiatives, and the Forum FutureLocal Agenda Bonn, which provides a forum for local initiatives, organizations, and associations that deal with the local agenda (see also aspect 18.1). Affiliations to the networks are fluid, and joint appearances are promoted by the city, such as the closing party for the Urban Art Project Weltbaustelle Bonn in 2019. At the Market of Opportunities organized for this occasion, Bonn Agenda Groups and groups from the Bonn Network for Development presented their work. The latter was also a civil society partner of the Bonn SDG Days in 2019 and 2021. With the Bonn SDG Days (see practical example in the field of action Global Responsibility and One World), Bonn offers all interested groups, initiatives, and institutions a platform to present activities or events related to the Global Sustainability Goals and provides support for individual program items. Specifically on the topic of climate protection, the participatory process Bonn4FuturePeople for Climate has been started since December 2020 (see practical example in the field of action Climate Protection and Energy). The city also plays a vital coordinating role in the Fairtrade Town steering group (see also aspect 9.2) and the Organic City Bonn network established in 2019 (see also aspect 8.2.).



The portal for citizen participation “Bonn joins in” (see also aspect 5.4) bundles all offers for the population’s involvement. Here, ongoing participation processes and city plans are presented, and information is provided on the instruments for submitting proposals, such as applications to the citizens’ committee and citizens’ petitions. All citizens can use the portal to make suggestions and submit questions and comments. As part of the citizens’ dialog on the 2021/2022 budget, the public was also invited to submit proposals for specific projects in the city districts and to vote on the proposals (examples of selected projects include the information campaign for regional and seasonal foods and the Leihbar Library of Things.) Since 2010, based on a council resolution, the

city has provided annual funding to interested initiatives and smaller organizations for development education work, strengthening Bonn’s project partnerships, and implementing the 2030 Agenda.

Other examples of the city’s support for civil society include the provision of urban land for “urban gardening” projects or the provision of materials for educational work (e.g., “footprints” to illustrate the ecological footprint). Cooperation with scientific institutions in Bonn also plays an important role in municipal sustainability activities. For example, the Office of Urban Greening and the Environment regularly cooperates with the Botanical Gardens of the University of Bonn regarding biodiversity.

Indicator



Informal civic participation 16.7

NUMBER	2016	2017	2018	Number of informal participation procedures per 1,000 inhabitants
	0.055	0.082	0.099	

The “joint effort” of sustainable development can only be achieved if citizens support it. Citizens can make crucial contributions to advancing sustainability in the city in which they live. Against this background, the indicator “Informal civic participation” was systematically recorded for the first time in the Bonn Sustainability Report 2016–2018. It can be assumed that the indicators in recent years will continue to show a positive trend. In accordance with the Bonn Sustainability Strategy, dialogue with citizens will be intensified and an effective, diverse culture of participation will be created. A network of social actors and facilitators from the local population will ensue, and regular information on opportunities to participate will be provided.

Sustainable Finances

Scarce financial resources are often cited as a central obstacle to implementing sustainable development. At the same time, the implementation of ambitious sustainability goals requires a fundamental change to any municipal activity. Sustainability must therefore be integrated into standard municipal procedures across all sectors. Once sustainability is no longer seen as an add-on but as a fundamental principle for all municipal activities, the need to link it to the municipal budget also becomes clear. Only within the budget planning framework can adequate allocation of human and financial resources be ensured and impact-oriented sustainability management be established. Against this background, Bonn participated in the model project Municipal Sustainability Budget of the Sustainability Network North Rhine-Westphalia (LAG 21 NRW) from 2020 to 2021. The project aimed to integrate sustainability objectives into the municipal budget and link the budget areas of individual offices with municipal sustainability objectives in an exemplary manner to make sustainability an integral part of all municipal activities. Bonn is also acting as a project partner in the joint study Sustainability Budget and 'Sustainability Return'—Strategic Orientation in Municipal Budgeting, conducted by NRW.Bank and the German Institute of Urban Affairs in association with eight cities in NRW until the end of 2022.

The City Council of Bonn introduced an impact-oriented budget in 2010. According to this, product budget targets and key figures for measuring target achievement are set and aligned with mission statements, strategic goals, and impacts. As part of the 2021/2022 budget preparation, the product group descriptions for the impact-oriented budget were supplemented by a further module, "Relation of the product group to the Sustainability Strategy of the Federal City of Bonn." Here, the person responsible for the product

group is allowed to explain the alignment of the product group with the six thematic fields of the Bonn Sustainability Strategy. The integration of sustainability goals into the municipal budget is intended to enable a targeted use of funds and thus long-term and impact-oriented sustainability management. In this respect, introducing an impact-oriented budget also implies a "personnel development measure" that accompanies the project work in the conversion of individual product groups.

The question of how municipal funds should be invested is also a key sustainability issue. In 2015, the Bonn City Council decided that ethical, social and ecological principles should be observed in municipal financial investments. Currently, 97 million euros, or nearly 100 % of long-term investments, are invested sustainably. Bonn takes a multidimensional approach to this, excluding sensitive industries and including how companies produce and offer their products and services. Observing environment, social, and corporate governance (ESG) criteria ensures that these aspects are considered. The ESG filter specifies that a specific ESG score must be achieved in the portfolio so that an active decision can be made in favor of companies with high scores. The asset managers continuously confirm compliance with the criteria, and regular further development occurs. In 2020, Bonn introduced an additional filter to ensure that financial investments contribute directly to achieving Global Sustainability Goals. This SDG filter identifies companies that positively impact social or environmental issues. Bonn also actively participates in exchanges with other cities as one of the pioneer cities and engages in various formats to disseminate sustainable financial investments. For example, the city collaborated on the Sustainable Municipal Finance guide published by the adelphi consulting institute in 2020. Bonn has also assumed a multiplier role at various events (e.g., the regional conference in Bonn on the German Sustainability Strategy, and the Ministry of the Environment's conference in Rhineland-Palatinate in 2020) and as part of the Municipal Divestment and Re-Investment project funded by the German government's National Climate Protection Initiative. As part of the project, the city, together with the Forum for Sustainable Investment and Climate Alliance, conducted the citizens' dialog Money and Climate! in 2019 to raise awareness of the topic among the population.

Indicators



Financial resources balance 16.6

	2010	2015	2019
EURO	-344	221	133

Budget surplus or deficit per inhabitant



Tax revenue 16.6

	2010	2015	2019
EURO	1.029	1.421	1.771

Tax revenue per inhabitant



Liquidity loans 16.6

	2010	2015	2018
EURO	1.588	2.163	1.945

Liquidity/cash loans in the core budget per inhabitant

Innovation for Sustainability

Digital solutions are an essential building block for sustainable cities of the future. Bonn is rising to the challenge of digital transformation and is actively shaping digitization. As part of the strategy for developing the digital city (Smart City Strategy), Bonn is pursuing the overarching goal of establishing an ecologically and socially sustainable and participatory urban development using digital technologies and applications. In 2021, the Digital City Strategy Paper was published, and initial implementation measures were launched. For example, Bonn's Digital City team held three "design thinking workshops" to solve complex problems. Teams of students developed ideas and prototypes in the subject areas of sustainable mobility and attractive city center. One result was the Eye Guide You app for the visually impaired. The series of workshops illustrates Bonn's approach to involving the urban community in particular in the Smart City process. To implement the Digital City strategy, further projects in 2022 will focus on broadband expansion, the Denkfabrik event format, and the digitization of tourist information.

With its strategy for developing digital administration, the Bonn city administration is focusing on the digitization process it has already initiated. For example, the services offered as part of the service portal for online services are being successively expanded to make the services for citizens and companies digitally accessible for all. In the Smart City Index 2021 (Bitkom Research), a digital ranking of major German cities, Bonn ranks fifth in the area of administration. All planned measures for digital administration are summarized in the Digital Administration Strategy Paper, which is embedded in the overarching Smart City strategy. The measures are bundled into the three fields of action: People - Processes - Organization, Data - Software - Service, and Hardware - Networks -

Architecture. As part of the smart city strategy, a new council information system (Allris) was introduced in 2019, one of the city's various focus projects pursuing further digitalization. All council invitations are created via the new system, and public invitations can be viewed digitally by the administration, committee members, elected officials, and citizens. Furthermore, all council committees and parliamentary groups can be searched for members, meetings, overview of documents, and meeting records. As one of the region's 20 cities, the state government of North Rhine-Westphalia has selected the city of Bonn as a "model municipality for testing digital committee meetings" in 2021. As part of the project, Bonn aims to further professionalize virtual and hybrid meetings. The goal is to enable digital transmission from all meeting rooms and, for example, to be able to connect administrative staff to individual meeting items digitally. The Open Data Platform (including Open Data Monitoring) has also been making the data resources of the city administration and Bonn institutions available for free since 2014.

To solve municipal challenges, it is necessary to link innovation and sustainability. For example, product or process innovations can lead to greater resource efficiency. Moreover, new technologies offer the opportunity to question older technologies that are harmful to the climate, for example, and develop new sustainability solutions. One example in Bonn is the establishment of the high-performance LoRaWAN radio network (the LoRaWAN initiative "The Things Network"), which enables data to be sent over long distances while consuming significantly less energy than other technologies. Stadtwerke, together with the city of Bonn and Bonn-Rhein-Sieg University of Applied Sciences, joined the global initiative in 2021. "LoRaWAN gateways" have been put into operation at three locations in the Bonn city area. Another example is the Digital Hub Region Bonn, funded by the state government of North Rhine-Westphalia—a startup center established in 2017 to support innovation in business (see also aspect 7.5).

Indicators



Innovative drive 9.4

PERCENT	2012	2015	2018
	37.0	38.3	38.4

Percentage of employees in Bonn working in knowledge-based services, relative to all socially insured employees



Business startups 9.5

NUMBER	2010	2015	2018
	117.5	107.2	100.2

Number of newly established businesses per 1,000 inhabitants



Broadband internet access—Private households 9.c

PERCENT	2010	2015	2018
	94.3	97.4	98.1

Proportion of private households that can use a minimum bandwidth of 50 Mbit/s

Comprehensive broadband coverage for private households indirectly impacts sustainability because access to information and electronic services (e.g., e-medicine, e-government) or working in a "mobile office" can relieve the burden on private households by saving time and money. Digital access to a wide range of educational and information services also contributes to intergenerational equity. Bonn has most recently experienced a positive trend regarding the proportion of private households able to use a bandwidth of 50 Mbit/s, at 98.1%, which is above the NRW average of 93.2% (due to a lack of data, a Germany-wide comparison is not possible here). Copper-wire internet coverage > 50 mbit/s (DSL) will be considered complete at 99%. Fiber-optic coverage should increase steadily in the coming years. In this way, Bonn is contributing to the achievement of Goal 9.1.b "Nationwide roll-out of gigabit networks by 2025" of the German Sustainability Strategy.

Overview of contributions

Aspect	Contributions ⁵
Strategic and Organizational Approach for Sustainability	<ul style="list-style-type: none"> Sustainability Strategy 2019 Sustainability Reporting (5th report published in 2020) Voluntary Local Review 2020 (additional German report: Local Report on the Implementation of the 2030 Agenda) “2030 Agenda for Sustainable Development: shaping sustainability at the local level” model resolution Pilot city regarding OECD-project “A Territorial Approach to the Sustainable Development Goals in Bonn, Germany” Implementation of a Sustainability Steering Group Program Offices: Climate Neutral Bonn 2035 Program Office, Mobility Transition Program Office, Social Justice Program Office and Digital Transformation Program Office
Sustainable Administration, Contracting and Procurement	<ul style="list-style-type: none"> Climate Neutrality 2035 of the entire Concern Bonn City Procurement instructions / service instructions for sustainable procurement “Good work unites” project Supporting the resolution on a strong supply chain law Digital procurement tool for sustainable procurement
Public Participation for Sustainability	<ul style="list-style-type: none"> Sustainability Festival “Bonn—All Around Sustainable” Regular exchange rounds: Bonn Network for Development / Forum Future / Steering Group Fair Trade Town / Working group “Bio-Stadt Bonn” for the promotion of organically produced goods, and corresponding events Bonn SDG Days “Bonn4FuturePeople for Climate” participation process “Bonn joins in” online portal Citizens’ dialog on the 2021/2022 budget Funding for development education, strengthening of Bonn’s project partnerships and implementation of Agenda 2030
Sustainable Finances	<ul style="list-style-type: none"> “Municipal sustainability budget” model project / impact-oriented budgetmodule “Relation of the product group to the Sustainability Strategy of the Federal City of Bonn” Consideration of sustainability criteria in the city’s financial investments “Sustainable municipal finances” guide / “Municipal divestment and re-investment” project / “Money and climate!” citizen dialog
Innovation for Sustainability	<ul style="list-style-type: none"> Smart City Strategy / Digital City Strategy Paper / Design Thinking Workshops Strategy for the development of digital administration Service portal for online services Smart City Index 2021 Council information system (BoRIS 2.0) Model municipality for testing digital committee meetings Open Data Platform LoRaWAN initiative “The Things Network”

⁵

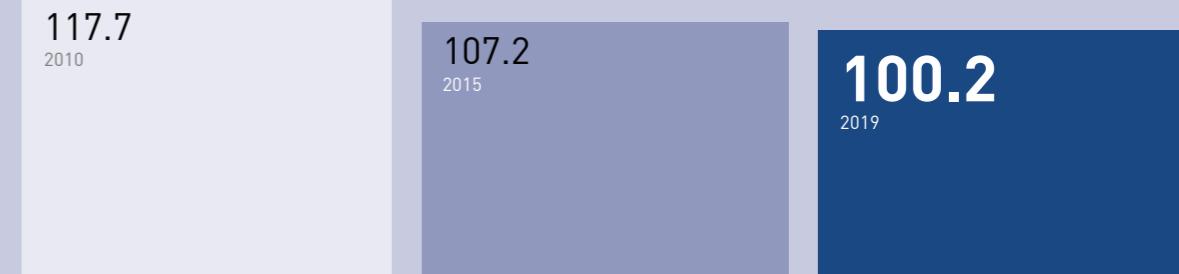
Note: Since the contributions regarding “Steering: Municipal Sustainability Management” cover overarching and cross-sectional aspects regarding sustainability, they are not allocated to the SDG targets of the 2030 Agenda. For the thematic fields of action in the following chapters, the respective contributions will be mapped to the SDG targets.

Visualization of selected Indicators

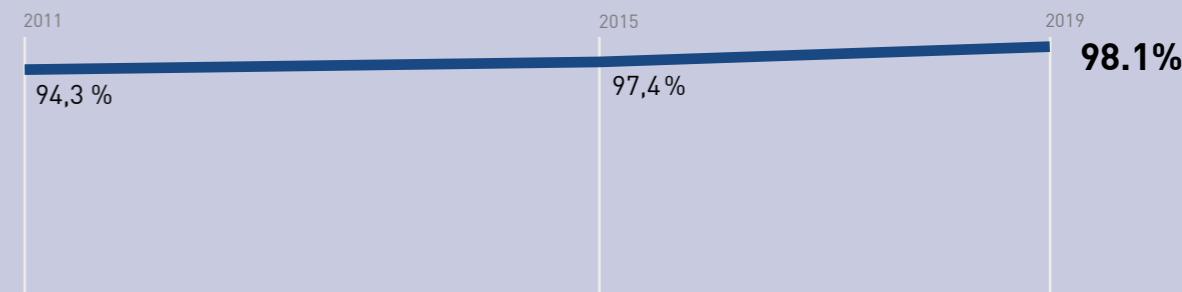
Taxes revenues
Tax revenue per inhabitant



Business start-ups
Number of newly established businesses per 1,000 inhabitants



Broadband internet access—Private households
Proportion of private households that can use a minimum band-width of 50 Mbit/s



Fields of Action for Municipal Sustainability

The following chapters present the results concerning the thematic fields of action for municipal sustainability. Each of the nine chapters is presented consistently in the SDG color most relevant to the respective field of action. The chapters are structured similarly. First, an introductory page presents the field of action and the foremost SDGs that are addressed. This page also highlights the addressed qualitative aspects and chosen practical examples and the quantitative indicators belonging to the field of action. Second, the qualitative contributions are presented—

that is, the most significant activities in the city that contribute to the field of action. An overview then summarizes all mentioned contributions including an allocation to the SDG targets of the 2030 Agenda. Third, the quantitative indicators are presented that demonstrate developments in the fields of action. Significant indicators that are particularly suitable for illustrating the specific trends in the municipality are visualized by graphics at the end of each chapter.

3.1 — Climate Protection & Energy	32
3.2 — Natural Resource Protection & Climate Adaption	40
3.3 — Sustainable Mobility	52
3.4 — Lifelong Learning & Culture	60
3.5 — Social Justice & Resilient Society	72
3.6 — Housing & Sustainable Neighborhoods	86
3.7 — Decent Work & Sustainable Economy	94
3.8 — Sustainable Consumption & Public Health	104
3.9 — Global Responsibility & One World	114





3.1



Climate Protection & Energy

General Introduction to the Field of Action

The field of action Climate Protection and Energy is probably the most central challenge at the global level in the area of sustainable development. The consequences of climate change are already perceptible in German municipalities. Extreme events such as heavy rainfall and flooding, heat waves, prolonged drought, and severe storms occur with increasing frequency and intensity. These conditions are associated with negative impacts on human health, municipal infrastructures, water, agriculture, and forestry. At the 2015 UN Climate Change Conference in Paris, the international community set the goal of limiting global warming to well below 2°C compared to pre-industrial levels, and if possible to 1.5°C. These targets also apply to municipalities. Accordingly, the transformation to a sustainable energy supply must also be driven forward at the municipal level. The Climate Protection and Energy field of action thus brings together topics such as the reduction of greenhouse gas emissions, the expansion of renewable energies, increased energy efficiency, and measures to save energy and raise awareness among the population.

Qualitative Aspects

- Climate protection in the municipality
- Climate protection in administration, municipal undertakings and associated companies
- Embedding climate protection in spatial planning and development

Practical Example

- Participation process "Bonn4Future We for the Climate"

SDG indicators

- Residential buildings with renewable heating energy

Add-on indicators (City of Bonn)

- Greenhouse gas emissions by sector
- Solar power
- Share of renewables in the public utility company's electricity mix
- Energy consumption in municipal buildings
- Energy consumption in private households

13 Climate protection in the municipality

The Federal City of Bonn is committed to the climate protection goals agreed at the 2015 UN Climate Change Conference in Paris and reaffirmed this with a [Resolution on Climate Emergency](#) in 2019. Against this backdrop, the city council of Bonn has declared the specific goal [to become climate neutral by 2035](#). A "climate plan" to achieve this goal will be drawn up in 2022. There are further sub-goals, formulated within the framework of the membership in the [Covenant of Mayors for Climate and Energy](#) and the [Climate Alliance](#) (i.e., reduction of CO₂ emissions by at least 40% by 2030 and reduction of annual per capita emissions to 2.5 metric tons of CO₂ equivalents to reach climate justice). With the 2019 mission statement [Climate Protection and Climate Adaptation](#), Bonn has adopted principles for implementation in this regard. With the help of CO₂ monitoring, which the city conducts based on a uniform federal standard (balancing standard municipal), the development of emissions is continuously measured. Since 2012, the Climate Protection Office has acted as the central coordinating body; from 2022 onwards, this role was assumed by the [2035 Program Office Climate Neutral Bonn](#).

To reduce emissions, the first priority is the increased use of renewable energies. In this respect, solar energy offers the most significant potential in Bonn, as the [solar roof cadastre](#) makes clear (stating that around two-thirds of the city's roof surfaces are suitable for solar energy generation). For this reason, Bonn launched the [Funding Program Photovoltaics](#) in 2021, which creates additional incentives for private and commercial owners to install photovoltaic systems. Moreover, the [Solar Bonn Expansion Initiative](#) is intended to motivate private individuals and companies to participate in the expansion of solar energy. To tap into the reduction potential in the building sector (40% of total emissions are attributable to this sector), the city founded the [Bonn Energy Agency](#) in 2012 in collaboration with 20 organizations. The association focuses on

initiating and supporting measures for energy-saving construction and renovation. Against the backdrop of its climate protection activities, Bonn was awarded the [European Energy Award](#) for the fifth time (three of these being gold awards) in 2020. In 2021, Bonn also became the first German city to join the global initiative for a [non-proliferation treaty for fossil energies](#). Various formats are being implemented to raise awareness and actively involve the population in climate protection, such as the participatory process [Bonn4Future People for Climate](#), the city's climate protection campaign [Think new. Simply act. Together for the climate](#), and the Climate Alliance's [city cycling campaign](#).

13 Climate protection in administration, municipal undertakings and associated companies

The city administration, the municipal undertakings and associated companies ([Eigen- und Beteiligungsunternehmen](#) in German) act as role models against the backdrop of Bonn's climate protection targets. By 2035, the Concern Bonn City is to become [climate-neutral](#); this applies to the city administration and all associated companies with multiple shareholdings, including the municipal facility management, the utility company "Stadtwerke Bonn", the Vereinigte Bonner Wohnungsbaugesellschaft VEBOWAG, and the "bonnorange" municipal cleaning and waste management company. To achieve this goal, external expertise is also to be used; in 2020, an initial meeting was held on this subject with the UN Climate Secretariat and the international city network ICLEI.

Given Bonn's solar energy potential, the city has decided to [equip all municipal buildings with photovoltaic systems](#). For new municipal buildings, the city also sets [energy efficiency standards](#) that exceed legal requirements (which have been "efficiency building standard 40" since 2021.) In a joint project by the municipal building management and the association for energy and building management Bonn, old heating centers are to be refurbished ([heat](#)

Practical example

supply contracting]; in addition, the public utility company Bonn is increasingly converting buildings to district heating for the municipal building management. The public utility company also helps to reduce CO₂ emissions through various climate protection activities (e.g., expansion of the district heating network, pilot plant for methanol production, modernization for the use of green hydrogen, energy audits and greenhouse gas balances, conversion to green electricity, construction of photovoltaic systems, participation in wind and solar parks, and tree-planting campaigns.) The city administration's electricity consumption has been covered exclusively by certified electricity from renewable sources for many years.

13 Embedding climate protection in spatial planning and development

Climate protection is an integral part of urban land use planning in Bonn. Before urban land use is formally planned, climate protection and adaptation requirements are formulated in urban planning competitions and concept awards.

In 2021, Bonn became the first city in North Rhine-Westphalia and one of the few cities in Germany to make the installation of photovoltaic systems mandatory in new construction projects over which it has direct influence under planning law. The solar obligation applies to all projects for which the city concludes urban development contracts with investors and owners. The commitment applies to all new projects and all ongoing procedures for which the public display of the development plan has not yet been decided. The solar obligation also applies to urban development measures. According to the resolution, photovoltaic systems should be combined with green roofs wherever possible.

Energy efficiency standards are an integral part of any urban development contract. For example, when selling urban land or in contracts with investors, efficiency building standard 55, as a minimum, is currently agreed as binding and verifiable. In the case of larger building projects, energy concepts coordinated with the investors are integrated, taking renewable energies into account.

Participation process

“Bonn4FuturePeople for Climate”

In 2020, Bonn and the association Bonn im Wandel e.V. signed a cooperation agreement to implement the two-year participatory process Bonn4Future—We for the Climate. Within the process framework, which was initiated by a citizen petition, Bonn citizens and actors from civil society, administration, politics, business, science, and culture are working together in an innovative process on joint ideas for how Bonn can become climate-neutral by 2035.

The process consists of various formats and building blocks: (1.) a digital sustainability platform that makes initiatives and activities visible and encourages citizens to become active themselves; (2.) climate action days for networking initiatives and active people; (3.) climate forums, where randomly selected citizens work together with stakeholders to develop proposals for the path to climate neutrality in 2035; and (4.) an activating communication network that will be built up successively. Results and ideas from the forums will be reflected in the municipal administration and politics to develop the existing catalog of climate protection measures further. An advisory board with members from numerous social groups and an accompanying scientific evaluation ensure the quality of the participation process.

Overview of contributions

Aspect	Contribution	Allocation to SDG Targets
Climate protection in the municipality	<ul style="list-style-type: none"> • Climate protection targets: <ul style="list-style-type: none"> — Resolution on climate neutrality 2035 — Further goals within the framework of the Covenant of Mayors for Climate and Energy and the Climate Alliance — Resolution on climate emergency — Mission statement on climate protection and climate adaptation — Non-proliferation treaty for fossil energies • CO₂ monitoring • Program Office Climate Neutral Bonn 2035 • Solar roof cadastre • Funding Program Photovoltaics • Solar Bonn Expansion Initiative • Bonn Energy Agency • European Energy Award • Awareness-raising / civic participation: <ul style="list-style-type: none"> — “Bonn4FuturePeople for Climate” participation process — Climate protection campaign “Think new. Simply act. Together for the climate” — City cycling campaign 	13.2
Climate protection in administration, municipal undertakings and associated companies	<ul style="list-style-type: none"> • Resolution of the City Council: climate neutrality of the entire Bonn City Concern by 2035 • Equipment of all municipal buildings with photovoltaic systems • Energy efficiency standards for new municipal buildings • Municipal building management: heat supply contracting / district heating • Climate protection activities of the public utility company 	13.2 7.2 7.3 7.3 7.2
Embedding climate protection in spatial planning and development	<ul style="list-style-type: none"> • Climate protection as an integral part of urban land use planning / climate protection requirements in urban development competitions and concept awards • Obligation to install photovoltaic systems in new construction projects • Energy efficiency standards in urban development contracts 	11.3 7.2 7.3

Indicators



Greenhouse gas emissions by sector 13.2



	2010	2014	2018
PRIVATE HOUSEHOLDS	2.75	2.27	2.22
INDUSTRY, TRADE, COMMERCE AND SERVICE	3.29	2.81	2.41
TRAFFIC	1.80	1.80	1.71
TOTAL	7.83	6.87	6.41

Per capita greenhouse gas emissions (private households/industry, trade, commerce and services/traffic) in tons

Greenhouse gas emissions contribute significantly to global warming. Endeavoring to avoid burning fossil fuels and thus reduce greenhouse gas emissions is one of the most important goals on the path to sustainable development. Absolute greenhouse gas emissions in Bonn have decreased by 27%, from around 2.9 million tons in 1990 to 2.1 in 2018. Around 35% of the emissions in 2018 were caused by private households and the economy, respectively, and 27% by transport. Greenhouse gas emissions per capita fell by approximately 33% (from 9.58 tons per capita in 1990 to 6.41 tons per capita in 2018.) For 2030, Bonn is aiming for a value of 5.57 in this regard. Additional efforts will be required to achieve Bonn's climate neutrality target by 2035.



Solar power 7.2



	2011	2015	2019
PHOTOVOLTAIC	0.13	0.23	0.31
SOLAR THERMAL SYSTEMS	0.10	0.12	0.13

Energy production from photovoltaic and solar thermal systems in urban areas as a percentage of total energy consumption

The conversion of renewable forms of energy into heat or electricity is usually decentralized, minimizing losses during transmission. Due to Bonn's geographic location and urban structure, there is only significant usable potential for solar energy. The indicator looks at solar energy production in the urban area, both for electricity and heat generation in relation to total energy consumption. Over time, the share of solar energy production has increased, partly due to municipal incentive programs. However, the potential shown in Bonn's solar roof cadastre has only been used to a minimal extent. Against this background, the city has initiated various measures to increase solar energy production in the urban area.



Share of renewables in the public utility company's electricity mix 7.2



PERCENT	2011	2015	2020
	47.5	69.3	81.8

Percentage of renewable energies in the electricity mix at the public utility company Bonn

A sustainable energy economy relies primarily on renewable energy sources. As the city's leading supplier and disposal company, Bonn's public utility company plays a significant role in the city's energy transition. The share of renewable energies in the electricity mix has risen continuously since 2002 and was over 81% in 2018. The increase is due to the decision of the company to reduce the share of conventional energies—the further expansion of renewables, particularly in the area of photovoltaics, is the declared goal. Hence, it is to be expected that the existing development will continue.



Residential buildings with renewable heating energy 11.b



PERCENT	2010	2015	2019
	17.9	23.8	36.7

Proportion of completed residential buildings with renewable heating energy

The use of renewable heating energy in the building sector can contribute significantly to reducing CO₂ emissions. In addition, the use has positive economic effects on fixed energy costs (e.g., lower investment costs or elimination of CO₂ pricing) in private households. The share of completed residential buildings with renewable heating energy in Bonn has risen steadily and stood at 36.7% in 2019. However, this share is below the NRW value (46.6%). At the federal level, the share of completed residential buildings with renewable heating energy in 2019 was 47.8%. The German Sustainability Strategy aims to increase the share of renewable energy in gross final energy consumption to 30% by 2030, 45% by 2040, and 60% by 2050 (Goal 7.2.a). Bonn can indirectly contribute to achieving this goal through its activities in the residential building sector.



Energy consumption in municipal buildings 7.3



	2011	2015	2019
ELECTRICITY	141	140	141
HEATING ENERGY	371	397	362

Energy consumption in municipal buildings in kilowatt hours per inhabitant

Reducing energy consumption is an important goal for municipal properties in Bonn. Heating-energy consumption has reduced since 2002, although this trend has slowed since 2010. However, electricity consumption has shown a slight upward trend since 2014. The reasons for this are the increased construction of new buildings and the leasing of additional properties to meet legal requirements. The properties are being modernized in terms of the building envelope and systems engineering to improve energy efficiency. Implementation depends on the budget and available personnel resources. New buildings are generally constructed according to specified standards that exceed the requirements of the energy-saving ordinance. If the applicable standards for new construction and refurbishment are consistently implemented, the indicator should continue to develop positively in the coming years.



Share of renewables in the public utility company's electricity mix 7.2



PERCENT	2011	2015	2020
	47.5	69.3	81.8

Percentage of renewable energies in the electricity mix at the public utility company Bonn

A sustainable energy economy relies primarily on renewable energy sources. As the city's leading supplier and disposal company, Bonn's public utility company plays a significant role in the city's energy transition. The share of renewable energies in the electricity mix has risen continuously since 2002 and was over 81% in 2018. The increase is due to the decision of the company to reduce the share of conventional energies—the further expansion of renewables, particularly in the area of photovoltaics, is the declared goal. Hence, it is to be expected that the existing development will continue.

Indicators



Energy consumption in private households 7.3



	2011	2015	2019
ELECTRICITY	1,463	1,466	1,518
HEATINGW ENERGY	7,292	5,710	5,899

Energy consumption in private households in kilowatt hours per inhabitant

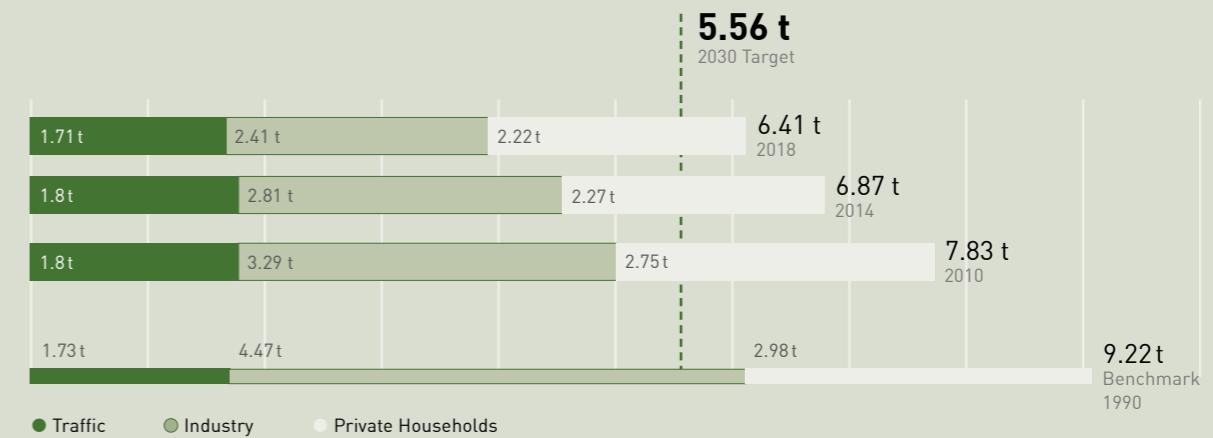
Heating energy consumption among private households in Bonn has decreased over the long term since 2002. However, electricity consumption has shown a slight upward trend since 2014, partly due to the increasing number of single-person households. Bonn focuses on providing detailed advice to owners and tenants on all issues relating to energy-efficient building renovation and the use of renewable energies. These advisory services are to be further expanded in the future. In the area of thermal energy, efforts to promote energy-efficient refurbishment must be intensified, especially in existing buildings, whereby energy savings should take precedence over the use of renewable energies. In the case of electricity consumption, the focus should be on the consistent use of technical efficiency improvements and changes in user behavior.



Visualization of selected Indicators

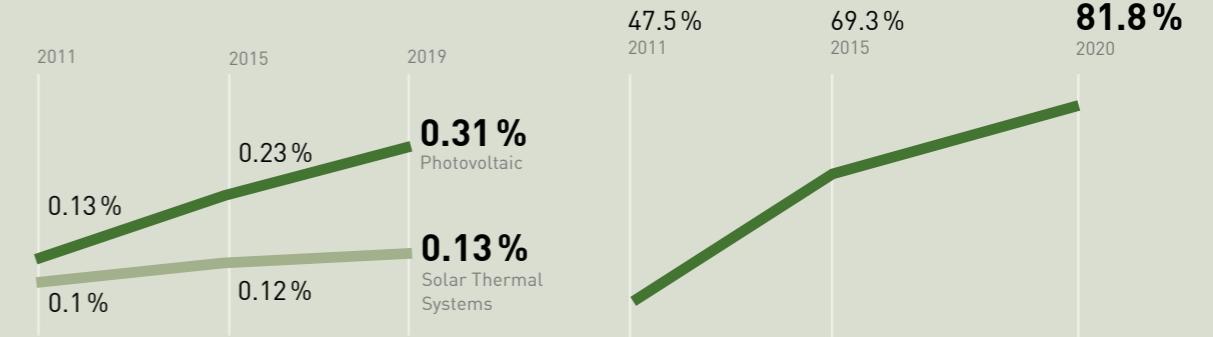
Greenhouse gas emissions by sector

Per capita greenhouse gas emissions (private households/industry, trade, commerce and services/traffic) in tons



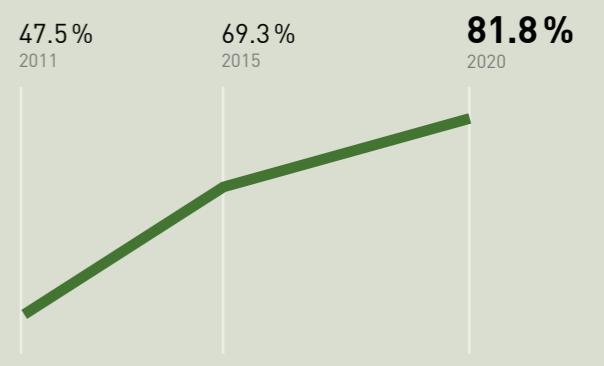
Solar Power

Energy production from photovoltaic and solar thermal systems in urban areas as a percentage of total energy consumption



Share of renewable energies

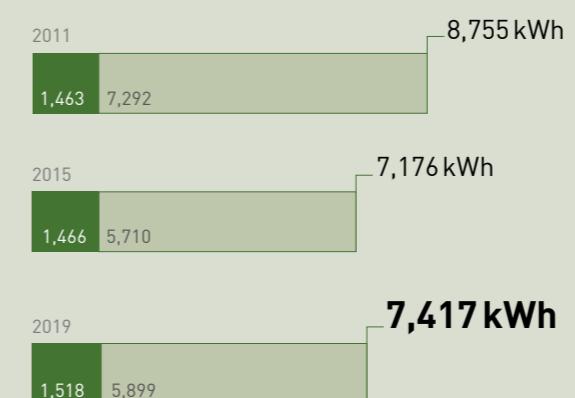
Percentage of renewable energies in the electricity mix at Stadtwerke Bonn



Energy Consumption in private households

Energy consumption in private households in kilowatt hours per inhabitant.

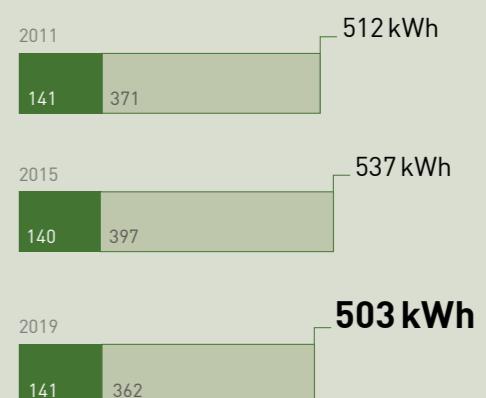
● Electricity ● Heating



Energy Consumption in municipal buildings

Energy consumption in municipal buildings in kilowatt hours per inhabitant.

● Electricity ● Heating





3.2



Natural Resource Protection & Climate Adaptation

General Introduction to the Field of Action

Biodiversity and natural resources such as soil, water, and air are the essential foundations of human life and economic activity. However, in many places, the use of resources exceeds their regenerative capacity. The increasing loss of biodiversity (i.e., the diversity of species, genetic variation, and habitats), along with climate change, represents the most significant global challenge in terms of sustainability. The impairment of natural soil functions due to human land use leads to reduced rainwater infiltration and groundwater recharge. Water and soil pollution—for example, through the dumping of chemicals and waste—threaten the ecological balance. Air pollution from particulate matter and nitrogen dioxide leads to health risks, while greenhouse gases accelerate climate change. Against this background, the protection and sustainable use of natural resources and the development of effective climate change adaptation strategies at the municipal level are of central importance.

Qualitative Aspects

- Biodiversity protection
- Sustainable agriculture and forestry
- Sustainable supply and disposal
- Reduction of resource consumption in administration, municipal undertakings and associated companies
- Reduction of environmental pollution in soil, water and air
- Climate adaptation in the municipality
- Climate adaptation in administration, municipal undertakings and associated companies

Practical Example

- Project MUTABOR for the reduction of heat stress in housing estates

SDG indicators

- Land use
- Nature conservation areas
- Landscape quality
- Wastewater treatment
- Nitrogen surplus

Add-on indicators (City of Bonn)

- Watercourse quality
- Woodlands and sustainable forestry

15 Biodiversity protection

Bonn is characterized by substantial greenery in the urban landscape; around 50 % of the city's area is under nature and landscape protection, and the proportion of forest is 30 %. To preserve and promote biodiversity, a [Biodiversity Action Program](#) provides the strategic framework for the decade 2021–2031. Bonn is also a founding member of the [Global Cities and Regions Action Alliance for Biodiversity](#).

Various projects in the city explicitly aim to promote biodiversity. For example, in 2020, the Lower Nature Conservation Authority initiated the nature trail Biodiversity in the City to bring inner-city natural habitats closer to citizens. Ten stations show different biotopes and convey how vital their preservation is for urban biodiversity. In 2019, the pilot project [Blossoms for Insects](#), which was awarded a prize by the UN Decade of Biological Diversity, was also initiated. In this project, daycare centers are advised and guided annually in the creation of flowering areas in the facilities to raise awareness of the need to protect insects. In cooperation with the adult education center, the event series [Biological Diversity in the City](#) was also launched in 2019. The target group for the free events is all interested citizens who would like to receive practical information to create biotopes for native plants and animals in gardens, front yards, and balconies. An [information campaign on the disadvantages of gravel gardens](#) in the city (via information letters to owners as well as offers on the municipal website), along with the [Lebensstätte Friedhof](#) project (supporting the improvement of biodiversity in the city area by planting flower meadows on unused parts of cemeteries) are also intended to increase biodiversity. Bonn is also participating in the large-scale nature conservation project [Chance 7](#) (project management agency: Rhein-Sieg district), which over the next 12 years will preserve and promote habitats and species of national importance on an area of approximately 11,400 hectares.

Overall, there is an exceptionally high concentration of local, regional, national, and international actors in biodiversity research and conservation in and around Bonn, networked through the [Biodiversity Network Bonn](#) association. The city has been involved in the network since its foundation.

15 Sustainable agriculture and forestry

With almost 150 square meters per inhabitant, Bonn has an above-average number of municipal green spaces, the maintenance of which is addressed as part of the [city's green space concept](#). In 2019, Bonn was awarded the [silver label for near natural Urban Green](#), with which the Communities for Biodiversity alliance honors exemplary commitment to the ecological enhancement of urban green spaces. With the current [funding program for unsealing](#), Bonn supports the unsealing and greening of areas and provides tips for ecologically valuable design.

Concerning the sustainable use of agricultural land, Bonn's Sustainability Strategy promotes the goal of increasing the proportion of agricultural land managed ecologically to 20 % by 2030. This endeavor is supported by the [Agricultural Leases](#) (2019) council resolution on the ecological management of urban agricultural land. Approximately 230 hectares of agricultural land owned by the city and currently leased to 26 farms should gradually be managed ecologically in a future-oriented manner. For this purpose, [leasing criteria for new leases](#) and an [inventory analysis](#) of the leased areas have been developed to examine the prerequisites for the ecological cultivation of these areas. Thus, Bonn is committed to more nature conservation and is striving for sustainable management in the future in dialog with the tenants. Within the [framework of contractual nature conservation](#), which is a vital link between agriculture and nature conservation, farmers have been receiving appropriate financial compensation for nature conservation-adapted management methods since 2007.

Bonn also attaches great importance to sustainable forest management. For example, Bonn's city forest is certified according to the strict criteria of the Naturland association for sustainable management ("Naturland certification.") Regular external inspections ensure that management is close to nature and meets the highest nature conservation standards. In this way, the diverse ecosystem services of the forest can be preserved.

12 Sustainable supply and disposal

Waste management in Bonn is performed by the municipal waste management company bonnorange, which also provides information on reuse on their website along with services such as repair cafés, swap meets, and the voluntary initiative Zero Waste Bonn. To avoid single-use waste, the company has implemented the Bonn goes reusable initiative since 2019. This scheme aims to replace single-use containers with environmentally friendly reusable packaging and thus contribute to resource conservation. Through cooperation between partners from politics, business, and gastronomy, the initiative creates an overarching network of multipliers. Bonnorange advises retailers, gas stations, cafés, and any business that offers food to help them adopt reusable systems in their daily operations or introduce the option of filling reusable containers that they bring along themselves. The campaign's centerpiece is a digital city map currently featuring 150 participating catering businesses. The map also provides information on where water bottles can be refilled free of charge to reduce the number of disposable bottles. With a view to the mandatory reusable offer from January 1, 2023, the campaign will continue to play a central role and will be further developed. The campaign will be accompanied by various activities on the subject of "reusable instead of disposable" to raise awareness of the issue among the public.

As part of a cooperation between bonnorange and the Bonner House of Nature, various environmental education programs are also offered to promote waste avoidance. For

example, in 2021, the interactive exhibition Littered? drew attention to the topics of litter and litter avoidance in the forest. In addition, accompanying workshops and guided tours of the forest were offered. Bonn's public utility company is also contributing to sustainable supply and disposal—for example, by developing a concept for reducing waste products.

12 Reduction of resource consumption in administration, municipal undertakings and associated companies

The city administration, the municipal undertakings and associated companies are endeavoring to reduce resource consumption in the municipality. For example, recycled paper has been used in the administration as a matter of course for many years. From 2010 to 2021, Bonn was recognized 12 times as a Recycling Paper-Friendly City in the Paper Atlas city Initiative Pro Recycling Paper competition for its use of recycled paper with the "Blue Angel". Over this period, more than 67.1 million liters of water and over 13.8 million kilowatt hours of energy were saved.

As an example of the commitment of the owned and associated companies, the introduction of a GHG matrix at bonnorange is significant. The tool was integrated into the strategic corporate management and enables the integration into the decision-making process of greenhouse gas reductions along the value chain. For the GHG matrix, various waste fractions were considered in the material flow analysis with regard to collection systems, transport routes, waste volumes, recycling routes, and waste treatment facilities. The matrix thus provides an overview of emission reductions and burdens and the respective net results per waste fraction.

15 Reduction of environmental pollution in soil, water and air

One of the statutory tasks of Bonn's Lower Environmental Authority is to protect the media of soil, water, and air. This aim is achieved through cross-media environmental protection, with the seamless inspection of environmen-

tally relevant facilities for all affected environmental areas (waste, emission control, water, soil) carried out in an interdisciplinary manner.

In 2019, the second update of the Clean air plan for the urban area came into force, containing measures to permanently reduce air pollution. The overriding goal is to comply with agreed nitrogen dioxide levels. This aim is pursued by implementing a bundle of measures from the Green City Masterplan, the Lead City program, and the Municipal climate protection.NRW—emissionfree inner-city program. For example, 77 buses operated by Stadtwerke Bonn were retrofitted with modern SCRT filters that filter nitrogen oxide, particulate matter, and particles from exhaust gases. Rhein-Sieg Verkehrsgesellschaft has also put 51 buses of the latest Euro VI emissions standard into operation and retrofitted existing buses with SCRT filters.

The Bonn Energy Agency is helping to reduce the release of air pollutants and air pollution caused by particulate matter—for example, by advising private owners to switch to environmentally friendly heating systems free of charge. Since 2019, sports fields in Bonn have been required not to use plastic granulate as infill on artificial turf.

13 Climate adaptation in the municipality

To increase urban climate resilience, Bonn's sustainability strategy stipulates climate-adapted internal development and redensification in addition to the promotion of green open spaces. By the end of 2023, revised open space planning will create a strategic basis for action at the city level for the coming decades. Regarding the challenges of open space and urban development (demographic change and housing demand, inner development, climate change, resilient green and open spaces, biodiversity and biotope network, multimodality, and healthcare), open space planning visions, goals and approaches for the further development of the urban green and the open and green spaces of Bonn will be developed. The Bonn Open Space Plan is intended to function as an umbrella

strategy that will address thematic focal topics in addition to an overall urban development concept. The Biodiversity Action Program and the activities for a water-sensitive city will also be considered in this integrated planning.

Another important basis for planning will be the latest findings on climate protection and adaptation. In particular, the projects ZURES (see also Aspect 14.8) and MUTABOR (see practical example) provide a decisive basis for this. Within the framework of ZURES, planning reference maps regarding the urban climate and a citywide climate analysis were developed. Based on this, the MUTABOR project analyzes the citywide potential for heat adaptation. With the Integrated Green Infrastructure Action Concept, Bonn is working closely with other cities in the Rhine region to preserve shared landscapes and open spaces and to create and network green spaces.

The Climate Protection and Climate Adaptation 2019 mission statement also stipulates that Bonn will continuously develop into a climate-resilient city and contribute to reducing vulnerability. With the current Funding Program for Greening Buildings (green facades and green roofs on existing buildings) and the Funding Program for Unsealing (see also Aspect 11.2), the creation of new green spaces in Bonn is specifically promoted through financial support for owners. This scheme contributes to a better urban climate by reducing the summer heat load in the city.

The Bonn City Forest also makes a central contribution to improving the city's climate. To maintain this, the tree species composition is being adapted in response to climate change. For example, between 2017 and 2021, bare areas caused by climate damage were reforested using tree species (23,000 trees) with a high tolerance to climate change.

To address heavy rainfall, Bonn has been providing heavy rainfall hazard maps since 2019, which contain information and suggestions for citizens to protect themselves from heavy rain

damage. Flooding analyses to minimize the risks associated with heavy rain events are performed for all major planned areas in Bonn. In 2021, the city also participated in the [Climathon Bonn](#). In the digital event organized by the Center for Social Entrepreneurship Bonn, citizens worked together in teams to develop solutions to problems relating to the necessary climate adaptation.

In the future, Bonn will also address the topic of [water-sensitive urban development based on the principle of the sponge city](#). The aim is to keep rainwater in the natural water cycle wherever possible—that is, to infiltrate it locally or to store and use it. To this end, the process of creating a specific concept for Bonn is to be launched in 2022.

13 Climate adaptation in administration, municipal undertakings and associated companies

Against the background of the adopted guiding principles and goals for climate adaptation, appropriate measures are also being taken with regard to municipal facilities. Bonn submitted two funding applications for the [Climate adaptation in social institutions](#) national program devised by the Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety, both of which were approved. Among other things, the program supports daycare centers, nursing homes, homes for the elderly, and hospitals to better protect them from the consequences of climate change, such as heavy rain and heatwaves.

For this purpose, the project “Introductory and orientation consultations on climate adaptation in 20 daycare centers in Bonn” was implemented in Bonn until the end of 2021. In this project, short-term measures for municipal daycare centers were developed to reduce the climate impact with minimal effort. “In-depth concepts for climate adaptation for three daycare centers in Bonn” was a further program. Detailed climate adaptation concepts were drawn up for the selected daycare centers, which were subsequently implemented and included more significant structural measures. The knowledge thus gained about climate adaptation can be transferred to other daycare centers, making a long-term contribution to the quality of living and working in Bonn’s social institutions.



Practical example

Project MUTABOR for the reduction of heat stress in housing estates

The municipal lighthouse project MUTABOR (long title: Micro-scale investigation and activation of the technical and planning adaptation capacity of the city of Bonn to reduce heat stress) builds on the heat-related findings identified in the ZURES project. Based on the planning principles that define the priorities for action in the urban area of Bonn, citywide options for action to reduce heat stress are identified and examined for their impact. The project is being funded by the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety as part of the German Adaptation Strategy—Municipal Lighthouse Projects from 2021 to 2023. The scheme is conducted under the leadership of the City of Bonn and with the participation of the project partners GEOFNET Environment-Consulting GmbH and berchtoldkraß space&options. In addition, scientific support is provided by the Technical University of Kaiserslautern. MUTABOR focuses primarily on potential measures for existing settlements, as this is where the most significant challenges arise in adapting to extreme heat. A small-scale localization of the potential measures should help make planning recommendations more concrete. In a further step, the cooling effect of these potentials will be modeled. Finally, an implementation strategy will be developed to activate the potentials through planning instruments, funding programs, and other incentives. In this way, MUTABOR should contribute to the stabilization of climate adaptation aspects and provide transferable results to other municipalities. The right approach to planning and implementation is essential. Energy-saving renovation measures, such as insulating the outer shell or optimizing the heating system, generally reduce energy consumption while at the same time lowering ancillary costs. In the long term, this should significantly increase the renovation rate in the city.

Overview of contributions

Aspect	Contribution	Allocation to SDG Targets	Aspect	Contribution	Allocation to SDG Targets
Biodiversity protection	<ul style="list-style-type: none"> Biodiversity Action Program Membership: Global Cities and Regions Action Alliance for Biodiversity “Biodiversity in the city” nature trail “Blossoms for insects” pilot project “Biological Diversity in the City” event series Information campaign on the disadvantages of gravel gardens Chance 7 nature conservation project Biodiversity Network Bonn 	15.a 15.5 15.5 15.5 12.8 15.5 15.5 15.5	Reduction of environmental pollution in soil, water and air	<ul style="list-style-type: none"> Cross-media environmental protection by the Lower Environmental Authority Clean Air Plan (Second update) Further measures to reduce nitrogen dioxide (Green City Masterplan, Lead City program, Municipal climate protection.NRW—emissionfree innercity) Measures by the Bonn Energy Agency (advice on environmentally friendly heating) Elimination of plastic granulate as infill for artificial turf 	12.2 11.6 3.9 7.3 12.5
Sustainable agriculture and forestry	<ul style="list-style-type: none"> Green space concept Label for near-natural urban green Funding program unsealing Measures regarding agricultural leases / leasing criteria / inventory analysis of leased areas for ecological management of urban land Framework of contractual nature conservation Sustainable forest management in the urban forest 	11.3 15.5 11.3 2.4 2.4 15.2	Climate adaptation in the municipality	<ul style="list-style-type: none"> Revised open space planning / Bonn Open Space Plan MUTABOR project Joint project ZURES: planning reference maps / climate analysis Integrated Green Infrastructure Action Concept Climate Protection and Climate Adaptation mission statement Funding program for greening buildings / Funding program for unsealing Climate Adaptation in the Bonn city forest Heavy rainfall hazard maps Climathon Bonn Water-sensitive urban development based on the principle of the sponge city 	11.b 13.1 13.1 15.5 13.1 13.1 15.2 13.1 12.8 6.4
Sustainable supply and disposal	<ul style="list-style-type: none"> Activities of the municipal waste disposal company “bonnorange” in particular the initiative “Bonn goes reusable” Environmental education on the subject of waste avoidance (e.g. interactive exhibition “Littered?”) Measures of the public utility company 	12.5 12.8 12.1	Climate adaptation in administration, municipal undertakings and associated companies	<ul style="list-style-type: none"> Climate adaptation in social institutions funding program (e.g. projects “Introductory and orientation consultations on climate adaptation in 20 daycare centers in Bonn” / “In-depth concepts for climate adaptation for three daycare centers in Bonn”) 	13.1
Reduction of resource consumption in administration, municipal undertakings and associated companies	<ul style="list-style-type: none"> Use of recycled paper in the city administration / Recycled paper-friendly city awards Measures in own and associated companies (e.g. “GHG matrix” at “bonnorange”) 	12.2 12.2			

Indicators



Land use 11.3



11 SUSTAINABLE CITIES AND COMMUNITIES



PERCENT

2010
50.38

2015
50.63

2018
50.85

Share of settlement and transport area in total area

The indicator "Land use" is to be seen in the context of the goal of relying less on expansion and external development and more on efficiency and internal development as part of ongoing urbanization. The indicator shows a small increase over the period under review, which can be described as very moderate. At first glance, this development runs counter to the achievement of the goal of the German Sustainability Strategy 11.1.a, "Reduction of new land use for settlement and transport to an average of less than 30 hectares per day by 2030." However, if the population development in Bonn is considered in parallel to the development of settlement and transport areas, a continuous increase in settlement density can be observed, i.e., fewer square meters of settlement and transport area use per inhabitant. The status in 2019 was 0.02 hectares of settlement and transport area per inhabitant. This figure is low compared to the German average, which was 0.06 hectares of settlement and transport area per inhabitant in 2019. Bonn is therefore characterized by a high settlement density. The city's development thus indicates an increasing efficiency of land use and proves the high importance of internal development. These achievements contribute to Goal 11.1.b of the German Sustainability Strategy, "Reduce the inhabitant-related loss of open space".



Nature conservation areas 15.5



15 LIFE ON LAND



PERCENT

2010
22.52

2015
23.05

2018
23.49

Share of nature conservation areas with high protection status (Natura 2000 areas, nature reserves and national parks) in the total forest area

To ensure biological diversity, the performance and functionality of the natural world, and the recreational value of nature and the landscape, sufficiently large areas are required in which nature can develop without burdensome human intervention. A critical component is the networking of transnational and coherent protected areas (such as the Europe-wide network of Natura 2000 sites) with the aim of increasing the resilience of the individual areas. In Bonn, the proportion of nature reserves has steadily increased over time to around 23%. Compared to the national average (averaging a steady 16% over time,) the share of nature conservation areas in Bonn is significantly high. The German Sustainability Strategy aims to "increase biodiversity and landscape quality achieving the index value 100 by 2030" (Goal 15.1.). The NRW Sustainability Strategy specifically aims to "increase the state-wide biotope network to 15% by 2030" (Goal 15.1.c). Thus, Bonn clearly contributes to the achievement of the goals at federal and state levels.



Landscape quality 15.5



15 LIFE ON LAND



HEMEROBY

2012
4.6

2015
4.7

2018
4.7

Total of human interventions in ecosystems (hemeroby index)

The determination of landscape quality is measured using parameters such as proximity of vegetation to potential natural vegetation (pnV), degree of soil sealing and compaction, degree of change in humus form and microclimate, use of fertilizers and pesticides, and water quality and obstruction of water bodies. The degree of human intervention in the natural balance of the city of Bonn was assessed in 2018 with level 4.7 of the hemeroby index (1 = not influenced by culture, 7 = excessively influenced by culture.) Compared to the rest of Germany (level 4.2), Bonn is thus more frequently affected by harmful interventions in the natural balance, which can also be seen in other large cities in NRW with similar numbers of inhabitants. This issue could have a negative impact on the achievement of Goal 15.1 of the German Sustainability Strategy, "Increase biodiversity and landscape quality".



Woodlands and sustainable forestry 15.2



15 LIFE ON LAND



BEECH

2006
18.8

OAK

2006
18.9

PINE

2006
15.6

SPRUCE

2006
6.6

Percentage of deciduous trees (beech and oak) in hectares, relative to the total area of city forest

The forest ecosystem has an important use, protection, and recreational value. Mixed forests play a unique role, as they harbor a greater diversity of species than other areas and increase the forest's adaptability to harmful environmental influences. Bonn's urban forest plays a vital role in terms of its ecosystem services and protective functions due to its proximity to the metropolis. Therefore, it is essential to preserve, protect, and expand the forest. The timber stock increased by about 13% from 2006 to 2017. The timber stock in the Bonn municipal forest is currently around 132,500 solid cubic meters. In general, a positive development can be seen based on the proportional 3.7% increase of hardwood stocks of beech and oak from 2006 to 2017. The coniferous share of pines and spruces decreased by 3.6% between 2006 and 2017. Overall, the Bonn municipal forest is based on many years of sustainable management. In addition, more than 10% of the forest area is protected as reference areas, in which management no longer occurs and nature can develop freely. The forest is based on many years of sustainable management. In addition, more than 10% of the forest area is protected as reference areas, in which management no longer occurs and nature can develop freely.

Indicators



Nitrogen surplus 2.4



2

ZERO HUNGER



2010 2015 2018

KG

67.3

78.3

89.9

Nitrogen surplus of the agricultural area

Excessive use of fertilizers in agriculture is causing a wide range of environmental problems. In this respect, global planetary pollution limits have already been exceeded. In addition, nitrogen surpluses lead to acidification of surface waters, oceans, and various terrestrial ecosystems and nitrate pollution in groundwater. In 2018, Bonn had an agricultural land nitrogen surplus of 89.9 kg. Data at the federal level show increasing values over time, and in 2018, the value was 92.1 kg/ha (2010: 65.4 kg/ha). These developments are currently contrary to goal 2.1.a of the German Sustainability Strategy, "Reduce the nitrogen surplus of the overall balance for Germany to 70 kilograms per hectare of agricultural land as an annual average 2028-2032."



Wastewater treatment 6.3



6

CLEAN WATER AND SANITATION



2010 2015 2018

PERCENT

100.0

100.0

100.0

Proportion of wastewater treated by denitrification and phosphorus elimination

Wastewater refers to water contaminated through domestic, commercial, or industrial use that can cause significant harm to humans, animals, and nature if not adequately treated. Denitrification and phosphorus elimination remove excess nitrogen and phosphorus from wastewater, improving its quality. In Bonn, the percentage of treated wastewater remained constant at 100% over time. The NRW average is also high, with 96.6 % of wastewater treated (current data at the federal level is not available.) The sustainability strategies of the federal government and the state of NRW do not explicitly address wastewater treatment.



Watercourse quality 6.6



6

CLEAN WATER AND SANITATION



GOOD MODERATE UNSATISFACTORY POOR

2010

10.73

0.92

2.5

25.85

Assessment of watercourse condition based on percentage share of total length

2016

10.73

0

13.97

15.3

In most cases, the inadequate ecological status of watercourses is due to excessive nutrient inputs from agriculture, construction and straightening, and the discharge of untreated or inadequately treated wastewater. The assessment of the water bodies takes place every six years. Three of the seven water bodies in Bonn have improved by one assessment level within the last monitoring cycle. For the water bodies considered here, an implementation roadmap was produced and adopted by the city council. The roadmap contains measures to improve the structure of the water bodies. In addition, the management plans and programs created to implement the Water Framework Directive contain measures to improve water quality. If the planned measures are implemented, the status rating "good" should be achieved for the water bodies under consideration by 2027.

Visualization of selected Indicators

Land use

Share of settlement and transport area in total area

50.4 %
2010

50.6 %
2015

50.9 %
2018

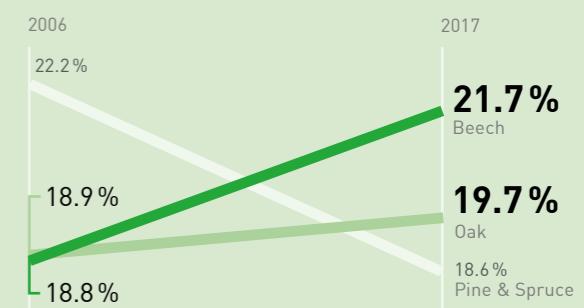
Nature Conservation Areas

Share of nature conservation areas with high protection status (Natura 2000 areas, nature reserves and national parks) in the total area



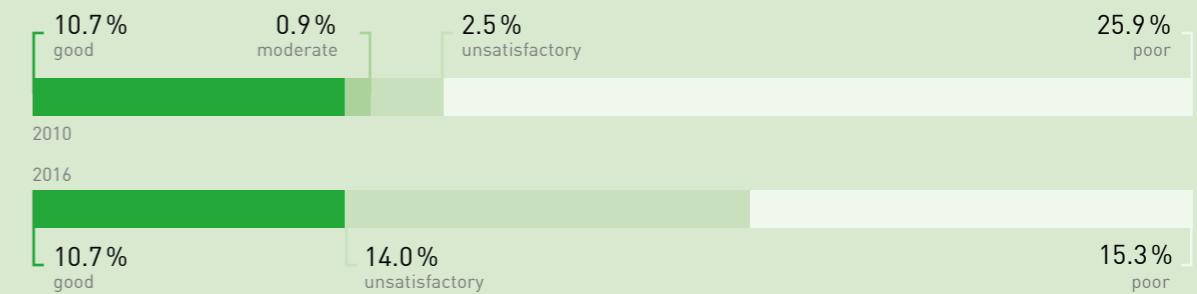
Woodlands and sustainable forestry

Percentage of deciduous trees (beech and oak) in hectares, relative to the total area of city forest.



Watercourse Quality

Assessment of watercourse condition, based on their percentage share of the total length



Target for 2027

40 %
good



3.3



Sustainable Mobility

General Introduction to the Field of Action

The third field of action of sustainable municipal development, Sustainable Mobility, comprises the sub-areas of passenger and freight transport within a municipality along with the associated infrastructures. Mobility is a prerequisite for social and economic development and for enabling people to participate in social life. The fundamental objective of a sustainable transport policy is to design socially necessary mobility so that mobility needs are compatible with sustainable development. The “modal split”—the distribution of traffic volume among different modes of transport—is still heavily dominated by motorized private transport. Overall, the current transport system, which is not yet sustainable, has a wide range of impacts on climate, the environment, and health. Against this background, the field of action bundles central challenges such as the promotion of ecomobility (public transport, cycling, and walking) and alternative forms of propulsion, measures for air and noise pollution control, and the reduction of land and resource consumption.

Qualitative Aspects

- Sustainable mobility in the municipality
- Sustainable mobility in administration, municipal undertakings and associated companies
- takings and associated companies
- Supporting cultural affairs
- Promoting an everyday culture of sustainability

Practical Examples

- “Lead City” Bonn
- Emission-free inner city “Mobile stations”

SDG indicators

- Motor vehicle density
- Road traffic casualties

Add-on indicators (City of Bonn)

- Modal split (choice of transport)
- Access by bus and rail
- Bicycle traffic
- Traffic accidents with children

11 Sustainable mobility in the municipality

Bonn’s sustainability strategy stipulates the overarching goal of reducing the share of motorized individual transport and increasing the share of the environmental alliance (public transport, cycling and walking) accordingly (see also the [Sustainable Mobility Master Plan of the City of Bonn](#)). In 2019, the city council decided that the share of ecomobility should be increased to 75% by 2030 in the [modal split](#) (choice of transport mode).

To promote public transport, Bonn participated in the [Lead City](#) program from 2018 to 2020 (see practical example.) The Sustainability Strategy includes a joint expansion strategy involving the Rhein-Sieg district and Local Transport Rheinland, with a focus on public transport. As part of the [Emission-Free Inner-City](#) project (see practical example), funded by the Municipal Climate Protection.NRW program, Bonn developed a concept for strengthening emission-free mobility in the urban area (implementation by 2022.) The focus of the concept is on better interlinking the modes of transport, which is supported by the establishment of 36 [mobile stations](#) in the city area with various services.

In addition, bicycle traffic is to be further promoted. Various measures have been implemented in recent years, supported by the [Development Concept for Cycling](#) adopted by the Bonn District Council in 2019. These measures include the expansion of cycle paths in the city and of cycle fast routes, designating cycle lanes, and the installation of (structurally) secured cycle lanes or the installation of green arrows at traffic lights for cyclists. To improve bicycle and pedestrian traffic infrastructure, the city decided to comply with the [Bicycle Decision Bonn Citizens' Petition](#) in 2021. This petition includes, above all, a large-scale bicycle-parking program. The national [City Initiative Tempo 30](#), which Bonn joined in 2021, is also intended to contribute to the safety of cyclists and pedestrians, among other things.

Regarding stationary traffic, the city has developed guidelines within the [Parking Strategy](#) framework on how parking space will be managed throughout the city. The goal is to implement parking regulations for the different districts—notably the introduction of resident parking fees, with special regulations for residents, to reduce motorized individual traffic, including parking search traffic. In this context, it is important to focus on mobility concepts to strengthen modes of transport such as cycling and walking in residential areas. The Bonn Sustainability Strategy also addresses other advances in recent years, such as the expansion of the charging infrastructure for alternative drives, the promotion of electric buses and the introduction of a mobility app.

11 Sustainable mobility in administration, municipal undertakings and associated companies

The city administration, the municipal undertakings and associated companies contribute to sustainable mobility in Bonn. A central component in this regard is the company [mobility management](#) (“mobility package”) to address the traffic situation. With the [JOBWÄRTS](#) mobility program for employers and employees in the Bonn/Rhein-Sieg region, corporate mobility management has been supported in Bonn since 2019. The goal of the joint program of the city of Bonn, the Rhein-Sieg district, and the Future Mobility Network NRW involves reducing traffic congestion in the greater Bonn area by developing innovative and attractive mobility offers for commuters. In addition, JOBWÄRTS offers a network in which employers and employees can exchange their experiences and learn from each other. To promote the use of public transportation, Bonn also provides all employees with a subsidized travel ticket for 30 euros per month.

In line with its Sustainability Strategy, Bonn also checks all vehicle procurements to see whether suitable vehicles with alternative drives can be procured and operated for the intended use. The city administration, the public utility company,

Practical examples

and the waste disposal company bonnorange are thus successively converting their vehicle fleets to alternative drive systems. For example, eight subsidized e-vehicles have been purchased for the city cleaning department in recent years. In addition, charging infrastructures for electric and hybrid vehicles are being expanded at parking spaces for company vehicles, as is the range of electric, cargo, and conventional company bicycles. For example, until its vehicle fleet is fully converted to alternative drives, bonnorange also offsets greenhouse gas emissions from the fuel consumption of the vehicle fleet through high-quality CO₂ compensation projects. Bonn city administration business trips are primarily made by rail. For unavoidable business flights, the emissions are offset by compensation payments. The municipal utility implements various other measures for sustainable mobility, including the procurement of new trains, mild hybrid buses, secondary production of light rail vehicles, ID-based ticketing, sharing offers, and maintenance measures for municipal rail lines.



Lead City Bonn

Bonn took part in the nationwide Lead City program from 2018 to 2020 as one of five model cities selected by the German government. In addition to Bonn, the cities of Essen, Herrenberg, Mannheim, and Reutlingen were selected. The project, funded by the German Federal Ministry of Transport and Digital Infrastructure, aims to test innovative transport projects to reduce air pollution by strengthening e-mobility (local public transport, cycling, and walking). Bonn submitted ten priority projects, from which the federal government selected three areas of action: "Innovative tariff offers," "Improvements in public transport services," and "Corporate mobility management." These areas received approximately 37.6 million euros in funding. Regarding the improvements in public transport services, Bonn City Council decided on an additional extension without federal funding (initially until the end of 2022). The aim is to establish as many of these measures as possible on a permanent basis.

Emission-free inner cityMobile stations

At the end of 2019, the project "Municipal Climate Protection.NRW" was approved in Bonn with the specific funding area "Emission-free inner city." The focus of this urban concept is to promote emission-free mobility in the urban area. For the urban sub-projects ("Mobile stations", "Cycle fast routes" and "E-vehicle procurement") and for the sub-projects of the project partners SWBV ("Bicycle parking garages, bicycle boxes and E-Cargo Bikes") and EnW ("Charging infrastructure"), approximately 80–90% of the expenses are funded. At the beginning of 2020, the project organization and various working groups for the sub-project "Mobile Stations" had started work. In total, 36 mobile stations are to be planned and constructed in the project period from 01.11.2019 to 31.10.2022. The mobile stations are to be equipped with certain components (e.g., covered bicycle-parking facilities, air stations for bicycles, charging stations for e-bikes, charging columns for cars, information steles and car-sharing parking spaces) to create a better connection between the different modes of transport with the services they offer. The installation of such mobile stations at strategically relevant points will result in a network of transfer and connection points that promotes sustainable mobility and contributes significantly to climate protection in Bonn.

Overview of contributions

Aspect	Contribution	Allocation to SDG Targets
Sustainable mobility in the municipality	<ul style="list-style-type: none"> Targets for the model split, i.e. choice of transport (ecomobility and motorized individual transport) Mobility Master Plan of the City of Bonn Lead City program Emission-free inner city project Establishment of mobile stations Measures regarding bicycle traffic: <ul style="list-style-type: none"> Development Concept for Cycling Expansion of bike and bike express lanes, installation of secured bike lanes, green arrows at traffic lights for cyclists Support of the citizens' petition "Bicycle decision Bonn" City Initiative Tempo 30 Parking Strategy 	11.2 11.2 11.6 11.6 11.2 11.2 3.6 11.6
Sustainable mobility in administration, municipal undertakings and associated companies	<ul style="list-style-type: none"> Mobility management (mobility package) "JOBWÄRTS" mobility program Travel ticket for employees Conversion of vehicle fleets to alternative drive systems Further measures by own and associated companies, e.g. measures by the public utility company regarding sustainable mobility 	11.2 11.2 11.2 11.2 11.2

Indicators



Modal split (choice of transport mode) 11.2



	2008	2017	
MOTORIZED INDIVIDUAL TRAFFIC (MIT) SINGLE TRAVELERS	31	29	
MIV—WITH PASSENGERS	12	12	
PUBLIC TRANSPORT (PT)	16	17	
PEDESTRIANS	13	15	
CYCLISTS	30	28	Percentage of motorized traffic, public transport, walking, and cycling relative to the total traffic volume (routes)

The goal of sustainable mobility development is to increase the use of resource-conserving and environmentally friendly means of transport (public transport, cycling, and walking.) The modal split describes the distribution of the traffic volume among the different means of transport and thus provides a picture of mobility behavior. In Bonn, the share of individual motorized transport has decreased slightly in favor of ecomobility since 2008. While there was a traffic-planning orientation in favor of a car-oriented city in past decades, current traffic development planning gives more attention and space to the transport offers of ecomobility. Attractive alternatives to the car can be offered by creating new cycling connections and parking facilities, expanding local transport services, implementing new mobility offers, and linking individual transport offers. In 2019, the City Council decided that the share of environmental transport should be increased to 75% by 2030.



Motor vehicle density 11.2



	2011	2014	2018	
NUMBER	390,4	397,6	399,9	Number of privately registered passenger vehicles per 1,000 inhabitants

Private motorized transport impacts land use, the consumption of non-renewable resources, and emissions of climate- and health-damaging exhaust gases as well as noise pollution. Data up to 2018 are available for the city of Bonn; since 2010, there has been a slight continuous increase in motor vehicle density (399.9 passenger cars per 1,000 inhabitants*); since 2010, there has been a slight continuous increase in vehicle density. Ecomobility (local public transport, cycling, and pedestrian traffic) is to be further expanded and strengthened in the future following Bonn's Sustainability Strategy. The Germany-wide development shows a steadily increasing trend, significantly higher than in Bonn: in 2018, 1,000 inhabitants owned around 559,6 passenger cars. This development is contrary to the following goals of the German Sustainability Strategy: "3.2.a. Reduce emissions of air pollutants," "3.2.b. Reduce proportion of population with elevated PM10 fine dust exposure," and "11.2.b. Reduce final energy consumption in passenger transport".



Access by bus and rail 11.2



	2011	2015	2018	
PEAK HOURS: MON.-FRI. FROM 07:00 TO 12:00 AND FROM 14:00 TO 19:30, AT LEAST EVERY 15 MINUTES	62.7	62.8	78.1	Percentage of inhabitants within a radius of less than 300 meters (straight-line distance) to an operational bus stop, relative to the total population
OFF-PEAK HOURS: MON.-FRI. FROM 20:00 TO 23:00 AND AT WEEK- ENDS FROM 09:00 TO 22:00, AT LEAST EVERY 30 MINUTES	64.2	64.3	87.5	

Attractive local public transport is an essential component of sustainable mobility. As a cost-effective and environmentally friendly alternative to private motorized transport, the use of buses and trains reduces noise and air pollution and improves citizens' quality of life. In recent years, data quality and evaluation options have improved considerably so that comparisons with past values are only possible to a limited extent. In general, it can be stated that the development of new residential areas, the upgrading of existing ones, and the associated increase in the number of residents have led to a small but continuous increase in the indicator. The aim is to achieve a sustainable improvement and safeguard the quality of public transport in Bonn by further optimizing services in the future. In addition, the development of new residential areas will be given priority in locations with good public transport services. Another positive aspect is the annual increase in passenger numbers, which are developing much more strongly in relation to the indicator. This trend suggests that the importance and use of public transport as an attractive means of transport is increasing and will continue to increase among the population.



Bicycle traffic 11.2



	2011	2015	2018	
METERS	1.27	1.34	1.44	Length of cycle paths in meters per meter of traffic routes

A continuous network of bicycle paths is essential for the development of a sustainable municipal infrastructure. Over time, there has been an increase in bicycle lanes in Bonn compared to traffic lanes. Various new bicycle lanes, protective lanes, and one-way streets have been created in recent years. In the future, the continuous expansion of bicycle lanes will be aimed at improving connections between important destinations while increasing the quality of bicycle traffic routes and improving safety for cyclists. The development of the indicator is expected to continue to grow moderately in the future. However, the length of the bicycle lanes is only one aspect of the bicycle infrastructure, and the quality of the bicycle infrastructure also plays a crucial role. Overall, Bonn decided in 2020 that the share of cycling should be 25% in the future and that traffic safety and citizens' satisfaction should be continuously increased.

Indicators



Road traffic casualties 11.2

NUMBER

2011
5.6

2015
5.2

2019
5.0

Number of persons injured or killed in traffic accidents per 1,000 inhabitants



This indicator supports the assessment of general road safety without distinguishing between the different means of transport. Pedestrians and cyclists are more frequently and severely injured by the impact of cars, while the probability of car drivers being seriously injured in such scenarios is very low. The indicator cannot represent this imbalance. In the city of Bonn, the number of people injured or killed in traffic accidents per 1,000 inhabitants varies slightly over a ten-year period; in other large cities in NRW with similar numbers of inhabitants, values comparable to the city of Bonn can be seen. In comparison, the national trend shows a slightly lower value of 4.7% in 2019. The sustainability strategies of the federal government and the state of NRW do not include any targets in this regard.



Traffic accidents involving children 11.2

NUMBER

2010
3

2015
2.4

2018
3

Number of children injured or killed in traffic accidents per 1,000 children under 15 years

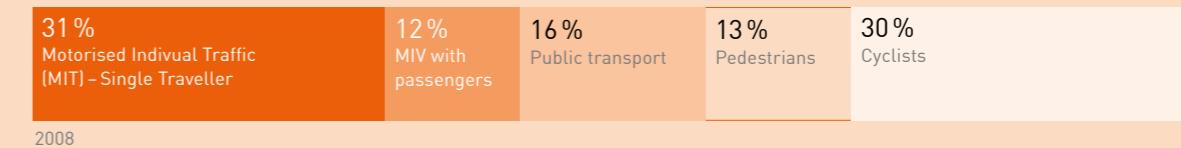


Children need special support and attention from adults in road traffic to protect them. This indicator complements the indicator "road traffic casualties" and provides information on the number of children injured or killed in traffic accidents per 1,000 children under the age of 15. For the years 2010 to 2018, no conspicuousities are discernible in the number of traffic accidents involving children in Bonn. The figures are naturally subject to minor fluctuations. The Bonn police continue their preventive road safety work at a proven level and continuously evaluate the accident statistics. In this way, problem situations that arise at short notice are identified and dealt with. In addition, traffic controls are intensified, especially in front of schools and daycare centers. A nationwide comparison is not possible due to the lack of statistical data.

Visualization of selected Indicators

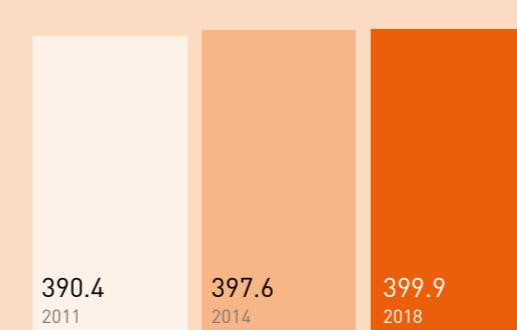
Modal split (choice of transport mode)

Percentage of motorized individual, walking, cycling and public transport, relative to the total traffic volume (routes)



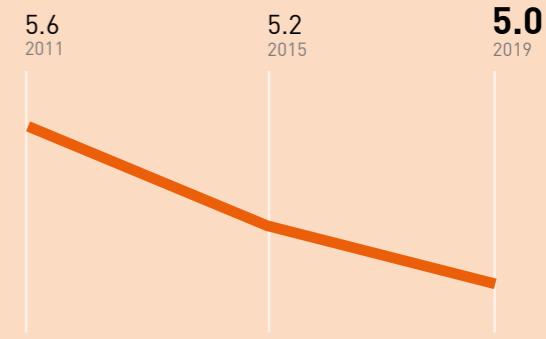
Motor Vehicle Density

Number of privately registered passenger vehicles per 1,000 inhabitants



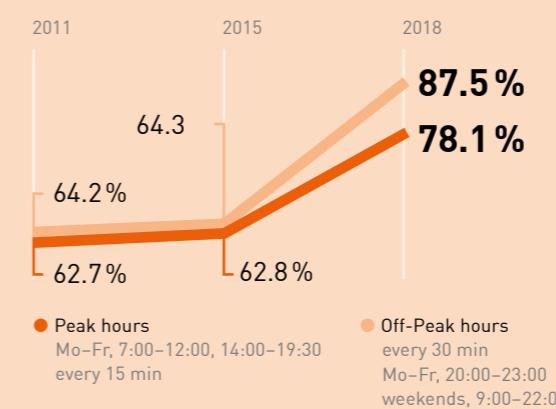
Road Traffic Casualties

Number of persons injured or killed in traffic accidents per 1,000 inhabitants



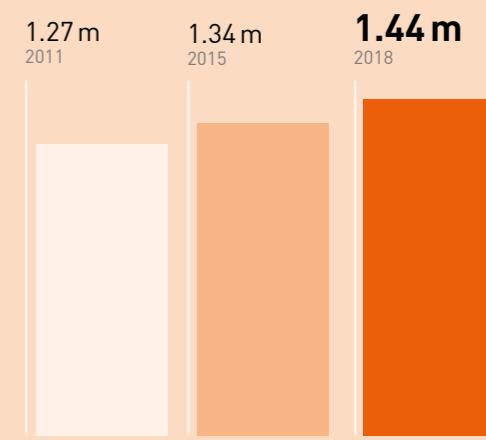
Access by bus and rail

Percentage of inhabitants within a radius of less than 300 meters (straight-line distance) to an operational bus stop, relative to the total population



Bicycle Traffic

Length of cycle paths in meters per meter of traffic routes





3.4



Lifelong Learning & Culture

General Introduction to the Field of Action

The field of action Lifelong Learning and Culture bundles various school, extracurricular, and cultural education topics. Lifelong learning describes the comprehensive development of skills and abilities over the course of a human life. It enables the individual to recognize problems and develop the ability to deal with conflicts appropriately and devise solution strategies. The learning process is not limited to school education but refers to the entire lifetime and includes formal and informal forms of learning (for example, the cultural sector in particular reaches people through informal education pathways.) Since education is one of the fundamental prerequisites for leading a self-determined life, it is essential to ensure equitable educational opportunities in all forms of learning and for all people. Education for sustainable development (ESD) involves an education that enables people to think and act sustainably and promotes participation and solidarity. These aspects form key competencies for actively shaping a sustainable society.

Qualitative Aspects

- Access to high-quality education for all citizens
- Education for Sustainable Development in community-based educational institutions
- Cooperation regarding sustainability with other educational institutions
- Supporting employability in administration, municipal undertakings and associated companies
- Supporting cultural affairs
- Promoting an everyday culture of sustainability

Practical Examples

- "Learning City" Bonn
- BONNEUM

SDG indicators

- Basic supply close to home—Primary school
- School dropout rate
- School dropout rate—Foreigners
- Childcare places for children under three
- Inclusive daycare centers

Add-on indicators (City of Bonn)

- Places in open all-day schools
- Development of school places in shared learning
- Municipal engagement for children and adolescents
- Apprenticeship positions
- Ratio of training places to applicants

4 Access to high-quality education for all citizens

Bonn is a city of education. It has more than 100 general and vocational schools, institutions for subsequent qualification, a university, a city archive, a city library, and an adult education center. Concerning the school sector, Bonn's Sustainability Strategy stipulates the goal of providing all children and young people with a good education and ensuring educational equity across all strata of the population.

A particular focus of the [School Development Planning](#) is on the [expansion of schools with open all-day programs](#). To promote educational equity in this area, the city council has adopted the [OGSplus program](#), integrating children with special needs in the context of open-all-day schools. The funding for this was increased from the 2019/2020 school year. With the school year 2018/2019, the [integration assistance for pupils with disabilities at Bonn schools](#) was also systematically aligned. In 2021 and 2022, funding from the federal and state program [Arriving and Catching Up after Covid-19](#) was used to take a holistic approach to working through and compensating for the consequences of the Covid-19 pandemic for children and young people.

Bonn also has numerous offers and projects in the extracurricular sector. The [City Library](#) ensures free access to information for the population and thus supports the promotion of lifelong learning opportunities for all. In 2019, the [Adult Education Center](#) was awarded the Rita Süssmuth Prize, which recognizes adult education centers nationwide dedicated to internationalization. Low-threshold educational offers (such as language courses or homework help) are also offered within the International Meeting Place framework, an educational facility for children and young people from immigrant families. Overall, the exchange and networking of education stakeholders are supported within the framework of the [Education, Counseling, and Encounter Working Group](#) and by the funding project [Together in the Neighborhood](#).

4 Education for Sustainable Development in community-based educational institutions

Bonn is a member of the [Education for Sustainable Development \(ESD\)—Municipalities](#) network and has received several awards from the German UNESCO Commission and the Federal Ministry of Education and Research for the structural anchoring of ESD. As stipulated in Bonn's Sustainability Strategy, the [House of nature](#) functions as a regional institution for ESD and a platform for Bonn's various stakeholder groups. Target group-oriented workshops and projects for different age groups and inclusive offerings impart knowledge and skills on the sustainable use of resources, with a focus on the forest ecosystem and climate change and its consequences. The environmental education program for kindergartens and schools was recognized in 2020 as an official UN Decade of Biological Diversity project. Other offerings include the provision of event spaces for ESD, a farm and nature garden, and a biodiversity trail. The [Adult Education Center](#) Bonn can be classified nationwide as one of the pioneers in communicating Global Sustainability Goals (SDGs). In addition to specific events on individual sustainability goals (e.g., preserving biodiversity), it organizes a thematic focus on the background of the SDGs in each half-year program. In this context, the twinning associations of the Bonn city partnerships are invited to report from "their" city.

To support ESD in Bonn's schools, teachers are invited to exchange ideas twice a year as part of the [Environment, Climate, Sustainability—School Meets Administration](#) network meetings, at which municipal projects and good examples from Bonn schools are presented. Several schools in the city are certified as [Fairtrade Schools](#). The Agenda Office of the City of Bonn also offers the [Learning Sustainability](#) newsletter for schools and daycare centers. The [Regional Education Office](#) and the [Open Youth Work Facilities](#) also integrate ESD into their offerings.

4 Cooperation regarding sustainability with other educational institutions

In the area of ESD, Bonn cooperates with institutions that are not under municipal sponsorship. For example, the nonprofit foundation Bonn Climate Ambassadors runs the project BONNi & BO climate license in Bonn's elementary schools every year at the city's initiative. Children in the third grade learn through play about ways to contribute to climate protection and deal with topics such as climate, electricity, recycling, transportation, nutrition, heating, and water. Hence, they become climate ambassadors for Bonn and pass on their knowledge to family and friends. Since the project began in 2012, over 12,000 climate ambassadors have received awards. The annual competition Paper Angels: People for recycled paper, launched by Bonn with the tropical forest foundation OroVerde with specialist partner Deutsche Post DHL Group as a sponsor, also aims to raise awareness among schoolchildren. All fifth-grade classes in Bonn schools can participate in the competition and learn about paper consumption and recycled paper while working on the teaching materials. Bonn is also home to one of the first PikoParks in Germany, a project of the Wissenschaftsladen Bonn. Through information, education, and participatory events, citizens are given the opportunity to green their surroundings and design them according to ecological principles. In this way, model areas are created for small parks designed to be close to nature and featuring native plants. Low-threshold nature and environmental projects, such as community gardens and trash collection campaigns, are also carried out in neighborhood facilities in cooperation with educational institutions such as schools and universities.

5 Supporting employability in administration, municipal undertakings, and associated companies

Various training opportunities (e.g., in the areas of self-management, moderation, and teleworking) promote employability in the city

administration. Development offers and tools within the framework of personnel development provide the opportunity to support all employees in an optimal and tailored manner and develop their potential. In 2020, the Digital Day "Bonn: TogetherSmartSustainable" was held for the first time. Using videos, podcasts and articles, the city administration used the day to show how it is facing the challenges of digital change and which paths it is taking to shape digitization. The city's Equality Office plays a crucial role in promoting people's employability, offering, for example, a mentoring program for female junior executives in the city administration, contact points for family caregivers, and support for balancing work and family (such as a contact point for fathers.) Various training and continuing education programs are also available in the city's owned and associated companies, including agile working methods, new ways of working, and the latest methods in project management and teamwork in the public utility company.

6 Supporting cultural affairs

Bonn's Cultural Office finances projects in two funding cycles per year to support creative artists, cultural enterprises, cultural associations, and institutions. Project applications on the topic of "culture and climate" or "culture and sustainability" are given priority. The city also supports cultural practitioners within the framework of neighborhood fund projects through the provision of spaces and resources, support for low-threshold cultural offerings (e.g., theater or film projects and concerts), and exchanges on cultural projects within the working group Education, Counseling, and Encounter. The Office for Social Affairs and Housing also supports the implementation of low-threshold cultural offerings, especially for vulnerable target groups.

7 Promoting an everyday culture of sustainability

The above-mentioned offers of Bonn's educational and cultural institutions promote an



everyday culture of sustainability. The municipal library, the municipal art museum, the municipal museum, the municipal archive, and the municipal theater also contribute various offers and activities. For example, the municipal library has established various sustainability-related events and offerings (such as thematic exhibitions). The city museum has also implemented a programmatic focus on various sustainability topics in museum operations and other activities related to sustainability (e.g., a cargo bike with an exhibition function and reusable exhibition architecture.) The municipal theater conveys an everyday culture of sustainability in thematic productions such as *Rethinking Our World*.

Bonn embraces the guiding principle of sustainability, particularly in culture, both programmatically and in terms of infrastructure. In 2022, the Department of Culture announced supplementary project funding for artistic projects under the title climate art. Bonn-based artists and cultural institutions can submit project applications in visual and performing arts, music, time-based media, and literature that deal with climate, climate change, and sustainability. The project applications should make an innovative artistic contribution and be realized in the city of Bonn. In 2021, the Beethoven Orchestra Bonn was named a United Nations Climate Change Goodwill Ambassador by the UN Climate Change Secretariat. This award enables the orchestra to develop new forms of sustainable cultural work with the Climate Secretariat. The Beethoven Orchestra is a member of the Orchestra of Change association, which views climate and nature protection as part of its cultural mission.

Practical examples

Learning City Bonn

In 2020, Bonn became the third German city to join the UNESCO Global Network of Learning Cities. The network brings together municipalities and education stakeholders from around the world to exchange ideas, focusing on implementing the Global Sustainable Development Goals. The launch event in Bonn took place in 2021 with representatives from politics, business, culture, and civil society. Under the motto Building sustainability in Bonn on books, bytes, and people!, education and lifelong learning are to be used as the key to making even greater use of the potential and commitment of people and institutions that already exist in Bonn, and thus to developing solutions for a sustainable city. Learning City Bonn builds on the Sustainability Strategy and is intended to promote exchange and networking, including across institutions and sectors, focusing on people who have had little contact with the topic of sustainability. The initial focus is on climate-friendly action, economic sustainability, and cultural and social participation. To this end, pilot projects will be undertaken in some neighborhoods. In addition, an annual Sustainability Learning Festival and a Sustainability Citizen Certificate are to be developed and established.

BONNEUM

As part of the innovative program BONNEUM—Research-based learning STEM and digital education, digital education and science topics are taught across all educational levels and types of school. The pedagogical basis is the idea of learning and research workshops. Children and young people explore and question scientific and digital subjects with the support of learning guides and develop solutions to problems. To this end, two central learning and research workshops and seminar rooms were set up in 2020. The citywide BONNEUM network is being established in parallel at these two locations. In 2019 and 2020, 65 teachers from daycare centers, schools, and training institutions were qualified as learning guides. They are establishing learning workshops at eight locations in the city, each for an educational chain (daycare, elementary school, and secondary school). The BONNEUM is supported by the Bonn School Authority and the Bonn School Inspectorate.

Overview of contributions

Aspect	Contribution	Allocation to SDG Targets	Aspect	Contribution	Allocation to SDG Targets
Access to high-quality education for all citizens	<ul style="list-style-type: none"> School development planning Expansion of schools with Open All-day Programs OGSplus program Integration assistance Arriving and Catching Up after Covid-19 program Offers of the city library Offers of the adult education center Offers of the "International Meeting Place" 	4.1 4.1 4.1 4.5 4.5 4.3 4.3 4.3	Supporting the employability of employees in administration, municipal undertakings and associated companies	<ul style="list-style-type: none"> Training opportunities for employees of the city administration / human resources development "Bonn: TogetherSmartSustainable" digital day Offerings of the city's Equality Office Training and continuing education programs in owned and associated companies 	4.4 9.6 8.5 4.4
Education for Sustainable Development in community-based educational institutions	<ul style="list-style-type: none"> Education, Counseling and Encounter Working group Funding project "Together in the neighborhood" Education for Sustainable Development (ESD)Municipalities member / Awards as ESD Municipality Learning City Bonn BONNEUM Offers of the House of nature Offers of the Adult Education Center "Environment, Climate, SustainabilitySchool Meets Administration" network meeting Learning Sustainability Newsletter "Fairtrade School" certifications Offers of the Regional Education Office / offers of the Open Youth Work Facilities 	4.3 4.a 4.7 4.7 4.7 4.7 4.7 12.8 4.7 4.7 4.7	Supporting cultural affairs	<ul style="list-style-type: none"> Project funding by the Cultural Office Further support for cultural workers (e.g. neighborhood fund projects) Exchange on cultural projects within the Working Group Education, Counseling and Encounter Support from the Office for Social Affairs and Housing 	4.a 4.a 4.a 10.2
Cooperation regarding sustainability with other educational institutions	<ul style="list-style-type: none"> "BONNi & BO climate license" project "Paper Angels: People for recycled paper" competition PikoPark Low-threshold nature and environmental projects, e.g. community gardens and trash collection campaigns 	13.3 12.2 12.8 12.8	Promoting an everyday culture of sustainability	<ul style="list-style-type: none"> Municipal library: Events and offers on sustainability aspects City museum: programmatic focus, cargo bike with exhibition function, reusable exhibition architecture Municipal theater: thematic productions with regard to sustainability Project funding by the Department of Culture: "Climate Art" Beethoven Orchestra Bonn: "United Nations Climate Change Goodwill Ambassador" / Member of Orchestra of Change association 	12.8 12.8 12.8 13.3 13.3

Indicators



Basic supply close to home—Primary school 4.1



METERS

2010
n/a2015
n/a2017
523

Population-weighted linear distance to the nearest primary school

The number of elementary schools in a community has a significant impact on the daily lives of young families. The closure of elementary schools can lead to a reduction in the use of public transport services, which in turn favors private motorized transport. For families, this means more organizational effort and longer journeys in everyday life. Consequently, a lack of elementary schools close to home can encourage migration. In 2017, the population-weighted linear distance to the nearest elementary school in Bonn was 523 meters, about 300 meters less than the NRW average (data at the federal level is not available). The sustainability strategies of the federal government and the state of NRW do not formulate targets in this regard.



School dropout rate 4.1



PERCENT

9/10
3.7214/15
2.6517/18
3.69

Proportion of school leavers without lower secondary school leaving certificate among all school leavers

The dropout rate provides information on the proportion of people who complete their compulsory schooling without obtaining at least a lower secondary school leaving certificate. Entry into working life in Germany is significantly more difficult for people without this certificate. Education is a key issue for the future viability of a municipality. In Bonn, the proportion of German school leavers without a lower secondary school leaving certificate among all German school leavers has been at around three to four percent since 2008. The German Sustainability Strategy aims to "continuously reduce the percentage of early school leavers (18- to 24-year-olds without a school leaving qualification)" through Objective 4.1.a.



Places in open-all-day schools 4.1



PERCENT

2011
53.12015
61.32018
65.9

Available places in open-all-day schools per 100 children aged six to under ten years

An adequate supply of childcare for children of different ages is a prerequisite for reconciling family and career, increasing early childhood educational opportunities, positively impacting educational opportunities, and preventing poverty. Over the past 15 years, the supply rate of long-term care places for primary school children in Bonn has increased from approximately 10% to over 70%. The goal is to fulfill the legal entitlement to an open-all-day place, which will initially apply to the first grade from August 2026 and will then be successively extended year by year to all grades in the primary sector.



Development of school places in shared learning 4.5



NUMBER

11/12
60814/15
96218/19
1,348

Number of places for children with special educational needs at regular schools

The inclusion of all members of society is a central issue of social sustainability. One example of this is shared learning availability in mainstream schools for children with special educational needs, which the state government established as the norm in 2013. The demand for places in shared learning has risen continuously. Due to the measures taken by the school authorities and school governors, the demand has been almost completely covered—i.e., every child whose parents have decided to choose a shared learning place has also been allocated a corresponding place. Due to the legal framework—the right to attend a mainstream school on the one hand and the option of choosing a special school on the other—the absolute number of places in shared learning will not increase continuously and may even fall slightly. The aim is to cover parents' needs and safeguard their right to choose the place of support for their children.

Indicators



School dropout rate—foreigners 10.2



	9/10	13/14	17/18
PERCENT	9.32	7.80	7.21

Ratio of the school dropout rate of foreigners to the school dropout rate in the total population

Education plays a central role for young people with a migration background. Basic school education is the key to the world of work and thus a prerequisite for economic integration. Young people with a migration background are often confronted with problems in the education system (e.g., case-specific discrimination or insecure residence conditions.) In Bonn, the proportion of school leavers without a German passport who have not completed secondary school has remained relatively constant since 2008, with moderate fluctuations. A nationwide comparison is not possible due to different calculation bases. However, further efforts are required to achieve the German Sustainability Strategy's Goal 10.1, "Increase the proportion of foreign school leavers with at least a lower secondary school leaving certificate and bring it into line with the proportion of German school leavers by 2030 Sustainability Strategy."



Childcare places for children under three 4.2



	2011	2015	2018
NUMBER	26	37.8	40.9

Available places in daycare centers and nurseries per 100 children aged zero to under three years

A good range of childcare options increases educational opportunities and is essential for family-friendliness and thus a community's future viability. In Bonn, many childcare places for children under the age of three have been created in recent years so that the supply has risen continuously and with ever-increasing numbers of children. Sites for daycare facilities are already considered when developing new development areas. In 2018, the City Council of Bonn adopted the daycare needs plan, which includes the goal of creating childcare places for 58% of children under the age of three.



Inclusive daycare centers 4.a



PERCENT	2010	2015	2019
	9.7	23.8	31.3

Proportion of inclusive daycare centers in all daycare centers



Municipal engagement for children and adolescents 4.1



EURO	2011	2014	2018
	144.8	147.4	147.9

Total ongoing municipal expenditure in euros for youth work per child or adolescent aged six to under 21

Supporting children and young people, considering their interests, needs, and lifeworlds is fundamental to sustainable development. The most important goal of open youth work is to promote young people's life skills, including individual, social, and cultural development and the ability to take responsibility for one's actions, social participation, and democratic involvement. The indicator measures expenditure on youth work in proportion to the group of six- to under-21-year-olds. While the number of six- to under-21-year-olds initially fell slightly in 2015, this target group has grown relatively steadily since then. The indicator cannot be used as a measure of need-based services but can only show the development of the relative level of expenditure. Within the framework of youth welfare planning, a recreational facility requirement plan is submitted at regular intervals for decision-making, in which the needs-based nature of the scope of open youth work is reviewed. A per capita supply quota is not expedient, especially in view of the influence of socio-spatial indicators on the demand situation.

Indicators



Apprenticeship positions 4.4



4 QUALITY EDUCATION

	2012	2016	2018
PERCENT	3.51	6.03	6.13

Percentage of apprenticeship positions, relative to the number of socially insured employees at location of work

Training is the best way to develop the next generation of skilled workers. Germany's dual, standar-dized training system is unique globally and is also seen internationally, including by the OECD, as a key indicator of low youth unemployment in the country. Training is also an essential pre-requisite for economic, social, and ultimately social participation. The substantial increase in the number of apprenticeships in Bonn since 2016 was primarily due to the double Abitur year and the simultaneous concerted advertising campaign by training companies for dual training. Due to demographic developments, it will become more challenging to attract young people for training in the future. The assistance provided by schools and independent organizations to help young people begin their careers must therefore be made more permanent. The regional transition management program "No graduation without connection," coordinated by the Education Office at the Bonn City Education Authority, is working effectively. A key aspect of this is the significant drop in the number of young people leaving school without a diploma. The regional training consensus and the regional transition management are the central bodies where the common goal of enabling each young person to receive training is pursued and realized.



Ratio of training places to applicants 4.4



4 QUALITY EDUCATION

	2011	2014	2018
NUMBER	1,735	1,563	1,501

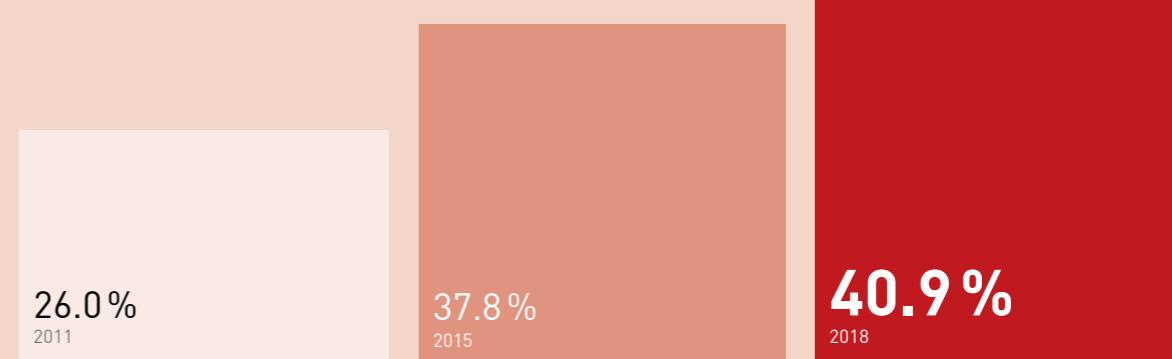
Number of training places available per 1,000 applicants for a training place (from October to September of the following year)

Bonn's economy faces the challenge of training the next generation of skilled workers despite the population decline. The city has one of the highest school education rates nationwide. Although the educational requirements in many apprenticeship occupations have risen continuously due to increasing digitization, it is not possible to attract young people with university access to the dual training system to a sufficient extent. In addition to recruiting high school graduates for training, Bonn must also prepare for increased promotion of labor mobility due to demographic developments. Vocational support and integration assistance for immigrants must therefore be strengthened and qualitatively expanded.

Visualization of selected Indicators

Childcare places for children under three

Available places in daycare centers and nurseries per 100 children aged zero to under three years



School dropout rate

Proportion of school leavers without lower secondary school leaving certificate among all school leavers.

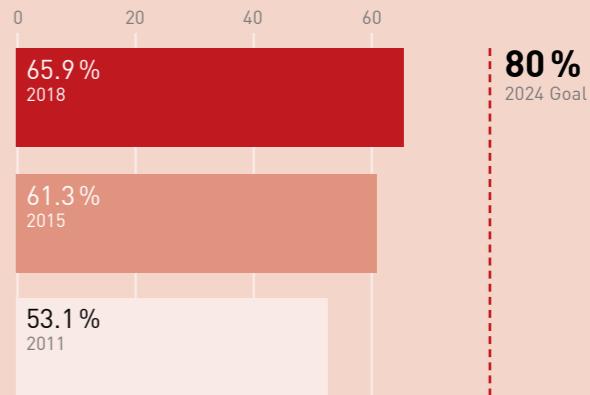
3.72 %
09/10

2.65 %
14/15

3.69 %
17/18

Places in open all-day schools

Available places in open all-day schools per 100 children aged six to under ten years



Municipal engagement for children and adolescents

Total ongoing municipal expenditure in euros for youth work per child or adolescent aged six to under 21

144.8 €
2011

147.4 €
2014

147.9 €
2018

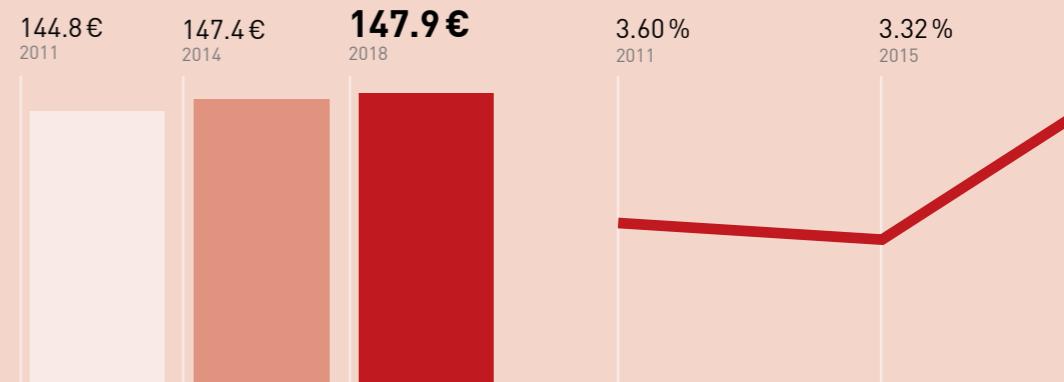
3.60 %
2011

3.32 %
2015

6.13 %
2018

Apprenticeship positions

Percentage of apprenticeship positions, relative to the number of socially insured employees at location of work





General Introduction to the thematic fields

Participation and equality are the cornerstones of sustainable societies. The field of action Social Justice and Resilient Society relates primarily to securing the social, economic, and political participation of all segments of the population as well as integration. This endeavor includes the targeted promotion of disadvantaged population groups, the prevention of poverty, and measures relating to anti-discrimination, violence prevention, and equal opportunities. In addition, the field of action includes demographic development (which describes the current population structure in terms of factors such as size, age structure, birth rate, and immigration) and the shaping of demographic change (i.e., the change in the composition of the population, such as a decreasing number of young people and a simultaneously increasing number of older people.) The promotion of social and civic engagement—for example, by creating suitable structures—is also significant in this field of action.

3.5



Social Justice and Resilient Society

Qualitative Aspects

- Anti-discrimination, violence prevention, and equal opportunities
- Promotion of disadvantaged population groups
- Shaping demographic change and participation of old people
- Inclusive services of general interest and promotion of democracy
- Care and integration of refugees and homeless people
- Prevention of child, youth and old-age poverty
- Support of social commitment
- Supporting the resilience of the municipality through collaborations and networks

Practical Example

- Participation portal "Bonn joins in"

SDG indicators

- SGB XII / SGB II
- Child Poverty / Youth Poverty / Poverty in old age
- Ratio of employment rates for women and men
- Pay gap between women and men
- Proportion of women in the city council
- Citizations
- Criminal offenses

Add-on indicators (City of Bonn)

- Gender equity in municipal administration
- Municipal administration employees with disabilities
- Local-level associations

10 Anti-discrimination, violence prevention, and equal opportunities

Bonn is a member of the institutional network [gender@international Bonn](#), which is committed to gender equality and the thematic expansion of Bonn as a location in this field. The network, initiated by the State Chancellery of North Rhine-Westphalia and the City of Bonn, also includes the United Nations in Bonn, the Society for International Cooperation, UN Women Germany, and Deutsche Welle. To promote equal vocational opportunities, the Bonn/Rhein-Sieg Regional Agency undertook the [Careers with a Future cooperation](#) project in 2021 with representatives for equal opportunities in the labor market at the employment agency and the job centers, as well as with companies and around 50 job center customers. Equal employment opportunities are also addressed in the [Women's Empowerment Principles](#), a joint initiative of UN Women and the UN Global Compact, the strengthening of which in Bonn companies is explicitly called for by the Bonn Sustainability Strategy.

Overall, Bonn's Equal Opportunities Office is committed to various measures to combat discrimination and violence and promote equal opportunities. Examples include Girls' and Boys' Day, Equal Care Day, cooperation projects with the Bonn/Rhein-Sieg Victim Protection Working Group against sexualized violence, the Orange Days Bonn, campaigns on the International Day against Violence against Women, and poster campaigns for support in cases of domestic violence. [The Office for Youth and Family Affairs](#) initiates and promotes measures to prevent violence through a specialist and coordination office. The target group is young people, who are reached via various institutions and agencies (daycare centers, schools, open youth work, youth associations, churches, sports clubs, etc.) Within the framework of [school psychological counseling and educational counseling](#), Bonn also works toward anti-discrimination, violence prevention, equal opportunities, and diversity.

10 Promotion of disadvantaged population groups

In the Sustainability Strategy Bonn framework, the improvement of living conditions for socially disadvantaged people, equal opportunities for participation, and the social-space-oriented balancing of educational inequalities are defined as central goals in the thematic area of [social participation](#). The promotion of inclusion and the implementation of the UN Convention on the Rights of Persons with Disabilities is being driven forward in Bonn as part of the [Plan Bonn-Inclusive](#). In 2021, work began on further developing the plan to include citizen participation on the Internet (including the use of simple language and ensuring accessibility.) The implementation status is reviewed every six months by the Disability Policy Participation plan office and reported to the political bodies. The project advisory board sets special priorities and selects lighthouse projects each year. In this way, impulses for inclusive action are set, and the participation of people with disabilities in Bonn is improved. Lighthouses in recent years include the "Help and advice for immigrants and refugees with impairments, disabilities and health restrictions" brochure, the "Promotion of the Paradance World Cup," and the "Visit Bonn—Sightseeing barrier-free" initiative.

Bonn also participates in a [network to support the inclusive labor market](#) (German: [Bonn-Rhein-Sieg-fairbindet](#)) and the [Bringing inclusion to life](#) network project, which serves to strengthen inclusive leisure activities for children and young people in the Bonn area. Targeted support for disadvantaged population groups is also provided in the [Open Youth Work](#) framework concept and in the context of [educational counseling](#).

10 Shaping demographic change and participation of old people

Social isolation and loneliness among the elderly is a central social problem in Germany that will become even more acute due to demographic change. In this context, the

House of the Bonner elderly assistance, the municipal specialist agency for old-age and care, contributes to easing the living situation of older people in Bonn by providing comprehensive, independent advice and support. In addition, two municipal and six municipally funded SpOTS (Support points open doors for seniors) offer low-threshold social counseling for older people and their relatives and thus provide helpful contact points on a par with the various offerings of the numerous decentralized neighborhood and meeting facilities. To support outreach work for the elderly in Bonn, Malteser Aid Agency e. V., in cooperation with the city of Bonn, is undertaking the project Together for each other. The project, funded by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth, aims to inform older people about the extensive social services available in Bonn to prevent loneliness in old age. Through extensive networking, the information of all providers is bundled neutrally across all institutions to make existing offers better known and initiate new offers.

10 Inclusive services of general interest and promotion of democracy

Citizen participation is an integral part of a functioning democracy. In accordance with the Bonn Guidelines for Citizen Participation, the participation of citizens in political decisions and planning processes is therefore promoted and supported. For this purpose, there is a citizens' committee as a body of the council and an advisory board for citizen participation. The online dialog portal Bonn joins in enables direct participation in current urban policy issues (see practical example.) To specifically promote the expansion of child and youth participation, the administration has been requested by a council resolution to develop a corresponding concept. To this end, the digital bar camp "Youth joins in" was held in 2021 with young people from Bonn, where ideas were collected on the topic of "What should youth participation look like in Bonn?" The Bonn/Rhine-Sieg District School Psychological Counseling Centers introduced the System Consulting for Extremism Preven-

tion and Democracy Promotion (SystEx) service, which provides schools with development support for more participation (e.g., on the topic of Living Democracy at School.) In 2021, the city also participated in the U18 federal election in North Rhine-Westphalia, which was coordinated by the Landesjugendring and gave children and young people a symbolic right to vote.

The Bonn Sustainability Strategy also stipulates the evaluation of participation procedures, the promotion of the participation of migrants, and the participatory updating of the Disability Policy Participation Plan. To make the city administration's services accessible to all citizens regardless of age, impairments, or migration background, various measures are being implemented, such as online forms that can be filled out without barriers or the offer of multilingualism.

1 Care and integration of refugees and homeless people

The diversity of languages, cultures, and religions is central to Bonn's identity—approximately 30 % of the city's inhabitants have an immigrant background. Bonn's Sustainability Strategy sets the goal of improving the living situations and participation of people with an immigrant background. Bonn's 2018 Integration Concept forms the overarching framework for this. Online, the Integration portal of the city of Bonn offers an overview of integration work as well as counseling and assistance services. The Bonn Municipal Integration Center, which is organizationally assigned to the Office for Integration and Diversity, supports training and counseling for pedagogical professionals on topics such as universal language education, multilingualism, intercultural school development, and language and parent education programs. As a political body, the Integration Council represents the interests of Bonn's migrants—for example, with regard to anti-discrimination work or the promotion of multilingualism.

To improve the housing situation of refugees and homeless people living in Bonn, the City Council adopted an action plan for capacity

planning and securing in 2021. Additional accommodation capacities are to be created and, for example, vacant hotels in the city area are to be made available to house former refugees. In addition, specific multilingual and culturally sensitive counseling services are available for refugees at the city's educational counseling center, as well as bridge projects for young refugees. To address the issue of homelessness in all its complexity, Bonn participates in the "Finally a Home" NRW state initiative against homelessness instigated by the Ministry of Labor, Health, and Social Affairs. The aim is to prevent people from losing their homes, create living space for people without homes, and improve the living conditions of homeless people and those at risk of losing their homes. The administration is also developing a specific concept for future forms of housing in cooperation with independent providers of assistance to the homeless for older homeless people and those requiring intensive care. The educational and family counseling center also provides counseling for refugee families, and the school psychology department has a diversity team.

1 Prevention of child, youth and old-age poverty

To give all children and young people equal opportunities to thrive, receive education, and participate in society regardless of their parents' social background and income Bonn is participating in the NRW state program "strong for children" (German: kinderstark.) To this end, a coordination office has been created to promote the establishment of respective structures and the development of municipal prevention chains. Early, preventive support is intended to improve children and young people's well-being and life prospects and promote equal opportunities.

The free school breakfast pilot project, running at Bonn schools since 2019, also aims to improve participation opportunities and combat child poverty. Eleven elementary schools and three special schools are participating in the project, which can provide around 1,600 children with breakfast. The pilot project has been scientifically evaluated, and the political committees are

discussing whether to continue and possibly expand the project. The OGSplus Program (open-all-day schools) for the integration of children with special needs in the context of open-all-day schools also contributes to poverty prevention. To provide financial support for young people, additional funding has been established to reduce participation fees for certain offers (such as vacation camps and educational events.)

Bonn also offers various programs to support senior citizens. For example, lunch tables are offered in various meeting facilities. The city also supports the Project Veterinarian Mobile of the European Animal and Nature Conservation Association, which offers free treatment of pets for senior citizens in need.

17 Support of social commitment

Civic engagement is an indispensable task for society as a whole. To promote this commitment, the Bonn Volunteer Agency offers a platform offering interested volunteers a variety of commitment opportunities, where organizations have the opportunity to present their needs. The variety of topics is extensive, from care/accompaniment and languages to gardening and ecology/nature conservation. The most suitable placement possible is accompanied by comprehensive personal counseling. The agency cooperates with over 230 associations and organizations. With the Commitment Gallery furnished by the Volunteer Agency, social commitment is to be given "a face"—every year, new photos are added to the gallery, illustrating the diversity of opportunities for involvement.

Bonn also participates in the Commitment Strategy adopted by the state government of North Rhine-Westphalia in 2021, which specifically promotes volunteer projects. Volunteers can also use the Honorary card NRW, which was introduced by the state government to honor social commitment and offers reduced rates for public, nonprofit, and private institutions. The NRW certificate of commitment was developed to enable active people to use their voluntary work in their professional

careers. The certificate documents professional and social competencies and certifies the skills acquired through volunteering.

17 Supporting the resilience of the municipality through collaborations and networks

Bonn is engaged in various collaborations and networks to promote municipal resilience and regeneration capacity. At the city's initiative, the Bonn Network International Disaster Response and Risk Management was founded in 2017 to support the exchange of national and international stakeholders from politics, civil society, academia, and the private sector. From 2016 to 2019, Bonn also participated in the joint project ZURES ("Future-Oriented Vulnerability and Risk Analyses as a Tool to Promote Resilience of Cities and Urban Infrastructures") funded by the German Federal Ministry of Education

and Research. Within the project's framework, planning reference maps on the topic of urban climate and a climate analysis were developed for Bonn. In terms of content, the project ties in with the climate adaptation component of Bonn's integrated climate protection concept.

In the social sector, the networking of welfare associations within the framework of working groups and committees and the professional support and financial assistance of municipally financed agencies for the provision of voluntary or statutory services within the framework of services of general interest also contribute to the promotion of resilience through cooperation. Examples include the Regional Crisis Group and participation in the NRW Crisis Network for prevention, intervention, and aftercare in school crises.



Practical example

Participation portal Bonn joins in

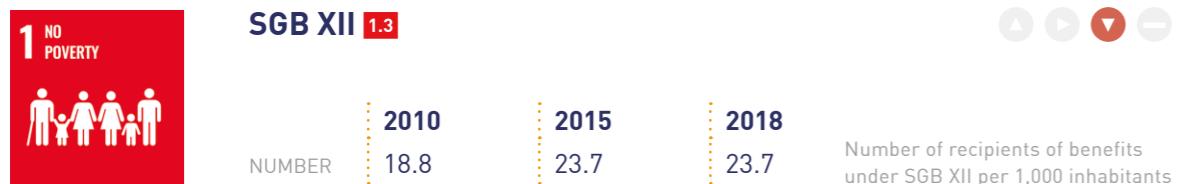
The participation portal Bonn joins in (German: Bonn macht mit) bundles all information on participation offerings of the city. In addition, citizens can participate directly in current urban policy issues. The pages of the web portal thus contain all the information on opportunities to influence municipal decisions and tasks. In addition to specific online participation processes, such as the citizens' dialog on the budget or current urban land use planning projects, service-oriented offerings are also made easily accessible. Another core element is the project list, which citizens can use to learn about the city's plans and projects at an early stage. Hence, people in Bonn can actively participate in urban projects, even without belonging to a party or a local political body. The dialog platform also provides various modules, such as discussion forums or surveys, so that citizens can exchange and discuss their suggestions and opinions. Bonn joins in makes it possible to react directly to current topics or put topics on the agenda, promoting a public dialog between Bonn's citizens and the city administration.

Overview of contributions

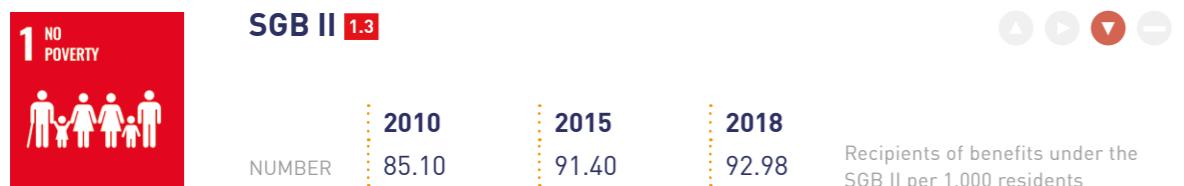
Aspect	Contribution	Allocation to SDG Targets
Anti-discrimination, violence prevention, and equal opportunities	<ul style="list-style-type: none"> “Gender@international Bonn” network “Careers with a Future” cooperation project Women’s Empowerment Principles Measures of the Equal Opportunities Office Measures of the Office for Youth and Family Affairs Promotion of anti-discrimination, violence prevention, equal opportunities and diversity in the context of school psychological counseling and educational counseling 	5.1 5.5 5.c 10.3 5.2 10.3
Promotion of disadvantaged population groups	<ul style="list-style-type: none"> “Plan Bonn-Inclusive” annual focal points “Bonn-Rhein-Sieg-fairbindet” network “Bringing inclusion to life” network project Support of disadvantaged population groups in the framework concept “Open Youth Work” as well as in the context of educational counseling 	10.2 10.2 10.2 10.2
Shaping demographic change and participation of old people	<ul style="list-style-type: none"> House of the Bonner elderly assistance / open doors for seniors / neighborhood and meeting facilities with their various offers Support points open doors for seniors (“SpOTS”) “Together for each other” project Bonn Guidelines for Citizen Participation “Bonn joins in” online dialog portal 	10.2 10.2 17.17 16.7 16.7
Inclusive services of general interest and promotion of democracy	<ul style="list-style-type: none"> “Youth joins in” digital barcamp School psychology consulting: “System Consulting for Extremism Prevention and Democracy Promotion” U18 federal election Provision of city administration services for all citizensbarrier-free access, multilingualism 	16.7 16.1 16.7 10.2

Aspect	Contribution	Allocation to SDG Targets
Care and integration of refugees and homeless people	<ul style="list-style-type: none"> Integration Concept Integration portal of the city of Bonn Bonn Municipal Integration Center of the Office for Integration and Diversity Integration Council Capacity planning and securing for housing refugees and homeless people “Finally a Home” Concept 	10.7 10.7 10.7 10.7 11.1 11.1
Prevention of child, youth and old-age poverty	<ul style="list-style-type: none"> “Strong for children” program “Free school breakfast” project OGSplus Program (open-all-day schools) Support for senior citizens (lunch tables, veterinary mobile) 	1.2 1.2 1.2 1.2
Support of social commitment	<ul style="list-style-type: none"> Bonn Volunteer Agency Commitment Gallery Commitment Strategy Honorary card NRW NRW certificate of commitment 	17.17 17.17 17.17 17.17 17.17
Supporting the resilience of the municipality through collaborations and networks	<ul style="list-style-type: none"> Bonn Network International Disaster Response and Risk Management Joint project “ZURES” Networking of welfare associations within the framework of working groups and committees Professional support and financial assistance of municipally financed agencies 	11.b 13.1 10.3 10.3

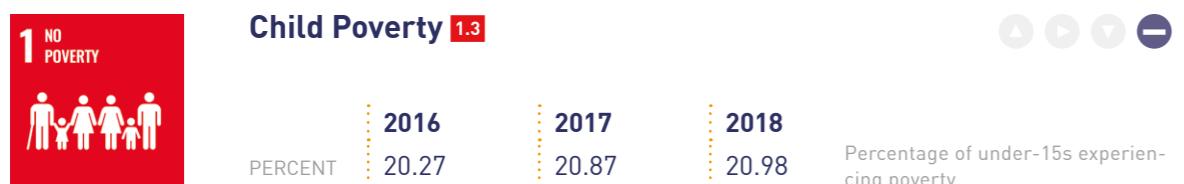
Indicators



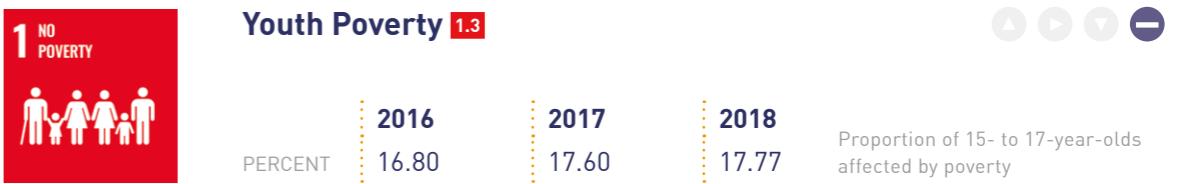
Rising costs for social welfare benefits can endanger social stability and limit a municipality's financial room for maneuver. In Bonn, the absolute number of recipients of benefits under the SGB XII tends to rise over time, due to demographic change and an increase in "interrupted employment biographies". This social development can hardly be influenced at the municipal level. People rarely succeed in returning to gainful employment. In this situation, those seeking help are supported and encouraged by individual counseling and other offers from social services. A comparison with the nationwide trend is not possible because the basis of calculation varies. The sustainability strategies of the federal government and the state of NRW make no explicit reference to this indicator in their objectives.



The number of recipients of benefits under the Second Book of the German Social Code (Sozialgesetzbuch II) indicates the proportion of the population who are entitled to basic benefits for jobseekers (Grundsicherung für Arbeitssuchende, SGB II) because they cannot sufficiently secure their livelihood through employment or other income or assets. In Bonn, this proportion has risen over time from 85.1 to around 93.0 per 1,000 inhabitants. In particular, the demand for low-skilled labor at the helper level exceeds the supply many times over. The willingness of benefit recipients to commute to a job outside Bonn remains low. The job center uses all means to qualify beneficiaries or find them jobs. A comparison with the national trend is not possible because the basis of calculation varies. As mentioned, the sustainability strategies of the federal government and the state of NRW make no explicit reference to this indicator in their objectives.



Child poverty is often caused by the unemployment and poverty of parents. Possible consequences can include underprovision in essential areas of life such as housing or nutrition and unequal educational and participation opportunities. In Bonn, data are available up to 2018, and the share of under-15s affected by poverty has increased slightly over time. The shares are also comparable with those of other large cities in NRW with similar numbers of inhabitants. The national comparison shows a share of 15.1% (2018), which is, however, significantly lower than the figure for Bonn. The sustainability strategies of the federal government and the state of NRW do not include any age-specific targets on poverty. However, in Goal 1.1.a., the German Sustainability Strategy pursues the general aim of keeping the "proportion of people who are materially deprived (lack of certain consumer goods, involuntary abstention from certain consumption for financial reasons) significantly below the EU28 value by 2030." (28 states of the European Union until January 31, 2020).



Youth poverty can be a direct result of child poverty. In addition to insufficient resources for basic needs, young people are in transition to independence. However, if they have participated in education at a below-average level because of poverty, this enormously limits their options with regard to, for example, career choice. In Bonn, data is available up to 2018; the proportion of 15- to 17-year-olds affected by poverty has increased slightly over time and is consistently above the national average (2018: 11.3 Percent). However, the shares of the city of Bonn are comparable to those of other large cities in NRW with similar numbers of inhabitants. As mentioned above, the sustainability strategies of the federal government and the state of NRW do not include any age-specific targets for poverty.



Old-age poverty describes the problem of having a pension entitlement that is below the subsistence level, irrespective of the length of employment at the time of retirement. In Bonn, the proportion of people over 65 affected by poverty has been rising continuously for many years. This problem is expected to worsen in the coming years due to demographic change, pension reforms, and developments in the labor market. The opportunities for older people to actively change this situation are often limited, which can also lead to isolation. This development can also be seen in the German average, but here the share in 2018 was only 3.1% and thus significantly lower than the share of the city of Bonn (2018: 6.32%). However, other large cities in NRW with similar numbers of inhabitants show similar developments to those in the city of Bonn. The sustainability strategies of the federal government and the state of North Rhine-Westphalia do not include any age-specific targets for poverty.



The employment rates of women and men subject to social insurance contributions provide crucial information on possible forms of gender-specific discrimination in the labor market, although civil servants, the self-employed, and marginal part-time workers are not part of the calculation basis. Likewise, no distinction is made as to whether employees are in full-time or part-time employment; hence, the volume of working hours does not influence the indicator. The female employment rate in Bonn in 2019 was 89.3 % of the male employment rate and has fallen slightly but steadily over time (if more women than men are employed subject to social security contributions, the value is above 100; if the value is below 100, more men than women are integrated into the labor market.) Bonn thus also mirrors the national German average (89.3 % in 2019.) The employment rates of women and men are not explicitly addressed in the sustainability strategies of the federal government and the state of NRW.

Indicators



There are significant differences in income between female and male employees. This disparity is due, among other things, to different career choices, hierarchical levels, and professional experience. Temporary leave for family reasons has a negative impact on income. Despite discrimination being illegal, women are paid less than men, which also affects pension levels in the long term. The indicator reflects the (gross) median income of full-time employed women and puts it in relation to the (gross) median income of full-time employed men. In Bonn, data are available up to 2017; over time, the median income of female employees has increased slightly relative to the median income of male employees; no data are available at the federal level. The NRW average was 84.8% in 2017, slightly higher than the figure for Bonn. Overall, these values confirm that women are paid less than men. Consequently, further efforts are needed to achieve the goal of the German Sustainability Strategy 5.1.a., "Reduce the gap to 10% by 2020, maintain by 2030" in the long term.



When looking at the gender distribution in the population, the proportion of women and men in local politics should be roughly equal. In Bonn City Council, the proportion of women is just under 32 percent. The nomination of candidates is the responsibility of the political parties, so the administration can neither influence nor judge whether more or fewer women will run for political office in the future or assume the posts of outgoing officeholders. Overall, the figures in Bonn are above the national average of 26.4% (data is only available for 2017.) The sustainability strategies of the federal government and the state of NRW do not explicitly address the proportion of women in councils. In principle, however, more intensive efforts are needed to achieve gender equality.



A balanced ratio of men and women in politics, business, and administration enables equal decision-making and realistically reflects the gender distribution in the population. Breaking through outdated structures is an essential process that the City of Bonn is continuously addressing. Significant staff turnover in recent years, which will continue due to demographic conditions, contributes to a non-linear development overall, but the trend is positive over time. Bonn's goal is to offer women in particular the opportunity to apply (internally) for higher-level and management positions. To this end, it is necessary to support women in their careers and develop them toward this goal. Currently, further positive development can be assumed, as more women than ever before are represented in the upper-income groups. The equality plan must continue to be implemented consistently to consolidate the stabilization.



The Bonn city administration leads the way in inclusion and the implementation of supportive measures for severely disabled employees. The everyday procedures and dealings with severely disabled employees should make it easier for them to have a regular working life. With an annual average employment rate of 10.6 % for severely disabled employees, the Bonn city administration is above the specified minimum of 5%. The proportion has risen constantly over time. This increase is due partly to the disability-friendly selection of applicants and the willingness to have one's severe disability recognized. With the Disability Policy Participation Plan, the council adopted a recommendation for action in 2011 to "conclude an internal target agreement for the Federal City of Bonn and its own companies regarding the adjustment of the employment rate to the average of the European Union (11%)" as well as "increasing the proportion of people with disabilities in training and recruitment as well as the implementation of preventive measures." This recommendation for action is continuously implemented, as shown by the indicator.



The number of naturalizations per year is considered a crucial indicator for making statements about integration, because naturalization generally contributes to a stronger identification with the society of the country of immigration. In Bonn, the number of naturalizations continuously decreased between 2012 and 2018 but increased to 2.2 % in 2019. Nevertheless, this trend is consistently higher than the average German national naturalization rate, which was only 1.2% in 2019. The sustainability strategies of the federal government and the state of NRW make no explicit reference to naturalizations in their objectives.



This indicator relates the number of crimes reported to the police within the municipality relative to the number of inhabitants and thus provides information on the public and general security situation. In Bonn, the figures have fallen continuously since 2015 and stood at 84.8 recorded crimes per 1,000 inhabitants in 2018*. The development of the overall crime rate in the city can therefore be assessed as positive overall. The crimes recorded throughout Germany are lower overall than those of Bonn and show a decline in recorded crimes over time to around 65 crimes per 1,000 inhabitants in 2019*. The overall downward trend contributes to the achievement of the German Sustainability Strategy's Goal 16.1, "Reduce the number of recorded crimes per 100,000 inhabitants to below 6,500 by 2030."

Indicators



Local-level associations 17.17

NUMBER

2011
10

2015
13.6

2018
13.2

Number of associations per 1,000 inhabitants

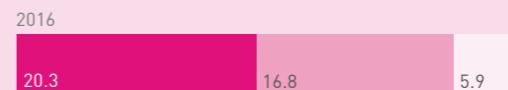
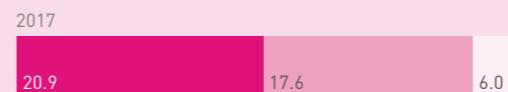


Civic or volunteer engagement as a voluntary, self-determined, unpaid, and goal-oriented commitment ensures improvements in the personal living environment and the community. Committed citizens provide impetus and respond individually to social challenges. The number of associations per 1,000 inhabitants in Bonn has settled at an almost constant high level. According to the latest nationwide volunteer survey, more and more people are getting involved in volunteer work (43.6% of the resident population over the age of 14; the involvement rate has thus risen by a total of almost 10% over the last 15 years.) This involvement does not always occur in an association, but the proportion of people who are members of an association or nonprofit organization has also increased. It must be borne in mind that civic engagement is more diverse than the indicator can represent. A negative trend in the indicator does not necessarily mean that civic engagement is declining, as various new forms of engagement are developing (for example, online engagement.) It is fundamentally important to create suitable framework conditions for people who want to get involved.

Visualization of selected Indicators

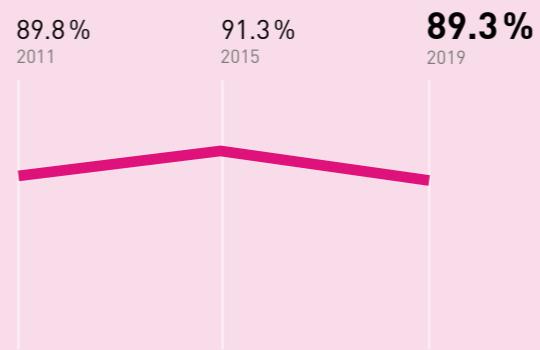
Poverty

Share of under 15-year-olds (child poverty), of 15-18-year-olds (youth poverty) and of over 65-year-olds (elderly poverty) affected by poverty



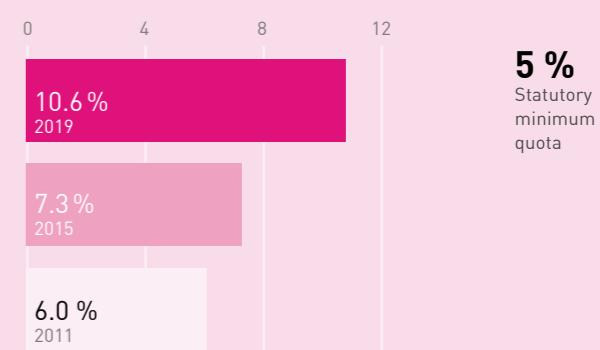
Ratio of employment rates of women to men

Quote of female employment rate to male employment rate



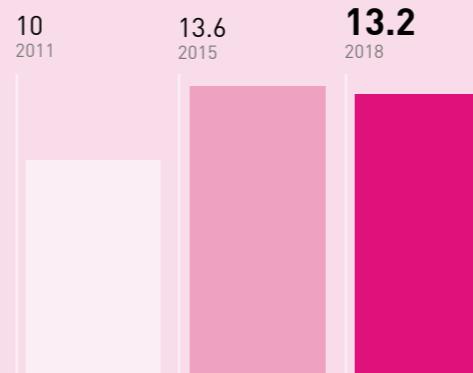
Municipal administration employees with disabilities

Percentage of severely disabled employees, relative to the total number of municipal administration employees



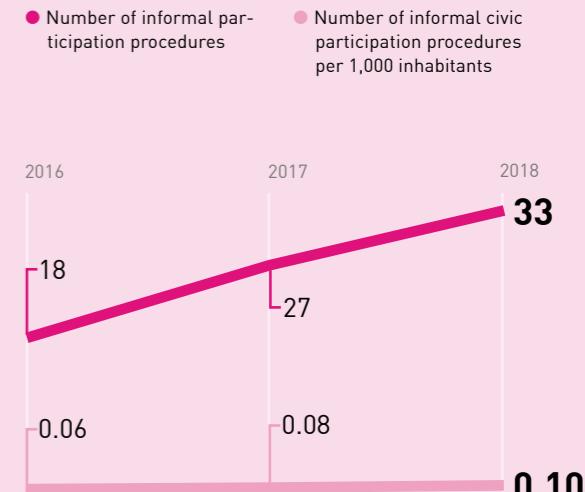
Local-level associations

Number of associations per 1,000 inhabitants



Informal civic participation (see p. 23)

Number of informal participation procedures





3.6



Housing & Sustainable Neighborhoods

General Introduction to the Field of Action

Neighborhoods, as places of living and social interaction, form people's everyday living and action space and are therefore of particular importance for sustainable development. Sustainable neighborhoods are characterized by the fact that they offer a high quality of life, promote participation in social coexistence, and consider environmental protection and resource conservation. Against the backdrop of population growth and rising rents, the provision of adequate housing in particular poses a significant challenge. Increasing segregation in German cities, for example, is manifesting itself in the spatial segregation of individual population groups across urban areas. In terms of sustainable development that promotes participation and integration, creating a heterogeneous population composition is an essential task of neighborhood development. Furthermore, the establishment of sufficient infrastructural facilities plays a vital role. In addition to access to local suppliers and green spaces, this also includes social and cultural infrastructures, which positively affect participation in neighborhood life and thus increase the individual quality of life.

Qualitative Aspects

- Affordable housing
- Sustainable neighborhood development
- Participation in neighborhood development
- Noise protection
- Places for recreation and social contacts
- Avoidance of social segregation

Practical Example

- Neighborhood management

SDG indicators

- Rental prices
- Living space
- Local recreation area
- Basic services close to homesupermarkets

Add-on indicators (City of Bonn)

- Subsidized housing

11 Affordable housing

Bonn is a growing and prospering city with a population that has been rising continuously for years. Accordingly, the provision of sufficient affordable housing represents a significant challenge. The high number of households registered for placement in a publicly subsidized apartment and the comparatively low number of available apartments illustrate the insufficient supply of affordable housing in Bonn. Against this backdrop, the [Citywide Housing Concept](#) pursues the goal of a continuous provision of housing land to accommodate 1,000 housing units. In addition, for the period 2018 up to 2022, there is a target agreement to have at least 200 publicly subsidised flats built in Bonn every year. The [Bonn building land model](#) aims to ensure that more affordable housing is created citywide and that developers share in the follow-up costs of social infrastructure. At the heart of this is the quota for subsidized housing decided by the Council, which obliges every investor to build at least 40 % subsidized housing (projects with eight or more residential units or with at least 850m² gross floor area of housing) or 50 % (for projects with 20 or more residential units or at least 2100m² gross floor area of housing) subsidized housing when new planning law is created. In 2019, the city administration also established the [Subsidized Housing in Bonn](#) project group, which prepared a report on the prospects for publicly subsidized housing.

Further resolutions have been passed in recent years on the [new regulation of hereditary building rights](#) (municipal land is to be granted only within the framework of hereditary building rights, and at the same time the ground rent for municipal land is to be reduced to 1 %) and on [lower purchase prices for municipal land for publicly subsidized housing construction](#). To create more affordable housing for people with a housing entitlement certificate, NRW.BANK launched a development program in 2021 under which owners of rental apartments commit to a right of occupancy and receive a subsidy in return. Bonn is one of four cities participating in this [model program](#).

11 Sustainable neighborhood development

Bonn's Sustainability Strategy stipulates reducing the proportion of settlement and transport land. In the existing stock, efficient use of existing housing taking into account demographic trends and change of use of areas that can be used as housing should be made. To this end, a demographically oriented potential analysis of the housing stock is to be carried out in ten neighborhoods in the city of Bonn. In the selected neighborhoods, the relationships between their respective demographic conditions and their housing stock will be determined in terms of building age, house and apartment types, amenities and open space. A transferable methodology is currently being developed for this purpose.

Systematic neighborhood management has been established in Bonn for several years (see practical example.) Concerning [energy-related renovations](#), reference can be made to the Integrated Urban Development Concept (ISEK) Beuel-Ost (2020), which was developed in cooperation with the Bonn Energy Agency and includes measures to improve energy efficiency throughout the neighborhood. The Rhein-Dampfer daycare center, which opened in 2019, is an example of the consideration of sustainability criteria in new construction. The center was built according to the "Bonn Model" in compliance with the "KfW Efficiency House 55" standard and a building block module.

16 Participation in neighborhood development

Various [neighborhood-related participation processes](#) are undertaken in Bonn, including interviews, surveys, neighborhood inspections, and neighborhood conferences. In addition, there are [contact points in the neighborhoods](#) for contacting the city administration. There are various approaches for involving citizens and recording their concerns and ideas, including a discussion forum, neighborhood and property owners' forums, a youth forum, a newsletter, and district conferences at which a balance sheet is produced and an outlook on future projects and measures is presented. In addition,

the welfare associations provide expert support with a view to exchanging information on trends in the neighborhoods (multiplier work).

3 Noise protection

High levels of noise pollution pose a significant risk to human health. Against this background, the EU Environmental Noise Directive aims to reduce environmental noise. Ambient noise is defined as annoying or harmful outdoor noise caused by road, rail, and air traffic and commercial or industrial facilities. The European Directive has been transposed into German law accordingly, obliging local authorities to draw up noise maps and noise action plans based on them. The aim is to combat the effects of noise in polluted areas by implementing concrete measures and protecting quiet areas from an increase in noise. The regular update of Bonn's Noise Maps took place in 2017. In 2020, the city council unanimously approved the Noise Action Plan (3rd round), and in the coming years, the city will update the noise action plan based on the noise mapping of 2022. Bonn has recently implemented many noise abatement measures, including the gradual reduction of the maximum permitted speed on main roads to 30 km/h and the identification of quiet areas.



11 Places for recreation and social contacts

The provision of places for local recreation and social contact in the urban area is essential for promoting the health of citizens. The Bonn Sustainability Strategy stipulates that targeted support will be given initiatives that make sustainability visible and tangible for people in their immediate environment (e.g., through community gardens or "repair cafés.") Since 2019, funds from the Bonn-Inclusive plan have been used to drive forward the conversion of the Reuterpark into an inclusive sports, play, and leisure square for all generations (model project for NRW from the Social Integration in the Neighborhood investment package of the federal government and the state of NRW.) As a result, the square will serve as a place of encounter, movement, and cohesion, as a social home and a reference for the inclusive city of the future. Another example is the redesign and upgrading of the Stiftsplatz as part of the Inner-City 2.0 Master Plan. Following a 2021 council resolution, there will be more greenery and fewer parking spaces here in the future with the removal of roads and paving, the square will make a greater contribution to climate adaptation. The offerings of the House of Nature environmental education facility, which is easily

accessible by public transport, also provide diverse opportunities for local recreation and social contact (such as the biodiversity trail.) In the context of meeting/neighborhood facilities, services are also provided close to home and at minimal or zero cost, especially for vulnerable target groups (older people and people with limited economic or health resources.) The Bonn Sustainability Strategy also stipulates that extracurricular educational institutions, such as sports clubs, should be promoted as important as social hubs.

10 Avoidance of social segregation

Bonn implements various measures to prevent social segregation in the city, especially within the framework of systematic neighborhood management. The Social City Neu-Tannenbusch program can be cited as an example. In 2019, the city council decided that the Integrated Action Concept for the program would be updated. The focus was on education and employment, future prospects, and neighborhood management to promote the city's new image and encourage an active neighborhood. In concrete terms, the ideas to be implemented include expansion of education networks; professional integration of the older, long-term unemployed; projects for social cohesion; boosting self-confidence in children and young people; and greater involvement of students in neighborhood life. Further structural improvements and upgrading of the residential environment are also planned. The city has implemented numerous construction measures in previous years, particularly in central locations. For example, all public playgrounds were renovated, and a play and sports area was redesigned as a lighthouse project. The program is implemented in cooperation with other development concepts (e.g., the Pennenfeld and Auerberg neighborhood projects.)

Another example of the prevention of social segregation is the establishment of the Coordination Office "strong for children" (German: kinderstark) (see also aspect 5.6), which aims to advance the development of municipal prevention chains. In particular, the networking of the relevant actors and their interaction in the municipalities and social areas is to be promoted.

Practical example

Neighborhood management

Various forms of neighborhood development have emerged over time in Bonn, including district offices, neighborhood centers, meeting facilities, neighborhood development projects, and neighborhood initiatives by individual agencies. As a result of the Housing Supply Concept adopted in 2009, the city was commissioned to establish neighborhood management in eight of its 62 districts. Neighborhood management helps form and strengthen social networks and promote social interaction to create a vibrant neighborhood. Currently, five neighborhood projects are accompanied and financially supported by the city (Pennenfeld, Lannesdorf/Obermehlem, Mackeviertel, Auerberg, and Neu-Tannenbusch.) As the first point of contact in the area, the neighborhood management teams encourage residents to strengthen social cohesion and involve them in the further development of their district. They support residents' local activities, collect ideas, network people and initiatives, and organize the process of residents' personal responsibility. The neighborhood fund administered by the neighborhood management is an essential instrument for promoting voluntary commitment and social interaction. The fund provides financial support for small projects and low-threshold activities launched by residents or associations that bring about improvements in the neighborhood.

Overview of contributions

Aspect	Contribution	Allocation to SDG Targets
Affordable housing	<ul style="list-style-type: none"> • Citywide Housing Concept • Bonn building land model • "Subsidized Housing in Bonn" project group • Resolutions regarding new regulation of hereditary building rights / lower purchase prices for municipal land for publicly subsidized housing construction • Participating in NRW.BANK model program 	11.1
Sustainable neighborhood development	<ul style="list-style-type: none"> • Demographic potential analysis of the housing stock • Systematic neighborhood management / energy-related renovations • Consideration of sustainability criteria in new construction ("Bonn Model") 	11.1 7.3 11.6
Participation in neighborhood development	<ul style="list-style-type: none"> • Neighborhood-related participation processes • Contact points in the neighborhoods for contacting the city administration • Professional support: welfare associations 	16.7 16.7 17.17
Noise protection	<ul style="list-style-type: none"> • Noise Maps • Noise Action Plan (3rd round) • Noise abatement measures, such as "Tempo 30 on main roads". 	3.4 3.4 3.4
Places for recreation and social contacts	<ul style="list-style-type: none"> • Reconstruction of the "Reuterpark" / Redesign and upgrading of the "Stiftsplatz" • Offers of the environmental education institution House of Nature • Offers within the framework of meeting / neighborhood facilities 	11.0 12.8 11.7
Avoidance of social segregation	<ul style="list-style-type: none"> • Offers within the framework of systematic neighborhood management: e.g. Socially Integrative City program • "Strong for children" coordination office 	10.3

Indicators



Rental prices 11.1

Euro	2010	2015	2019
	8.00	9.00	10.00

Average net rent per square meter

The topic of housing plays a central role in everyone's life and strongly impacts the quality of life. This fact makes the developments in many German cities worrying: bottlenecks in the supply of affordable housing due to privatization and capitalization of the housing market on the one hand, and migration trends and the accompanying decline in housing quality on the other. In Bonn, the average net cold rent per square meter has risen continuously over the period under review and stood at 10 euros / m² in 2019. A superordinate comparison is not possible due to a lack of statistical averages for the federal government and the state of NRW. The Sustainability Strategy of the federal government formulates Goal 11.3 in this regard ("Reduce the proportion of overburdened people in the population to 13 % by 2030").



Living space 11.1

M ²	2010	2015	2019
	38.8	41.7	41.5

Available living space per person

The living space per person has generally increased in Germany over the years, partly due to households containing fewer people on average. This trend is reflected in Bonn, although it has recently seen a slight decline. In 2019, the available living space per person was 41.5 m², which is 3.6 m² above the 2019 German average of 37.9 m² per person. The German Sustainability Strategy does not have any explicit target references to residential space, but in Objective 11.1.b it addresses the "reduction of the loss of open space in relation to the number of inhabitants" and thus the valuable asset of open space, which is also of great importance in connection with residential construction.



Subsidized housing 11.1

Percent	2011	2015	2018
	31.7	21.8	19.5

Supply ratio: the number of occupancies of vacant subsidized apartments as a percentage of the total number of households with a housing entitlement certificate

The indicator reflects the supply level for groups of people who cannot provide for themselves on the housing market or can only do so with great difficulty. The current low level is the result of contrary developments in the housing market and clearly shows this. While the total number of residents is steadily increasing, the number of households entitled to housing is also rising due to demographic change and declining incomes in old age. However, the number of subsidized apartments is constantly decreasing due to (unavoidable) early repayments of subsidies and a lack of new construction. In its resolution on the Bonn Building Land Model, the Bonn City Council adopted a quota for subsidized housing construction that obligates every investor to build at least 40% subsidized housing (projects with eight or more residential units or at least 850 m² gross floor area of housing) or 50 % (for projects with 20 or more residential units or at least 2100 m² gross floor area of housing) when new planning law is created. In addition, an internal administrative project group was set up with the aim of creating more subsidized housing in Bonn. However, positive changes in the indicator will only become apparent—if at all—in a few years' time, as developments in the housing markets must always be viewed in the long term.

Indicators



Local recreation area 11.7

	2010	2015	2018
M ² INSIDE	23.3	24.9	24.9
M ² OUTSIDE	157.6	157.5	155.3



Square meters of recreational space inside and outside the settlement area per inhabitant

Local recreation areas in a municipality include undeveloped areas (e.g., green spaces, parks, allotment gardens, sports fields, and campsites) predominantly used for sports and recreation and home to animals or plants, thus having a high social and ecological value. In Bonn, the proportion of local recreation areas per inhabitant within the settlement area has increased slightly since 2010, while the recreation area outside the settlement area has decreased. However, the amount of recreation areas outside the settlement area has developed positively, and the negative development occurred due to the increasing number of inhabitants. Comparison with the development of recreational areas in Germany is not possible due to different calculation methods. The sustainability strategies of the federal government and the state of NRW do not define any goals for the development of local recreation areas. However, the Bonn Sustainability Strategy states, "In 2030, the provision of public green spaces (2017: 21 m² per inhabitant) and extended open spaces (2017: 212 m² per inhabitant*in) is at least at the current level for all people living in Bonn."



Basic services close to home—supermarkets 11.1

	2010	2017	2019
METERS	n/a	458.0	n/a



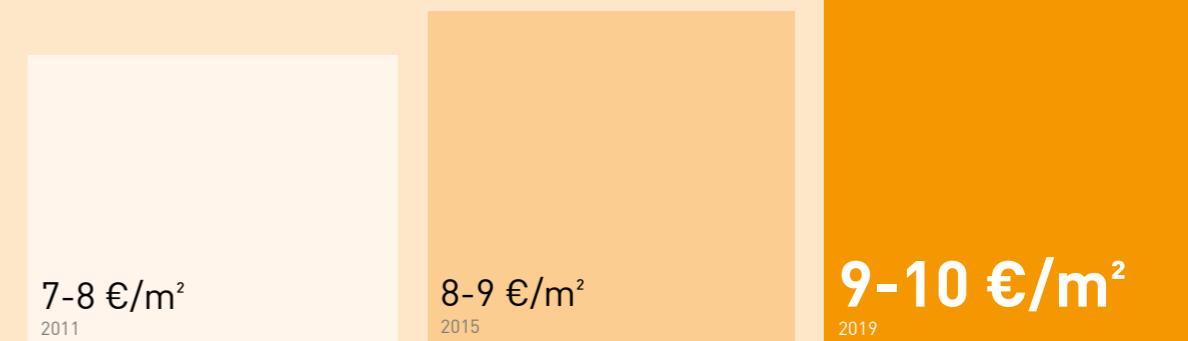
Inhabitant-weighted linear distance to the nearest supermarket or discount store

Food supply is a basic human need and an essential aspect of regional development. Consequently, it should be possible to cover the distance to the nearest supermarket without too much time or logistical effort. Nevertheless, the trend toward relatively remote, large supermarkets has increased, making it difficult to reach them on foot, especially in rural areas. However, the statistical data (municipal, federal level) on the population-weighted linear distance to the nearest supermarket or discount store does not allow valid statements on the development. Only in 2017 is an average value available (458.0 meters for Bonn and 735.0 meters for the NRW average.) The sustainability strategies of the federal government and the state of NRW do not address this issue.

Visualization of selected Indicators

Rent prices

Average net basic rent per square meter in euro



Living space

Available living space per person



Subsidized housing

Supply ratio: the number of occupancies of vacant subsidized apartments as a percentage of the total number of households with a housing entitlement certificate



3.7



Decent Work and Sustainable Economy

General Introduction to the Field of Action

The field of action Decent Work and Sustainable Economy encompasses local economic and labor market development and the situation of employees at their place of work. A functioning economy with sufficient jobs enables people to satisfy their basic needs and develop their potential. In this context, the creation of family- and employee-friendly structures and the promotion of diversity and equal opportunities is a central task. Simultaneously, it is essential to promote a sustainable business location in a community and encourage innovation in this area. With a view to sustainable development, companies have an important ecological and social responsibility toward society. This includes implementing sustainable production patterns and creating and safeguarding adequate working conditions. Demographic change and the associated consequences—along with advancing digitization, which is leading to profound changes in the labor market—require special attention with regard to economic development.

Qualitative Aspects

- Family and child-friendly structures and offers
- Compatibility of family and career in administration, municipal undertakings and associated companies
- Diversity and equal opportunities in administration, municipal undertakings and associated companies
- Sustainable management of resident companies
- Sustainability-oriented start-up and business development

Practical Examples

- Project "Sustainability Hub"
- Climate-friendly industrial park Beuel-Ost

SDG indicators

- Gross Domestic Product
- Long-term unemployment rate
- Employment rate¹⁵ to 64 year olds / 55 to 64 year olds / foreigners
- Employed persons receiving unemployment benefit
- Highly qualified employees at the place of work

Add-on indicators (City of Bonn)

- Unemployed people
- Youth unemployment
- Job density
- Eco-certified companies

4 Family and child-friendly structures and offers

The Competence Center for Women & Work Bonn/Rhein-Sieg, a cooperative project by the business development agencies of the city of Bonn and the Rhein-Sieg district funded by the state, is committed to innovative HR policies and supports small and medium-sized enterprises to develop the compatibility of work, family, and care. To promote family- and child-friendly structures, the Competence Center founded the Network Family-Conscious Business Bonn/Rhein-Sieg in 2013. Around 90 small and medium-sized enterprises from various sectors are now involved in the network, which exchanges information at quarterly meetings. The Bonn Sustainability Strategy explicitly addresses the expansion and consolidation of the network. Against this backdrop, Bonn is also planning to obtain certification as a child-friendly municipality, an initiative of the Child-Friendly Municipalities association. Competence Center Women & Work offerings include workshops such as Family-conscious companies offer more!, covering current developments in family-conscious HR policy, and the mentoring4women program for female executives.

Women can also obtain information on various aspects of professional life during the Women and Career theme week. Another offer in Bonn is the Part-time vocational training accompanying the entryopen perspectives program in the context of which the Bonn/Rhine-Sieg Regional Agency offers support to young parents in their search for an in-company training position on a part-time basis. Through the Kita-Net Bonn parents' portal, Bonn offers information about childcare options to all parents looking for daycare or a place for their child in a daycare center. The portal links the city administration, kindergartens, providers, and families on a shared database. In this way, the demand for childcare places is evident, and Bonn is continuously striving to expand this demand. As a further measure to promote family-friendly structures, the city has relocated the family office to the city center to provide low-threshold access to information and counseling opportu-

nities. Various low-threshold offers are also made in this area within the framework of educational counseling and school psychology.

8 Compatibility of family and career in administration, municipal undertakings and associated companies

Bonn successfully passed the career and family audit in 2021 and was awarded the quality seal for a company agreement policy for the first time. This seal is awarded by the board of trustees of career and family Service GmbH. The process was initiated by the Equal Opportunities Office and the Human Resources and Organization Office. Around 150 employees from all areas contributed and participated. The audit aimed initially to compile all offers for reconciling work and family life and develop measures for improving the participatory process. These measures were collected in a target agreement, which Bonn will spend three years implementing step by step.

The Bonn Sustainability Strategy also stipulates that the city administration sets an example in promoting equitable work structures and, for example, establishes flexible working time concepts for employees that open up equal career opportunities. In this regard, the city offers part-time and telecommuting options and a generous flexitime framework. Since 2021, there has been a mentoring program for female junior managers in the city administration, and the range of information and advice on care work (parental leave, nursing leave, and leave options) was expanded in 2021. The administration's own and associated companies are also committed to family-friendly structures—for example, the municipal utilities are developing part-time work options for managers and employees with personnel responsibility and are expanding flexible and hybrid working models.

10 Diversity and equal opportunities in administration, municipal undertakings and associated companies

Bonn has promoted equal opportunities and diversity within the city administration for many

years. Above all, the [Equality Plan 2019–2022](#) prepared by the Equal Opportunities Office and the Personnel and Organization Office provides the basis for this. In accordance with Bonn's Sustainability Strategy, the equality plan is to be considered in all personnel and structural measures, and the city's personnel development concept is to be consistently implemented, evaluated, and updated. The [2021 Report on the Equality Plan](#) states that the proportion of women in the city administration has risen to almost 60%. Women are specifically targeted for jobs in which they are underrepresented. In the context of job advertisements, people with a migration background are explicitly encouraged to apply. Furthermore, in 2021, the [Guideline Gender-Equitable Language](#) of the city administration was published, supporting respectful and non-discriminatory language.

One example of the [promotion of equal opportunities in the owned and associated companies](#) is a Stadtwerke initiative through which employees who can no longer perform their previous jobs for health or other reasons are given targeted support. In this way, employees can qualify themselves to take on new tasks.

8 Sustainable management of resident companies

For many years, the city of Bonn and the Rhein-Sieg district have offered the [Eco-profit](#) sustainable management program as a cooperation project of the local economy. Through

a consulting and qualification program, the participating companies are supported in the introduction and improvement of operational environmental management to increase resource efficiency with regard to energy, water, and waste. The project also forms a local network for sustainable management. Since 2008, around 60 local companies have participated. After being certified as an "Ecoprofit company," organizations have the opportunity to deepen their knowledge and exchange experiences with other companies (or prepare for an environmental management system according to EMAS or ISO 14001) in an "Ecoprofit club" with the goal of renewed certification.

The city's economic development department also offers an ongoing [\(online\) seminar series](#) for small and medium-sized enterprises—for example, on the topic of "structural change sustainability" (specific examples from the series include "Sustainability with more data and artificial intelligence" and "Sustainable Development Goals in the target system of companies—how to make the effectiveness of their measures measurable".) The workshop series [Smart Bonn—Online Strategies for Companies](#) is also aimed at small and medium-sized enterprises with the goal of shaping the digital transformation efficiently, securely and sustainably. The Bonn Energy Agency also manages an [energy efficiency partner system](#) Bonn/Rhein-Sieg. The network's goals are to secure and develop qualified energy advice and further training and exchange on energy-efficient construction and renovation or the use of renewable energies. The Bonn Sustainability Strategy also targets support for the "Corporate Social Responsibility" Bonn-Rhein-Sieg competence center to promote corporate social responsibility.

9 Sustainability-oriented start-up and business development

The Bonn Sustainability Strategy stipulates the goal of continuously increasing the number of startups by strengthening advice centers and expanding public relations work for startups.



One example is the services offered by the [Bonn/Rhein-Sieg network of advisors](#), which held a start-up day for women in 2021. As part of the strategy for developing the digital city ([Smart City Strategy](#)), Bonn relies on partnerships with companies for example, with a view to establishing the energy-saving LoRaWAN radio network. In the [Bonn-Profits Innovation and Start-up Center](#), startups in knowledge-intensive services are offered office spaces at staggered prices. Numerous startups here are related to sustainability. Since opening in 2011, more than 70 companies have taken advantage of the office spaces.

One of the Digital Bonn initiative's key projects is the [Digital Hub Region Bonn](#), funded by the state government of North Rhine-Westphalia. The Digital Hub is a start-up center established in 2017, and it supports potential entrepreneurs in founding a start-up and offers infrastructure to newly founded startups. The Digital Hub offers the opportunity to better position the "IT location Bonn" in the market and strengthen innovations and startups. There is considerable potential in the region's IT community for innovation and startups. In line with Bonn's Sustainability Strategy, the Digital Hub supports resident companies with digital transformation and intensifies the economic development agency's promotion of innovation.

Practical examples

Project Sustainability Hub

Bonn's city council passed a resolution in 2021 to establish a Sustainability Hub and provide 250,000 euros as start-up funding for this purpose. Project management is located in the Office of Economic Development, and the project is initially scheduled to run for two years. The institutions involved in the city administration have agreed that focusing the Sustainability Hub on existing companies, startups, institutional partners, and multipliers is the most suitable way to fulfill the scheme's objectives. Even though a steadily increasing number of startups and companies with sustainable business models, products and services are already successful in Bonn and numerous companies are implementing sustainability concepts, there is a lack of external impact, bundling, and networking. The Sustainability Hub will provide new impulses to and from the business community and act as a local and supra-regional mouthpiece for a sustainable economy in Bonn. Synergy opportunities with institutions from science and other sustainability initiatives in the city, such as the Bonn4Future participation process, are to be initiated and promoted.

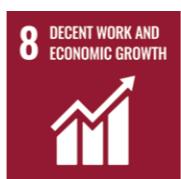
Climate-friendly industrial park Beuel-Ost

In 2021, Bonn launched a model project in one of the city's largest and oldest established commercial areas, Beuel-Ost, in collaboration with the engineering firm Gertec and the [Wissenschaftsladen Bonn](#). Together with interested local companies, the project identifies how the area can be further developed in a climate- and sustainability-friendly way. Key elements are potential checks and the initiation of measures for a higher location quality and a better open space structure, optimized energy consumption, and better energy generation utilization. To this end, talks are being held with potential model companies. In addition, around 30 company representatives from Beuel-Ost were presented with consulting services by the project partners during a meeting at the business park. These include, for example, offers relating to greening, thermal insulation, electromobility, photovoltaics, energy procurement and efficiency, resource efficiency, and waste management. The project's overall aim is for local companies to get to know each other better and thus create a network for the long-term continuation of climate and sustainability activities in the area. Due to its successful start, the project is to be continued in the coming years, and the activities will be extended to other industrial estates in Bonn.

Overview of contributions

Aspect	Contribution	Allocation to SDG Targets
Family and child-friendly structures and offers	<ul style="list-style-type: none"> Competence Centre for Women & Work Bonn/Rhein-Sieg (Offers: "Family-conscious companies offer more!" / "mentoring4women") Network Family Conscious Business Bonn/Rhein-Sieg Certification as a child-friendly municipality "Part-time vocational training accompanying the entryopen perspectives" program "Kita-Net Bonn" parent portal Low-threshold access to information and counseling opportunities 	5.5 5.c 4.2 5.4 5.4 16.10
Compatibility of family and career in administration, municipal undertakings and associated companies	<ul style="list-style-type: none"> Career and family audit Promotion of family-friendly work structures in the city administration (mentoring program for female junior managers / "care work") and in the owned and associated companies 	5.5 5.5
Diversity and equal opportunities in administration, municipal undertakings and associated companies	<ul style="list-style-type: none"> Equality Plan 2019/2022 Report on the equality plan Guideline Gender Equitable Language Promotion of equal opportunities in our own and affiliated companies 	10.3 10.3 5.1 10.3
Sustainable management of resident companies	<ul style="list-style-type: none"> Eco-profit sustainable management program Online seminar series of the economic development department "Smart BonnOnline strategies for companies" workshop series Energy Efficiency Partner System Bonn / Rhein-Sieg Climate-friendly industrial park Beuel-Ost 	8.4 12.6 12.6 7.3 11.6
Sustainability-oriented start-up and business development	<ul style="list-style-type: none"> Smart City Strategy Bonn/Rhein-Sieg network of advisors Bonn-Profits Innovation and Start-up Center Digital Hub Region Bonn Sustainability Hub project 	9.4 9.1 8.2 9.c 9.c

Indicators

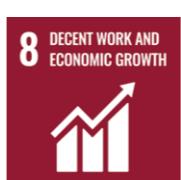


Gross Domestic Product 8.1

EURO	2010	2015	2018
	67,777.8	68,145.5	80,071.5



Gross domestic product per inhabitant



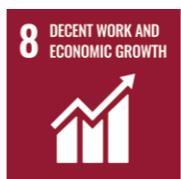
Long-term unemployment rate 8.5

PERCENT	2010	2015	2019
	4.1	4.4	3.2

Proportion of long-term unemployed in the total labor force



The long-term unemployment rate describes the proportion of non-employed persons who have been registered as unemployed for a year or more with the employment agencies or with the providers of basic benefits for jobseekers under Book II of the Social Code. Persistent unemployment has a major impact on the financial, social, and health situation of those affected and their families and can also affect the municipality's financial situation. However, the indicator does not consider the gender or age of those not in employment; consequently, statements on gender-equitable improvements in the employment situation, including young people, cannot be made. In Bonn, the share of long-term unemployed fell to 3.2% in 2019, while the national average in that year was even lower at 2.1%. This declining development positively affects the German Sustainability Strategy's Goal 8.5.a., "Increase the employment rate to 78% by 2030".



Employment rate—15- to 64-year-olds 8.5

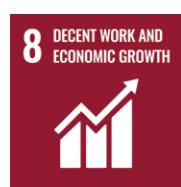
PERCENT	2011	2015	2018
	46.1	49.1	51.6

Proportion of socially insured employees aged 15–64 in the total population of working age



The employment rate indicates the share of employees aged 15 to 64 subject to social insurance contributions in the total working-age population (civil servants, self-employed persons, and marginally employed persons are not included in the statistics.) It is thus similar to the share of the total population in employment since most of the gainfully employed are in this age group. Overall, the rate allows conclusions to be drawn about the social situation of the population. Employment ensures individual financial independence and contributes to the sustainability of a community. In Bonn, the proportion of people in employment has risen steadily over time from 44.8% to 51.6% but is lower than the proportion for Germany as a whole, which was 61.1% in 2019. The German Sustainability Strategy sets goal 8.5.a., "Increase the employment rate to 78% by 2030."

Indicators



Employment rate— 55- to 64-year-olds 8.5



	2010	2015	2019
PERCENT	36.2	45.4	50.2

Proportion of 55- to 64-year-old employees in the total population of residents in this age group subject to social insurance contributions at place of residence

The employment rate indicates the share of employees aged 55 to 64 subject to social security contributions in the total working-age population and complements the previous indicator (employment rate—15- to 64-year-olds). A high employment rate in this age group indicates financial independence and social inclusion, even if demographic change leads to an imbalance between pensioners and contributors in the long term. In Bonn, the proportion of employees has risen continuously over time from 36.2% to 50.2%, and this development also mirrors the Germany-wide proportion, which was 53.3% in 2019. The rising share contributes to the achievement of the German Sustainability Strategy' target 8.5.b., "Increase the employment rate among older people (from age 60 to the statutory retirement age) to 60% by 2030."



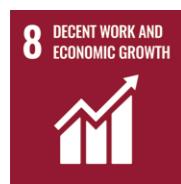
Employment rate—foreigner 10.2



	2010	2015	2019
PERCENT	60.1	73.1	82.1

Ratio of employment rate of foreigners to employment rate in total population

The employment rate of people with a migration background allows conclusions to be drawn about integration into the labor market. A high employment rate of people with a migration background indicates economic and social integration and participation in society and ensures people's financial independence. However, no statement can be made about the freedom from discrimination of people with a migration background; furthermore, reasons such as legal restrictions on taking up work can affect the employment rate. In Bonn, the employment rate for people with a migration background in relation to the employment rate in the overall population was 82.1% in 2019, slightly above the German national rate of 79.7%. The German sustainability strategies do not include explicit targets for the indicator, but the NRW Sustainability Strategy's target 10.4 aims to "reduce the poverty risk rate of people with a migration background."



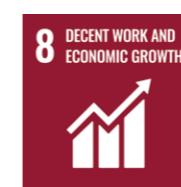
Employed persons receiving unemployment benefit 8.5



	2010	2015	2019
PERCENT	26.4	26.7	27.4

Proportion of ALG II recipients in employment among all recipients of benefits who are capable of working

Employed persons who receive unemployment benefit II (ALG II) because their income from employment is not sufficient to cover their living expenses are referred to as top-up recipients. ALG II recipients who supplement their benefits through gainful employment within the legally permissible framework are also considered top-up recipients. If support has to be claimed despite gainful employment, this may indicate structural deficits in the economic sector that result in jobs that do not meet minimum levels of acceptability. Complex entitlement regulations and the time-consuming application process, as well as shame, suggest a high number of unreported cases. In Bonn, the proportion of people receiving additional benefits has risen slightly over time and stood at 27.4% in 2019, which is almost in line with the national figure of 26.3%. The sustainability strategies of the federal government and the state of North Rhine-Westphalia do not contain any explicit targets for this indicator.



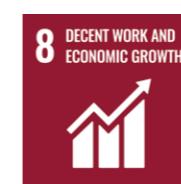
Unemployed people 8.5



	2011	2015	2018
FEMALE	4.3	4.8	3.8
MALE	5.3	5.9	4.8

Percentage of unemployed persons among employees subject to social insurance contributions at place of residence

Gainful employment is the key to participation in society. A low unemployment rate is an important indicator of a region's economic stability. In addition to the demographic aspects, the increasing effectiveness of integration assistance for refugees has been evident in recent years. The work of the "Integration Point" and many actors in integration work have also proved popular with employers. These activities are also reflected in the development of this indicator: the proportion of unemployed persons has fallen continuously since 2015. In addition, the German government's Participation Opportunities Act has been in force since 2019, offering a wide range of opportunities to integrate people with placement barriers into Bonn's labor market. A further drop in unemployment is likely, although a limit to this trend may be reached in the near future. The creation of a permanent social labor market, as set out in the Participation Opportunities Act, can bring lasting social and economic participation for people with employment disadvantages



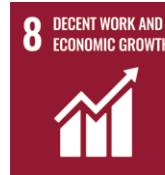
Youth unemployment 8.5



	2011	2015	2018
FEMALE	0.9	0.8	0.6
MALE	1.3	1.2	1.2

Percentage of unemployed young people (aged 15 to under 25) out of total number of young people

Recruiting young talent in companies and organizations is of central importance for the city's economic development. The demographic shiftthe increasing number of older adults and the decreasing birth rateand the simultaneous economic pressure of employers to keep pace with digitalization require a reorganization of work in many areas. The "labor market reserve" of young job seekers is becoming scarcer. Companies with an acute shortage of skilled workers are lowering the hiring hurdle for young people with placement barriers. The share of unemployed male youths has fallen slightly over time, and the share of unemployed female youths has fallen significantlyyoung women seem to benefit particularly from activation measures. The shortage of young skilled workers is expected to continue, making it essential to mobilize all labor market reserves. This includes immigrant youths, who need extra support to boost their employability. The further development of immigration legislation is of great importance in this regard.



Job density 8.5



NUMBER	2011	2015	2018
	264.6	264.2	293.9

Number of socially insured employees working in Bonn per hectare of commercial space

Economic growth is considered one of the main goals of government economic policy. However, in addition to a sufficient number of employees, a strong economy also needs the appropriate space to develop. Apart from future challenges such as structural change, globalized labor markets, and technological progress, sufficient land potential and ways to retain well-qualified skilled workers are crucial for planning sustainable economic development at the regional level. The indicator value of employees subject to social security contributions at the workplace per hectare of industrial park shows a steady increase between 2015 and 2018. This trend was due to the further occupation of commercial areas designated by Bonn, and a newly designated commercial area was quickly remarketed. A change in the form of new developments has occurred in the classic commercial areas. If it is possible to reuse vacant areas for commercial purposes and designate further potential commercial areas, the indicator will remain stable. In this respect, the politically agreed objective is to protect the existing commercial areas and promote intermunicipal cooperation.



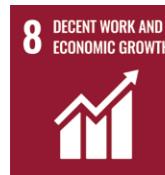
Highly qualified employees at the place of work 9.5



PERCENT	2016	2017	2018
	26.9	28.1	29.3

Proportion of highly qualified employees subject to social security contributions as a percentage of all employees subject to social security contributions

A high proportion of highly qualified employees is vital for the innovative capacity of the local economy. Knowledge-based services and future-oriented industries are particularly dependent on highly qualified employees. In Bonn, the proportion of highly qualified people is growing continuously. The city's economic development department supports the expansion of Bonn as a business location by networking in the science and business fields and providing information for students about the diverse job market opportunities in the region. Due to Bonn's sound economic structure, further positive development can be assumed. The indicator in Bonn was 29.3% in 2019, significantly above the national average of 16.8%. The sustainability strategies of the federal government and the state of NRW do not contain any explicit targets for the indicator.



Eco-certified companies 8.4



PROPORTION	2011	2014	2017
	1.46	1.60	1.09

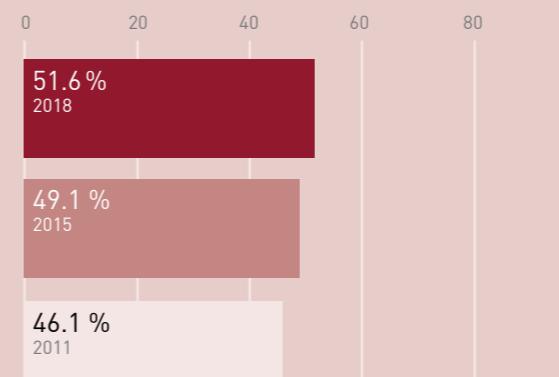
Share of companies certified according to the Eco-Management and Audit Scheme (EMAS) and Ecoprofit per 1,000 registered companies

In the course of sustainable development, companies can be decisive course setters far beyond the city limits. The harmonization of ecological and economic goals plays a vital role in the establishment of environmental management systems. Programs such as Ecoprofit help companies save resources and reduce energy, waste, and operational costs. In addition, greater awareness among employees contributes to sustainable behavior and a lasting reduction in environmental impact. The number of EMAS/ECOPROFIT certified companies in Bonn fluctuates over time and, moreover, can hardly be influenced by the city administration. However, through the ECOPROFIT program, the city, in cooperation with the Rhein-Sieg district, offers regional companies the opportunity to set up an environmental management system and subsequently become certified. If companies regularly recertify through ECOPROFIT, a slight increase in the indicator can be expected in the future. The implementation of the ECOPROFIT program is to be continued.

Visualization of selected Indicators

Employment rate

Percentage of socially insured employees aged between 15 and 64, relative to the total number of inhabitants in this age group



Unemployment rate

Percentage of unemployed persons, relative to the number of socially insured employees at the place of residence (of whom female and male)



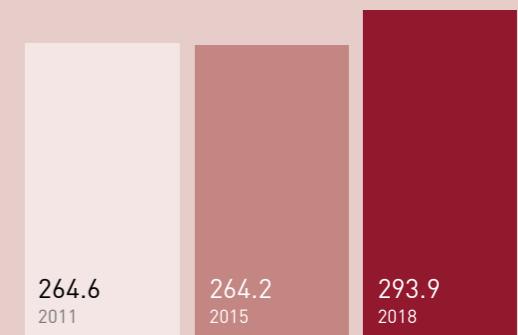
Youth unemployment

Percentage of youth unemployment (aged 15 to 24), relative to the total number of young persons (of whom female and male)



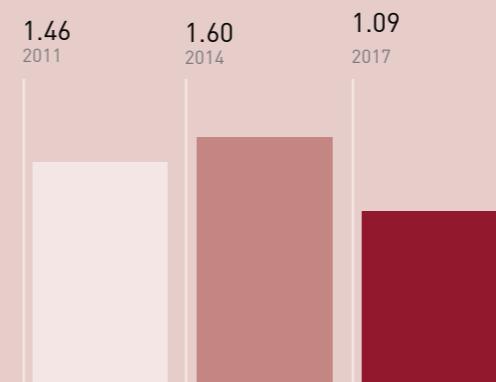
Job density

Number of socially insured employees working in Bonn per hectare of commercial space



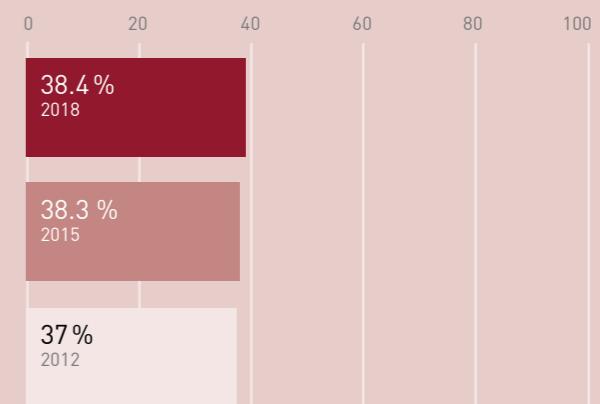
Eco-certified companies

Share of companies certified according to the Eco-Management and Audit Scheme (EMAS) and OKOPROFIT per 1,000 registered companies



Innovative drive (see p. 27)

Percentage of employees in Bonn working in knowledge-based services, relative to all socially insured employees





3.8



Sustainable Consumption and Public Health

Qualitative Aspects

- Local offers for supporting sustainable consumption and lifestyles
- Sustainable tourism
- Ensuring quality health care
- Health promotion for employees in administration, municipal undertakings and associated companies
- Care and support

Practical Example

- "Organic City" Bonn

SDG indicators

- Drinking water consumption
- Waste amount
- Premature mortalityfemales
- Premature mortalitymales
- Hospital Care
- Medical care
- Basic care close to homepharmacy
- Nursing home staff
- Staff in care services
- Nursing Home Places

Add-on indicators (City of Bonn)

- Airquality
- Children weight

12 Local offers for supporting sustainable consumption and lifestyles

In 2019, Bonn joined the nationwide [network of organic cities, municipalities, and districts](#), thus promoting organic and sustainable agriculture and organic food locally (see practical example.) To strengthen the related awareness and education work, the city, together with the association Stadt.Land.Markt, hosted the [information event series "We celebrate good food from the field to the plate to the compost!"](#) from 2019 to 2021, funded by the Organic Farming and Other Forms of Sustainable Agriculture federal program. Through various events, including organic networking cafés, attention was drawn to the benefits of organic and regional agriculture and food along the entire value chain. At the same time, spaces for networking, learning and participation were established. The Bio-Stadt Bonn website provides additional information in the digital organic shopping guide about organic farms, organic stores, organic markets, and other alternative forms of food supply, such as solidarity farming, Food Coop, and market hawkers in Bonn and the region. The city also promotes awareness of sustainable lifestyles within the "[Bonn—All Around Sustainable](#)" initiative (see also aspect 9.2) and contributes to the networking of local associations and initiatives, stores, municipal institutions, farms, and committed individuals. The numerous initiatives provide information about their work at an annual festival and invite people to follow suit.

The public utility "[Stadtwerke Bonn](#)" contributes to a sustainable basic supply by providing green electricity (100% natural electricity certified by Green Electricity Label e. V.). According to the electricity label for 2021, the total share of renewable energies is just under 82%. The Bonn-based company supplies its residential and commercial customers with green electricity, involving sustainable sources such as hydropower, wind power, and biomass. Since 2021, Stadtwerke has also offered regional electricity produced directly in Bonn and the region.

8 Sustainable tourism

The local tourist information office [Bonn-Information](#), certified with the nationwide "Travel for All" label, supports sustainable tourism—for example, by offering sustainable products in souvenir sales. Since 2020, a low-emission, barrier-free hybrid bus has been used for [city tours](#) in Bonn. Furthermore, the development of a tourism state database is supported, promoting the [digitalization of tourist information](#). In recent years, the [Project Sustainable Bonn](#) has promoted the implementation of greater sustainability in the city's industry, primarily among regional companies in the hotel and catering sector. The project is coordinated by Tourismus & Congress GmbH, an associated company of the City of Bonn. The company's hotel booking system combines room booking with free travel on public transport throughout the stay in the region to promote sustainable mobility.

3 Ensuring quality health care

The [Health Department of the City of Bonn](#) provides the following services, among others: Preventive Health Planning and Demographic Change, Public Health Service, Pediatric and Adolescent Medical Service, Counseling Service for People with Disabilities (Children, Adolescents, and Adults), Examination and Counseling Service for Sexually Transmitted Diseases, Social Counseling, Infection Prevention and Environmental Hygiene, Vaccination Counseling, Social Psychiatric Service, and the Bonn Municipal Health Conference. Preventive measures to promote mental health are also conducted as part of the [educational counseling and school psychology services](#).

3 Health promotion for employees in administration, municipal undertakings and associated companies

Against the background of increasing private and professional demands, strategic occupational health management is becoming increasingly important. In Bonn, the [Health Unit](#) bundles

various offerings for health promotion, integration management, and employee safety. Occupational health management aims to improve working conditions, reduce stress, and support behaviors conducive to good health. In 2019, Bonn's health management was awarded the Corporate Health Awards' Seal of Excellence as part of an external audit. The quality seal awarded by EuPD Research GmbH and the Handelsblatt is one of Germany's most prestigious awards for corporate health management. The seal is awarded to exemplary companies that demonstrate above-average commitment to the health of their employees and pursue a forward-looking HR strategy. In Bonn, workplace health promotion, ergonomics at the workplace, sport/exercise, mental health, counseling services, addiction prevention, and work-life balance were certified as "excellent." Structurally, occupational safety and crisis management, occupational and company medicine, and company integration management were also rated "excellent." The "mental risk assessment" pilot project is currently being implemented.

3 Care and support

Bonn offers diverse services for care and nursing at home and care in old people's and nursing homes. In accordance with the North Rhine-Westphalia Old-Age and Care Act, the city is obliged to determine via local planning whether sufficient care offers are available in terms of quality and quantity. The results and findings are documented in the Age and Care in Bonn report. The fulfillment of the obligations of housing and care services providers is monitored by the authority responsible for the monitoring of the Housing and Participation Act through regular and ad hoc audits. In this regard, regular reports are made to integration assistance and care facilities. In addition to social and care counseling for older people and their relatives, housing counseling and municipal meeting places are offered. These services include lunch tables, networking for caregivers, and the recognition of providers, in accordance with the Recognition and Support Ordinance.

The Office for Social Affairs and Housing manages the municipal outpatient offers for addiction prevention and addiction support. Thus, needs-based offers for information, counseling, treatment, and care at providers of addiction prevention and addiction support in Bonn are financially supported.

Practical example

"Organic City" Bonn

In 2019, Bonn became the first city in NRW to join the nationwide Organic Cities Network. The network is an association of municipalities that promotes organic agriculture and organic food locally. The activities in Bonn are carried out by the city administration's Office for Local Sustainability in cooperation with civil society actors, enabling the networking of committed initiatives in the organic and food sector locally. Through various council resolutions, three central fields of action have been anchored in Bonn: (1.) The promotion of organic food in children's facilities (e.g., the school authority and the Office for Children, Youth, and Family provide professional support and advice for midday meals in Bonn's children's facilities); (2.) the gradual conversion of the city's agricultural areas to organic farming; and (3.) the promotion of awareness-raising for regional nutrition with organic food through public relations and information work as well as various events.



Overview of contributions

Aspect	Contribution	Allocation to SDG Targets
Local offers for supporting sustainable consumption and lifestyles	• "Organic City" Bonn	2.4
	• Series of information events "We celebrate good food from the field to the plate to the compost!"	12.8
	• "BonnAll Around Sustainable" series of events	12.8
	• Measures of the public utility "Stadtwerke" Bonn for sustainable basic supply	12.1
Sustainable tourism	• Measures for sustainable tourism through the tourist information office "Bonn-Information"	8.9
	• City tours: buses with alternative drives	8.9
	• Digitalization of tourist information	8.9
	• Sustainable Bonn project	8.9
Ensuring quality health care	• Services of the Bonn Health Department	3.8
	• Offers on educational counseling and school psychology	3.8
Health promotion for employees in administration, municipal undertakings and associated companies	• Offers by the Health Unit	3.8
	• Health Management of the City of Bonn: Awarded the "Seal of Excellence" of the "Corporate Health Awards"	3.8
Care and support	• "Age and care in Bonn" report	3.8
	• Home supervision authority / social and nursing care advice / housing advice / operation of municipal meeting places / network of caring relatives / recognition of providers in accordance with the recognition and funding ordinance	3.8
	• Addiction assistance planning by the Office for Social Affairs and Housing	3.5

Indicators



Drinking water consumption 12.2

LITER	2011	2015	2018
	145.3	144.1	149.9

Drinking water consumption in liters per inhabitant per day

Drinking water is a precious resource, especially given increasing periods of drought and hot summers. In principle, Germany is a water-rich country, and direct consumption has remained largely constant over recent years. There is sufficient drinking water available in the region around Bonn. Nevertheless, its provision is associated with energy expenditure and material input. In Bonn, drinking water consumption was in a steady decline over 10 years (2003 to 2014), but it is still subject to slight fluctuations at irregular intervals. Most recently, consumption has risen moderately. Bonn's goal is to reduce drinking water consumption further. If the trend continues in the opposite direction—e.g., due to global warming—the city must give more consideration to water-saving technologies and education. The sustainability strategies of the federal government and the state of North Rhine-Westphalia do not include any targets for drinking water consumption by private households.



Waste amount 12.5

KG	2010	2015	2018
	243.2	230.1	221.8

Residual waste and bulky waste in the disposal area from private households and small businesses in kilograms per inhabitant

Waste prevention is the most crucial goal for sustainable waste management to protect people and the environment. This indicator shows the quantities of waste in Bonn households and small businesses that can only be reused or recycled to a limited extent. These quantities have decreased significantly since 2010. The goal is to continue this development through advisory and educational measures for citizens* and schemes for reuse and recycling. Work is continuing to reduce the quantities of residual and bulky waste. A comparison with the volumes at federal or state level is not possible due to varying calculation methods. Declining volumes indicate that the five-stage waste hierarchy of prevention (highest priority according to the Closed Substance Cycle Waste Management Act,) preparation for reuse, recycling, energy recovery, and disposal is being taken into account. Bonn thus contributes to the achievement of the German Sustainability Strategy's goal 12.1.ba, "Continuous reduction of global environmental impact of household consumption."



Airquality 3.9

	2010	2019	2020
NITROGEN DIOXIDE (µG/M3)	30/48/62	25/30/40	21/30/30
BENZENE (µG/M3)	-/2.0/2.2	-/1.1/1.1	-/1.1/1.0

Air pollutant concentrations: nitrogen oxide and benzene, in µg/m³ (measuring points: Josefshöhe / Bornheimer Straße / Reuterstraße)

The air pollutants nitrogen dioxide and benzene are mainly derived from traffic in Bonn. However, the limit values specified in the EU air quality directives are now significantly undercut. Among other things, the clean air plan implemented by Bonn since 2009 is having an effect. A further reduction of the total air pollutant load beyond this can only be achieved through fundamental changes in mobility behavior.

Indicators



Premature mortalityfemales 3.4



NUMBER	2010	2015	2019
	0.7	0.7	0.7

Number of deaths among women under 70 years per 1,000 population

The number of premature deaths among women under 70 years per 1,000 inhabitants can provide information about health risks and problems in the health care system. In general, women under 70 are significantly less likely to die than men in that age group. Reasons for this may include career choices, healthier lifestyles, and a willingness to undergo preventive medical examinations. In Bonn, the statistical number of premature deaths among women is constant: for every 1,000 women under 70, 0.7 died prematurely. In a national comparison, the value was most 0.9 per 1,000 inhabitants in 2017. This development corresponds to the German Sustainability Strategy's goal 3.1.a, "Reduction to 100 deaths per 100,000 inhabitants (women) by 2030."



Premature mortalitymales 3.4



NUMBER	2010	2015	2019
	1.1	1.3	1.1

Number of deaths among men aged under 70 years per 1,000 population

The indicator for the number of premature deaths among men under 70 years per 1,000 inhabitants is the male counterpart of the Premature mortalitywomen indicator (see above.) In Bonn, the development fluctuates at a low level between 1.1 and 1.3 deaths per 1,000 inhabitants. In the German comparison, the value was 1.5 deaths per 1,000 inhabitants in 2017.* This development corresponds to the German Sustainability Strategy's goal 3.1.a, "Reduction to 190 deaths per 100,000 inhabitants (men) by 2030."



Hospital Care 3.8



NUMBER	2010	2015	2017
	1.269	1.289	1.274

Number of hospital beds per 100,000 inhabitants

Comprehensive hospital care is a core element of essential services. Hospitals must act according to strict economic parameters while guaranteeing high-quality medical care, which can lead to a supply shortage. Hospital care close to home is showing an increasing urban-rural divide due to rationalization measures. In Bonn, the number of hospital beds has decreased slightly since 2011 but is significantly above the German average of 600.5 beds per 100,000 inhabitants (2017). The sustainability strategies of the federal government and the state of North Rhine-Westphalia do not contain explicit targets for this indicator.



Medical care 3.8



NUMBER	2011	2015	2018
	3.05	3.14	2.85

Number of general practitioners and specialists in private practice in factors per 1,000 inhabitants

Because of an increasingly aging society, care and healthcare are moving further into the foreground as location factors. High-quality medical care and services close to home are therefore important in the municipal context. In Bonn in particular, the range of services and the close interlinking of general medical care and specialist or inpatient care play a crucial role. For patients, this means short distances from the site of medical examinations to the appropriate therapy location. In Bonn, the number of general practitioners and specialists in private practice has remained almost constant in recent years, with 2.85 doctors in private practice per 1,000 inhabitants in 2018. This situation puts the city in the top tier compared to other cities and regions in NRW. Bonn traditionally has an excellent medical care infrastructure in the outpatient and inpatient sectors, so no special measures are required to change the indicator. The ratio of physicians per 1,000 inhabitants in Bonn is likely to remain stable, as no significant changes are foreseeable. The sustainability strategies of the federal government and the state of North Rhine-Westphalia do not contain explicit targets for this indicator.



Basic care close to homepharmacy 3.8



METERS	2010	2015	2017
	n/a	n/a	435.0

Population-weighted linear distance to the nearest pharmacy

Short distances to pharmacies are as important as proximity to the general practitioner or hospital. The number of pharmacies is also influenced by the demographic structures of a region, the urban/rural divide, and competition from the free market economy (including new digital retail outlets.) Due to a lack of data, it is not possible to make statements on the development of basic care close to home in Bonn. Only one value from 2017 is available for the city and the state of NRW: in Bonn, the inhabitant-weighted air-line distance to the nearest pharmacy is 435.0 meters, and the NRW average is 884.0 meters. The sustainability strategies of the federal government and the state of NRW do not contain explicit targets for this indicator.



Nursing home staff 3.8



PERSONNEL	2010	2015	2019
	905.9	927.9	923.7

Personnel in nursing homes per 1,000 inpatients in need of care

Because of demographic developments, the number of people in need of care is rising steadily, and people's increasing life expectancy is leading to a longer average duration of care. Both developments pose considerable personnel and financial challenges for the German healthcare system in its current form. In Bonn, the trend is stable: in 2019, there were 923.7 people (full-time positions) in nursing homes per 1,000 full- and part-time inpatients in need of care. The trend at the federal level is also stable over time, with 832.2 in 2019. Bonn consistently has more full-time equivalents available per 1,000 people in need of long-term care. The sustainability strategies of the federal government and the state of North Rhine-Westphalia do not contain explicit targets for personnel in nursing homes.

Indicators



Staff in care services 3.8



2010 2015 2019

PERSONNEL

0.18

0.16

0.13

Personnel in outpatient care services per person in need of care

A longer average duration of care due to people's increasing life expectancy is reflected in the demand for outpatient care services. To guarantee dignified outpatient care and maintain the care system in Germany, better working conditions must be brought about through lower personnel burdens. In Bonn, the trend is slightly downward: outpatient care services employ 0.13 people (full-time positions) per person in need of care. This development is also reflected nationally, where 0.14 employees (full-time positions) are employed per person in need of care. This development points to a need for action in the care professions. However, the sustainability strategies of the federal government and the state of North Rhine-Westphalia do not contain explicit targets for this indicator.



Nursing Home Places 3.8



2010 2015 2019

NUMBER

52.7

55.4

56.6

Number of available inpatient places in nursing homes per 1,000 inhabitants aged 65 and over

The number of available inpatient places in nursing homes plays a key role given the significant staffing and financial challenges facing the German healthcare system—demographic change is leading to shifts in the demand for nursing home places. In addition, there is a drive to provide nursing home places close to home, enabling regular visits and social contact with family and friends. In Bonn, there are slightly more places available in nursing homes than the national average: in 2019, there were 56.6 places per 1,000 inhabitants*, while the national average was 53.6 places. The increasing demand requires an expansion of nursing home places, but the sustainability strategies of the federal government and the state of North Rhine-Westphalia do not include explicit targets for this indicator.



Children weight 3.4



2010 2015 2017

OVERWEIGHT

10.3

10.7

10.6

Proportion of overweight and underweight children among school-age children examined in the respective school year

Children who are severely overweight or underweight are often impaired in their physical or mental well-being and are also at risk of developing diseases later in life. The development of the indicator is largely constant over time. If abnormalities occur in the course of a child's examination at the health office in Bonn, the parent or guardian is given appropriate advice, a recommendation is made for any appropriate clarification/therapy by colleagues in private practice, and information about further help is offered. Changes in leisure-time behavior due to electronic media must be considered, especially in pre-school children. This change is associated with a decline in physical activity, which may lead to a negative trend in the future development of the overweight indicator. The World Health Organization highlights the links between the use of electronic media and the development of obesity in children.

Visualization of selected Indicators

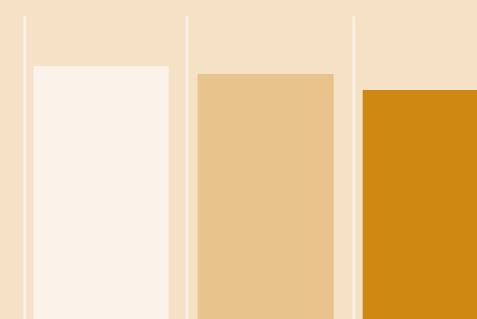
Waste

Residual waste and bulky waste from private households and small businesses in the disposal area, expressed in kilograms per capita

242.3 kg
2011

230.1 kg
2015

221.8 kg
2018



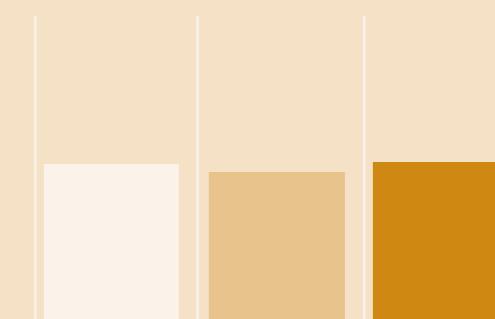
Drinking water consumption

Per capita consumption of drinking water in liters per day

145.3 l
2011

144.1 l
2015

149.9 l
2018



Air quality

Annual mean values of air pollutant concentrations, nitrogen dioxide, particulate matter PM10, benzene, expressed as a percentage of the limit value

2011

140 113 63 58 40 38

2015

128 103 75 50 28 26

2018

125 100 70 48 26 24

- Nitrogen dioxide (Measuring point Reuterstrasse)
- Nitrogen dioxide (Measuring point Bornheimer Strasse)
- Nitrogen dioxide (Measuring point An der Josefshöhe)
- Particulate matter PM10 (Measuring point An der Josefshöhe)
- Benzene (Measuring point Reuterstrasse)
- Benzene (Measuring point Bornheimer Strasse)

Medical care

Number of general practitioners and specialists in private practice in factors per 1000 inhabitants

3.05
2011

3.14
2015

2.85
2018

Weight of children

Proportion of overweight and underweight children among the school-age children examined in the respective school year

Overweight Underweight





3.9



Global Responsibility and One World

General Introduction to the thematic fields

Individuals, organizations, and communities act in a globally responsible manner if they are committed to equal opportunities or participatory justice, a fair global distribution of goods, peaceful development, the preservation of the environment and the protection of resources. Therefore, assuming global responsibility means ensuring that our actions and economic activities do not harm people in other regions. Against this background, the field of action Global Responsibility and One World covers various topics, including cooperation through networks and partnerships, local approaches to promoting global justice (e.g., through fair trade, promoting a sense of communal responsibility, and municipal development cooperation. For example, the exchange of knowledge between the global North and South in the context of city and project partnerships contributes to an increased understanding of different living conditions.

Qualitative Aspects

- Promoting sustainability through intermunicipal cooperation in the home country
- Local cooperation for global justice
- International municipal development cooperation

Practical Example

- Bonn SDG Days

SDG indicators

- Fairtrade-Town
- Fairtrade-Schools

Add-on indicators (City of Bonn)

- Municipal One World engagement

[17] Promoting sustainability through inter-municipal cooperation in the home country

Bonn is involved in various alliances for sustainability at national, NRW, regional and local levels. For example, the Mayor of Bonn is involved in the nationwide Dialog Sustainable City of the German Council for Sustainable Development and the Dialog Sustainable Municipalities NRW. As one of 33 municipalities nationwide, in 2021, Bonn was one of the first signatories of the resolution Municipalities for a Strong Supply Chain Act, which addresses political framework conditions to support sustainable procurement.

At the regional level, the focus is particularly on implementing regional (green) space planning projects. For example, a regional climate change prevention strategy was developed in 2019 as part of the cooperation of Region Köln/Bonn e.V., in which the independent cities of Cologne, Bonn and Leverkusen and the districts of Rhein-Sieg-Kreis, Rhein-Erft-Kreis, Rhein-Kreis Neuss, Oberbergischer Kreis and Rheinisch-Bergischer Kreis have joined forces. With the agglomeration program, a strategic framework for action with programmatic statements is also being developed there to meet challenges in the areas of settlement, commercial and open spaces, mobility, transport infrastructure and climate change at the regional level. Within the framework of the regional working group "rak", Bonn is also cooperating with the cities, municipalities and association communities belonging to the Bonn/Rhein-Sieg/Ahrweiler region and the Rhein-Sieg district and the Ahrweiler district in the task areas of spatial planning. In so doing, joint strategies in the areas of living, working and mobility in the region are being developed and implemented. Other examples of regional cooperation include the joint project "NEILA—Sustainable Development Through Intermunicipal Land Management" and the "Integrated Green Infrastructure Action Concept" (as a successor project to the "Green C" project).

At the local level, Bonn primarily supports exchange through networks. For example, the city initiated the Bonn Network for Develop-

ment—Responsibility, Justice, Future

as an association of around 70 development policy associations and initiatives. The Forum Future - Local Agenda Bonn also serves as a platform for networking and exchange with local initiatives, organizations and associations. The Forum initiated or participated in various projects, such as the Market of Opportunities at the conclusion of the urban art project "One World Construction Side Bonn". Sports clubs are also increasingly networking with other city players to promote sustainability in sports.

[17] Local cooperation for global justice

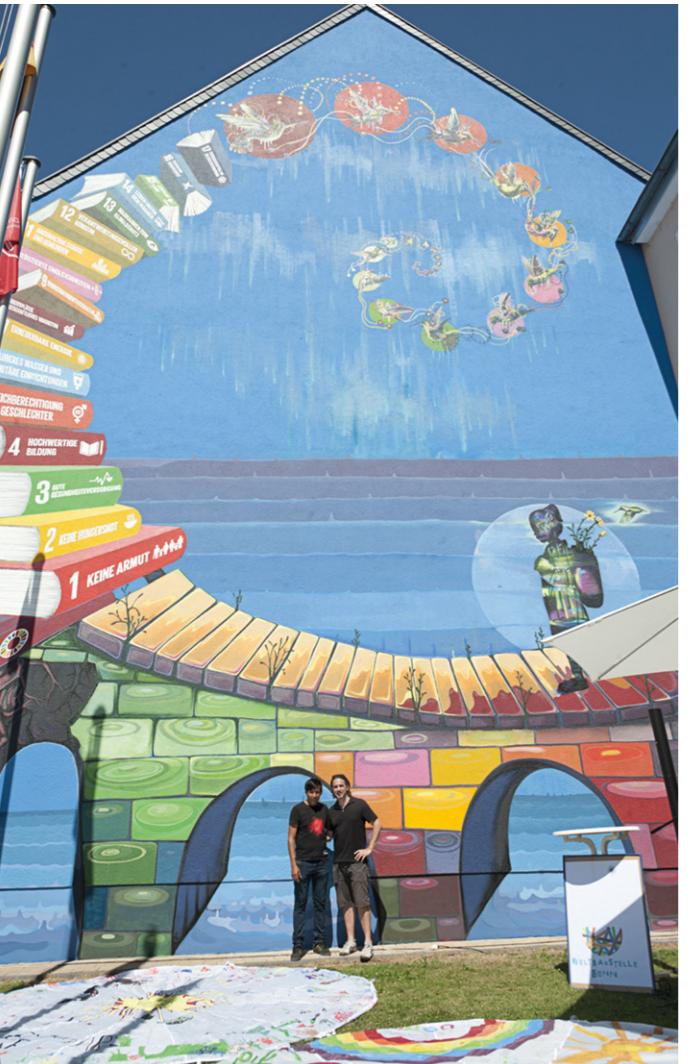
In Bonn, various broad alliances of various stakeholders working for global justice have been initiated or supported by the city.

One important initiative is the support of fair trade. Bonn has been officially certified as a Fairtrade Town since 2010 and was lastly re-awarded with the title in 2020. A municipal employee coordinates activities in this regard. As in previous years, Bonn participated in the nationwide Fair Weeks in 2020 and 2021. The city created the joint program with municipal and civil society-organized events and supported the promotion of the events. The city implemented the Bonn—All Around Sustainable event series during Fair Week. Discussions and interviews focused on the topics regional & ecological, fair & conscious, city & nature, and, for the first time in 2021, cultural & transformative. A contribution to sustainability and fair trade was also initiated in the sports sector with a pilot project to test Fairtrade soccer balls in three Bonn sports clubs.

Bonn is involved in information and education work to make the local dimension of global development agendas visible. Annual event formats such as the SDG Days (see practical example) and series on UN topics (2021, including "25 years of the UN in Bonn") advertise the aims of Agenda 2030. Examples of possible local involvement are presented in cooperation with numerous associations. Information booths at major festivals, in unusual places

and in digital formats, show citizens concrete examples of how to revitalize Agenda 2030 in urban areas and thus invite them to join in. At the annual citizens' festival on United Nations Day (UN Day), UN and other international organizations can present their thematic work and thus attract a broad public to Agenda 2030.

With the initiation of the Bonn Network for Development—Responsibility Justice Future, the city has created a permanent networking platform for local One World actors. For many years, Bonn has also invited an international organization in the field of development cooperation based in the city to an annual partnership to create a focus for their work through events and publicity campaigns.



17 International municipal development cooperation

As the German city of the United Nations, Bonn is characterized by its active international engagement. The city is involved in several international cooperations, such as the ICLEI Local Governments for Sustainability city network, in which more than 2,500 cities, municipalities, and districts worldwide are committed to local sustainable development. The ICLEI World Secretariat has been based in Bonn since 2010. Bonn is also active in other international alliances, such as the PREVENT Waste Alliance, the Bonn Network for International Disaster Prevention and Risk Management, the Biodiversity Network BION, the UNESCO Learning Cities Network, and gender@international Bonn, to strengthen the role of cities in the international sustainability dialog.

Regarding municipal development cooperation, Bonn maintains project partnerships with Bukhara (Uzbekistan), Cape Coast (Ghana), Chengdu (PR China), La Paz (Bolivia), Minsk (Republic of Belarus/Belarus), and Ulan Bator (Mongolia). These partnerships are based on the Concept for International Contacts of the City of Bonn (1999) and the Future Concept for Bonn as an International Policy Location (2014). Agenda 2030 and the corresponding municipal implementation resolutions and declarations are central guidelines. Numerous projects have been implemented with the project partner cities in recent years (e.g., as part of "Municipal Climate Partnerships", supported by Engagement Global). In La Paz, for example, a project to increase resource-efficient measures has been completed, through which the use of renewable energies and waste recycling could be expanded. A project to strengthen capacities in the health sector was implemented with Bukhara, and a project to integrate the disabled into the labor market was undertaken with Minsk. Through continuous exchange on sustainability issues and SDG reporting, new partners were gained, and project ideas were developed and elaborated into applications. Bonn also supports projects in development education and the implementation of the 2030 Agenda with EUR 40,000 per year.

Bonn SDG Days

With the annual organization of the Bonn SDG Days, introduced in 2018, a measure from the Sustainability Strategy has been implemented and established as a municipal umbrella format that makes the implementation of SDGs in Bonn visible through a variety of events. Several hundred people of different age groups and nationalities have been reached in recent years. The SDGs are often communicated in an experience-oriented and low-threshold way, such as via an SDG Wheel of Fortune at major events in the city (e.g. at the museum festival or open air festivals). The SDG Days involve various administrative offices and numerous actors in the city. In 2018, a wide range of information, discussion, and cultural activities were offered under the motto "17 days for the 17 goals," offers for young people such as SDG poetry slams or SDG pub quizzes. A special event in 2019 was the One World Construction Site Bonn. Together, an artist working in Bonn and a Bolivian artist with ties to Bonn's twin city La Paz designed a mural depicting the SDGs in Bonn's Mackeviertel district. More than 40 groups presented their local or global SDG work at the closing festival. In 2021, a street in the city center became the "17 Goals Zone" with an umbrella roof in the SDG colors, where numerous groups, institutions and local businesses provided information about their work and sustainability topics via a joint poster campaign. The One World Construction Site Bonn and the 17 Goals Zone were organized in cooperation with the Bonn Network for Development as a civil society partner.

Overview of contributions

Aspect	Contribution	Allocation to SDG Targets
Promoting sustainability through intermunicipal cooperation in the home country	<ul style="list-style-type: none"> Participation in "Dialogue Sustainable City / Participation in "Dialog Sustainable Municipalities NRW" "Municipalities for a Strong Supply Chain Act" resolution Regional Climate Change Prevention Strategy Regional working group "rak" Joint project "NEILASustainable Development through Intermunicipal Land Management" Integrated Green Infrastructure Action Concept Bonn Network for Development, Responsibility, Justice, Future Forum FutureLocal Agenda Bonn Sustainability in sports 	11.3 12.7 13.1 11.a 11.a 15.1 10.b 12.8 12.8
Local cooperation for global justice	<ul style="list-style-type: none"> Fairtrade Town certification Participation in the Fair Weeks "BonnAll Around Sustainable" event series Fairtrade projects in the sports sector Information and education work: Bonn SDG Days / Series on UN topics / UN Day Joint events with the Bonn Network for Development - Responsibility Justice Future Annual partnerships 	12.1 12.1 12.8 12.1 12.8 10.b 17.16
International municipal development cooperation	<ul style="list-style-type: none"> International cooperation: ICLEILocal Governments for Sustainability, PREVENT Waste Alliance, Bonn Network for International Disaster Prevention and Risk Management, BION biodiversity network, UNESCO Learning Cities Network and "gender@international Bonn" Project partnerships in the context of municipal development cooperation (basis: Concept for International Contacts of the City of Bonn / Future Concept for Bonn as an International Policy Location) Projects with project partner cities 	17.6 10.b 12.a

Indicators



Fairtrade-Town 12.1

NUMBER	2010	2018	2019
1	2	4	

Number of awards of the municipality as a Fairtrade Town



Fairtrade-Schools 12.1

PERCENT	2010	2015	2019
n/a	n/a	n/a	6,1

Proportion of schools awarded Fairtrade School status



Indicators



Municipal One World engagement 17.3



EUROS

2011
2822015
3152018
605

Total ongoing municipal expenditure for One World engagement and fair trade products in euros per 1,000 inhabitants

Sustainable action and economic activity mean taking responsibility for global consequences. In this context, North-South partnerships between municipalities are of great importance. In addition to intercultural exchange, ecological, economic and social sustainability approaches are jointly advanced through knowledge transfer, intermunicipal encounters, and targeted projects. Bonn's One World commitment is constantly growing and gaining in importance. Expenditure for One World commitment and fair-trade products has continued to rise in recent years. A decisive factor here is the city's financial contribution, which it uses in third-party-funded projects to promote global cooperation. The basis for Bonn's commitment to One World is the "Future Concept for Bonn as an International Political Location," the model declaration on Agenda 2030, and the Sustainability Strategy.

Visualization of selected Indicators

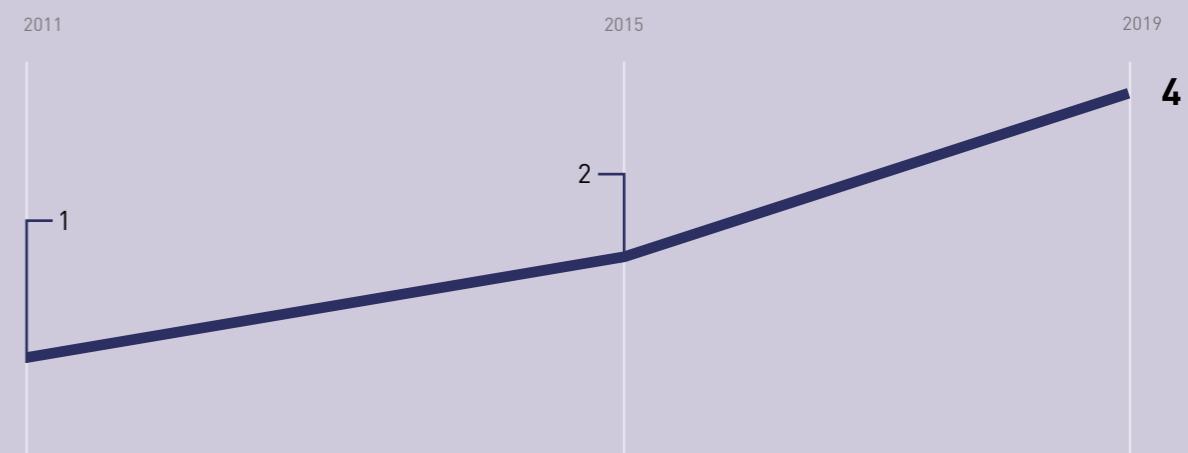
Municipal One World engagement

Total ongoing municipal expenditure for the One World engagement and fair trade products in euros per 1,000 inhabitants



Fairtrade Town

Number of times the municipality has been awarded Fairtrade Town status



Fairtrade Schools

Proportion of awarded Fairtrade Schools in relation to all schools



Overview: Allocation of the contributions to the Sustainable Development Goals and their targets

Overview

The 2030 Agenda emphasizes the importance of cooperation between different levels of action and actors. For the successful implementation of the 17 SDGs, all political levels of action—international, national, regional and local—must be involved in the sense of a “multi-level governance” approach. At the latest since the UN Conference in Rio (1992) and the Agenda 21 with its mission statement “Think globally, act locally”, municipalities have been recognized as central actors for promoting sustainability. Sustainable development touches all areas of local action and citizens must be involved in the required partnerships between political and social levels.

The local contributions presented in this VLR illustrate the range of ways in which a city can implement the SDGs at the municipal level. In this chapter, the collected municipal contributions are mapped to the 17 SDGs and their 169 targets. All qualitative contributions (i.e., concepts, measures, projects, and other activities) and quantitative contributions (i.e., an indicator, either predefined or add-on) were analyzed to determine, which of the 169 targets is primarily addressed (note that only the core target was determined, although each contribution can address several targets). In a first step of the analysis, the targets were summarized with the help of central keywords and core statements. This summary is presented in the table at the end of this chapter. Figure 6 presents the results of the analysis. The findings show that all 17 SDGs were addressed in terms of at least one target—either with qualitative or quantitative contributions (apart from “SDG 14—Life below water” due to its subordinate relevance considering the location of the city). The most references were found for SDG 4, SDG 11 and SDG 12:

Note

The 2030 Agenda primarily addresses nation states. Accordingly, there are numerous targets to which municipalities per se cannot make a direct contribution, as they have no influence on the achievement of global or national goals. Against this background, many white fields appear in figure 6, especially in those areas that a municipality cannot influence by their very nature. This is not to diminish the contribution of the city of Düsseldorf. On the contrary—for the goals that can in principle be influenced by the city of Düsseldorf, corresponding references could be found. Note also that only the core target was determined, although each contribution can address several targets.

In a first step of the analysis, the targets were summarized with the help of central keywords and core statements. This summary is presented in the table at the end of this chapter. Figure 6 presents the results of the analysis. The findings show that all 17 SDGs were addressed in terms of at least one target—either with qualitative or quantitative contributions (apart from “SDG 14—Life below water” due to its subordinate relevance considering the location of the city). The most references were found for SDG 4, SDG 11 and SDG 12.

Overall, the full thematic spectrum of the 2030 Agenda is covered—from ecological to social and economic goals. On the one hand, this demonstrates that all SDGs have targets directly related to the responsibilities of local governments. On the other hand, it is revealed that appropriate indicators for measuring the local implementation of the SDGs can be identified. In sum, the findings emphasize the importance of municipalities for promoting the 2030 Agenda. Municipalities can therefore take on a pioneering role in this regard.

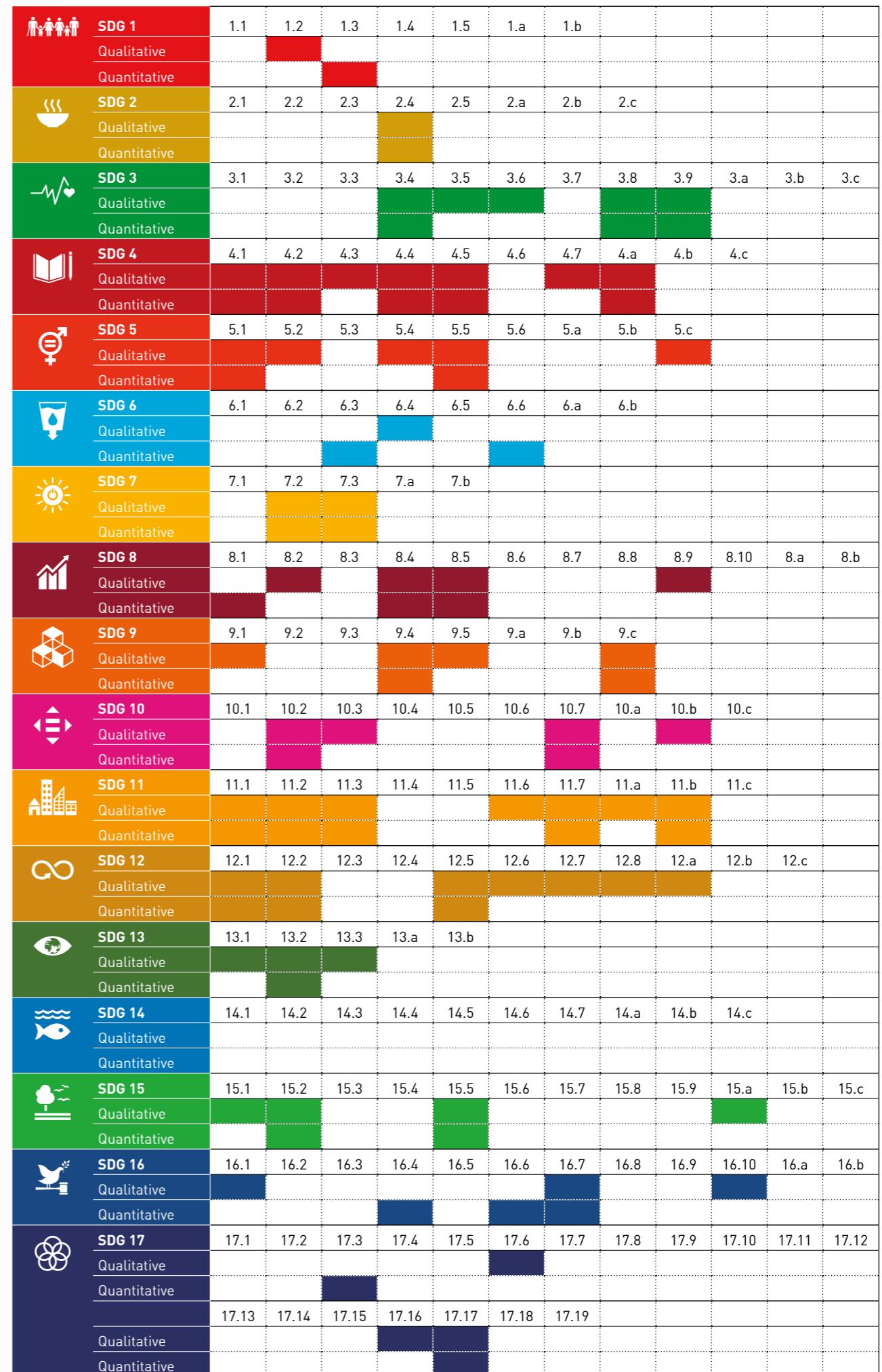
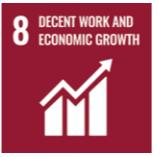


FIGURE 6: Allocation of the qualitative and quantitative contributions to the SDG targets (own elaboration)

Sustainable Development Goal	Targets	Sustainable Development Goal	Targets
	<p>1.1 Eradicate extreme poverty 1.2 Reduce relative poverty 1.3 Implement social protection systems and policies, achieve substantial coverage of the poor and the vulnerable 1.4 Ensure equal rights to economic and other resources 1.5 Increase resilience of poor people (to environmental, economic and social shocks/disasters) 1.a Mobilize resources for developing countries to implement programs/policies to end poverty 1.b Establish policy frameworks at regional, national, and international levels to eradicate poverty</p> <p>SDG 1—End poverty in all its forms everywhere</p>		<p>6.1 Achieve access to safe and affordable drinking water for all 6.2 Achieve access to adequate sanitation and hygiene for all 6.3 Improve water quality 6.4 Increase efficiency of water use, reduce water scarcity 6.5 Implement integrated water resources management 6.6 Protect and restore water-connected ecosystems 6.a Expand international cooperation and assistance to developing countries on water and sanitation issues 6.b Increase participation of local communities in sustainable water management and sanitation.</p>
	<p>2.1 End hunger, ensure access to food 2.2 End all forms of malnutrition 2.3 Double agricultural productivity and incomes of small-scale food producers 2.4 Ensure sustainability of food production and use of resilient agricultural practices 2.5 Preserve genetic diversity of seeds, crops, domestic/domestic animals (as well as wild relatives) 2.a Invest to improve agricultural production capacity in developing countries 2.b Correct and prevent trade restrictions and distortions in global agricultural markets 2.c Take measures to ensure the functioning of food commodity markets and facilitate access to market information</p> <p>SDG 2—End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p>		<p>7.1 Ensure access to affordable, reliable and modern energy services 7.2 Increase the share of renewable energies 7.3 Increase energy efficiency 7.a Increase international cooperation to facilitate access to clean energy research and technology 7.b Improve infrastructure/technology in developing countries to provide sustainable energy services</p> <p>SDG 7—Ensure access to affordable, reliable, sustainable and modern energy for all</p>
	<p>3.1 Reduce maternal mortality 3.2 Reduce newborn and child mortality 3.3 Combat communicable diseases 3.4 Reduce premature mortality due to non-communicable diseases, promote mental health and well-being 3.5 Strengthen prevention and treatment of substance abuse 3.6 Halve deaths and injuries from road traffic crashes globally 3.7 Ensure access to sexual/reproductive health care / inclusion of reproductive health in national strategies 3.8 Achieve universal health coverage/access to health services and essential medicines/vaccines for all 3.9 Reduce deaths and illnesses from chemicals and pollution of environmental assets 3.a Strengthen the WHO Framework Convention on Tobacco Control 3.b Support research and development and access to vaccines and medicines 3.c Increase health financing/education and training of health workers in developing countries 3.d Strengthen early warning, risk reduction and management of health risks</p> <p>SDG 3—Ensure healthy lives and promote well-being for all at all ages</p>		<p>8.1 Sustain per capita economic growth 8.2 Achieve higher economic productivity through diversification, modernization and innovation 8.3 Promote development-oriented policies to support decent work, entrepreneurship and innovation 8.4 Improve resource efficiency in consumption & production, strive to decouple economic growth from environmental degradation 8.5 Achieve full and productive employment and decent work and equal pay for work of equal value for all 8.6 Reduce proportion of young people out of employment and education/vocational training 8.7 Take action against forced and child labor, slavery and human trafficking 8.8 Protect labor rights and promote workplace safety 8.9 Develop and implement policies to promote sustainable tourism 8.10 Strengthen capacity of national financial institutions to promote access to financial/insurance services 8.a Increase aid for trade to developing countries 8.b Develop global strategy for youth employment and implement Global Jobs Pact</p> <p>SDG 8—Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>
	<p>4.1 Ensure free and quality schooling for all students 4.2 Ensure access to quality early childhood education and care 4.3 Ensure access to affordable and quality technical, vocational and tertiary education. 4.4 Ensure sufficient skills for employment, decent work and entrepreneurship 4.5 Ensure equal opportunities and equal access to all levels of education and training 4.6 Minimize the number of illiterate people 4.7 Improve knowledge and skills to promote sustainable development 4.a Develop safe, inclusive and effective educational institutions 4.b Increase the number of available higher education scholarships for developing countries 4.c Increase supply of qualified teachers in developing countries</p> <p>SDG 4—Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>		<p>9.1 Build resilient and sustainable infrastructure to promote economic development and human well-being 9.2 Promote sustainable industrialization and increase industry's share of employment and GDP 9.3 Increase access to financial services for small industrial and other enterprises 9.4 Modernize infrastructures and retrofit industries in a sustainable manner 9.5 Improve research and build technological capacity of industrial sectors 9.a Support developing countries to develop sustainable infrastructures 9.b Support indigenous technology development, research and innovation in developing countries 9.c Expand access to information and communication technology and provide access to Internet</p> <p>SDG 9—Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation</p>
	<p>5.1 End discrimination against women/girls 5.2 Eliminate violence against women/girls 5.3 Eliminate child marriage, early marriage and forced marriage, and genital mutilation of women/girls 5.4 Recognize and value unpaid care and domestic work 5.5 Ensure participation and equal opportunities for women in leadership roles at all levels 5.6 Ensure access to sexual and reproductive health and reproductive rights 5.a Implement reforms to create equity in access to economic and other resources 5.b Improve use of enabling technologies to promote women's empowerment 5.c Strengthen sound policies/legislation for gender equality and women's empowerment</p> <p>SDG 5—Achieve gender equality and empower all women and girls"</p>		<p>10.1 Achieve income growth of the poorest population 10.2 Promote empowerment and inclusion of all people 10.3 Ensure equal opportunities and reduce inequalities 10.4 Take policy action to increase equality 10.5 Improve regulation and supervision of global financial markets and institutions 10.6 Strengthen the voice of developing countries in decision-making in international economic and financial institutions 10.7 Facilitate orderly and safe migration and mobility, implement managed migration policies 10.a Apply principle of special and differential treatment for developing countries 10.b Promote development assistance and financial flows in developing countries 10.c Reduce transaction costs for migrants' home remittances</p> <p>SDG 10—Reduce income inequality within and among countries</p>

Sustainable Development Goal	Targets	Sustainable Development Goal	Targets
 SDG 11 SUSTAINABLE CITIES AND COMMUNITIES	<ul style="list-style-type: none"> 11.1 Ensure affordable, safe and adequate housing and basic services for all 11.2 Provide access to sustainable transportation systems for all, increase road safety 11.3 Implement integrated sustainable urban development 11.4 Improve protection and preservation of the world's cultural and natural heritage 11.5 Improve disaster prevention 11.6 Reduce environmental impact of cities 11.7 Ensure access to green spaces and public spaces for all 11.a Through enhanced higher-level development planning, support linkages between cities and communities 11.b Develop sustainable urban development policies in more cities and towns, and a holistic disaster risk management 11.c Support developing countries in constructing sustainable and resilient buildings 	 SDG 15 LIFE ON LAND	<ul style="list-style-type: none"> 15.1 Ensure conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems 15.2 Promote sustainable management of all forest types 15.3 Combat desertification and neutralize land degradation 15.4 Preserve mountain ecosystems 15.5 Reduce degradation of natural habitats, end biodiversity loss 15.6 Promote equitable sharing and adequate access to genetic resources 15.7 End poaching and trade in protected plant and animal species 15.8 Prevent introduction of invasive alien species 15.9 Incorporate ecosystem and biodiversity values into policies 15.a Increase financial resources for biodiversity and ecosystem conservation 15.b Increase financial resources for sustainable forest management and provide incentives for developing countries to do so 15.c Combat poaching and trade in protected species
 SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	<ul style="list-style-type: none"> 12.1 Initiate measures for sustainable consumption and production patterns 12.2 Achieve sustainable management and use of natural resources 12.3 Halve food waste and reduce food losses 12.4 Ensure environmentally sound disposal of waste and chemicals 12.5 Reduce waste generation 12.6 Encourage businesses to use sustainable process techniques and reporting 12.7 Promote sustainable public procurement 12.8 Ensure information and awareness of sustainable development among all people 12.a Assist developing countries in transitioning to sustainable consumption and production patterns 12.b Develop monitoring tools for the impacts of sustainable tourism and support 12.c Reduce fossil fuel subsidies, taking into account the special needs of developing countries 	 SDG 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	<ul style="list-style-type: none"> 16.1 Reduce violence and violence-related mortality 16.2 End violence against children 16.3 Promote rule of law and ensure equal access to justice 16.4 Combat organized crime, reduce illicit financial and arms flows 16.5 Reduce corruption 16.6 Build effective, accountable and transparent institutions 16.7 Ensure participatory decision-making at all levels 16.8 Increase participation of developing countries in global governance institutions 16.9 Ensure legal identity for all people 16.10 Ensure access to information and protect fundamental freedoms 16.a Prevent violence and combat terrorism and crime 16.b Implement non-discriminatory legislation and policies
 SDG 13 CLIMATE ACTION	<ul style="list-style-type: none"> 13.1 Strengthening resilience and adaptive capacity to climate change 13.2 Integrate climate protection measures into national policies 13.3 Improve education and human and institutional capacity in climate change mitigation and adaptation 13.a Provide financial support for climate change mitigation activities in developing countries 13.b Enhance climate change planning and management capacity for developing countries 	 SDG 17 PARTNERSHIPS FOR THE GOALS	<p>Financing</p> <ul style="list-style-type: none"> 17.1 Strengthen domestic tax collection resources in developing countries 17.2 Fulfill development aid commitments 17.3 Mobilize additional resources for development assistance 17.4 Assist developing countries in dealing with indebtedness 17.5 Implement investment promotion schemes for developing countries <p>Technology</p> <ul style="list-style-type: none"> 17.6 Expand cooperation for knowledge transfer 17.7 Promote development, transfer and dissemination of sustainable technologies in developing countries 17.8 Systematize cooperation for science/technology/innovation; introduce global mechanism for technology promotion <p>Capacity building</p> <ul style="list-style-type: none"> 17.9 Increase international support for capacity building in developing countries <p>Trade</p> <ul style="list-style-type: none"> 17.10 Promote open, equitable, and rules-based global trading system 17.11 Increase exports of developing countries 17.12 Achieve tariff/quota-free market access for developing countries <p>Systemic issues</p> <ul style="list-style-type: none"> 17.13 Improve global macroeconomic stability 17.14 Improve policy coherence for sustainable development 17.15 Respect national sovereignty in implementing sustainability policies 17.16 Expand global (multi-actor) partnerships for sustainable development 17.17 Promote formation of public, public-private and civil society partnerships 17.18 Increase capacity building for data availability in developing countries 17.19 Develop measures of sustainable development progress, support statistical capacity building in developing countries
 SDG 14 LIFE BELOW WATER	<ul style="list-style-type: none"> 14.1 Reduce marine pollution 14.2 Sustainably manage and protect marine and coastal ecosystems 14.3 Minimize and address the impacts of ocean acidification 14.4 Implement sustainable fisheries mechanisms 14.5 Contribute to the conservation of coastal and marine areas 14.6 Prohibit forms of fisheries subsidies that lead to excessive and illegal fishing 14.7 Increase economic benefits through sustainable use of marine resources for developing countries 14.a Deepen scientific knowledge to improve ocean health and increase biodiversity 14.b Ensure access of small-scale fishers to marine resources and markets 14.c Improve conservation and sustainable use of the oceans and their resources 	SDG 17 PARTNERSHIPS FOR THE GOALS	
SDG 11—Make cities and human settlements inclusive, safe, resilient, and sustainable		SDG 15—Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
SDG 12—Ensure sustainable consumption and production patterns		SDG 16—Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
SDG 13—Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy		SDG 17—Strengthen the means of implementation and revitalize the global partnership for sustainable development	
SDG 14—Conserve and sustainably use the oceans, seas and marine resources for sustainable development			

FIGURE 6: Summary of the 169 UN Sustainable Development Goal targets (own elaboration)

Conclusion and Outlook

Conclusion and Outlook

and concepts, measures, projects, resolutions of the city council, specific goals, collaborations, networks, and organizational structures) and recent developments through indicators, this report highlights the status quo of sustainable development comprehensively.

Municipal sustainability reporting fulfills three essential functions. First, it is a tool for analysis—a stocktaking of the status quo with regard to activities and developments in the municipality. Second, it serves as a communication tool considering different audiences at distinct levels (such as the public and politics on local, national, and international levels). Third, it has a steering function, reflecting on actual developments and adapting current and future activities (such as revising a Sustainability Strategy.) This Voluntary Local Review submitted to the UN will, in principle, promote all of these benefits.

The report contributes to the growing global VLR movement, with more and more municipalities producing an assessment of their progress implementing SDGs. This complements the official national reporting by UN member states by highlighting practical experiences from the concrete implementation level of municipalities. In the “Decade of Action” for sustainable development, this joint action is urgently needed.

The VLR used the Reporting Frame Sustainable Municipality, a standardized structure for local sustainability reporting that is currently promoted in Germany. In the Global Sustainable Municipality in North Rhine-Westphalia project, all five VLRs (Düsseldorf, Bonn, Münster, Dortmund, and Arnsberg) were developed based on this structure. Hence, this report contributes to establishing a more coherent reporting format in German municipalities. The present work shows how the global framework of the 2030 Agenda can be successfully localized with regard to qualitatively structuring the thematic fields in municipalities and applying suitable quantitative indicators for this level. With the combination of reporting the activities in the municipality (integrated or sectoral strategies

Several guidelines on VLRs (cf. chapter 1) highlight that the emphasis in reporting local contributions to the 2030 Agenda should be on the process itself rather than the outcome. In this sense, the process of preparing this review has contributed to the localization of the SDGs—for example, in supporting horizontal coordination in the municipality. The VLR process represents a journey that does not end with the report. The report enables a stocktaking of the progress and shortcomings in the local SDG implementation, and the findings can be considered in existing and future implementation efforts.

Overall, this report underlines the crucial role of municipalities in the global implementation of the 17 SDGs. It demonstrates that contributions to most of the 169 SDG targets can be made at the local level. In this regard, the report supports claims in the literature that at least 65 % of the targets cannot be reached without the full engagement of municipalities. The yearly growing VLR community underlines this role. However, VLRs must become more systematically involved in the respective national reporting tools in the future. If many more municipalities report their contributions in the forthcoming years and the link between national and local reporting becomes stronger, the 2030 Agenda can be jointly implemented at all levels in the Decade of Action.

Appendix



Reference List

Bertelsmann Stiftung, German Federal Institute for Research on Building, Urban Affairs and Spatial Development, German County Association, Association of German Cities, German Association of Towns and Municipalities, German Institute of Urban Affairs, Engagement Global (Service Agency Communities in One World), Council of European Municipalities and Regions / German Section (2020): SDG Indicators for Municipalities—Indicators for mapping United Nations Sustainable Development Goals in German municipalities. 2nd, completely revised edition, Gütersloh 2020.

Deininger, N., Lu, Y., Griess, J., Santamaria, R. (2019): Cities Taking the Lead on the Sustainable Development Goals. A Voluntary Local Review Handbook for Cities. Pittsburgh: Brookings Institution, 2019. Carnegie Mellon University.

Eichhorn, S., Hans, M., & Schön-Chanishvili, M. (2021): A participatory multi-stakeholder approach to implementing the Agenda 2030 for sustainable development: theoretical basis and empirical findings. In: A Nexus Approach for Sustainable Development (pp. 239-256). Springer, Cham.

Engagement Global (Eds.) (2022): "Voluntary Local Reviews". Handreichung zur "Freiwilligen Lokalen Berichterstattung" über die Umsetzung der Agenda 2030. Bonn: 2022.

German Council for Sustainable Development (RNE) (2021): Berichtsrahmen nachhaltige Kommune auf Basis des DNK. Ergebnis eines Stakeholderprozesses des Rats für Nachhaltige Entwicklung. Handreichung für Kommunen. Berlin: German Council for Sustainable Development.

German Institute of Urban Affairs & Bertelsmann Stiftung (2021): Status of the SDG implementation in German municipalities Municipal contribution to the German Voluntary National Review. DOI: 10.11586/2021061.

Gustafsson, S., & Ivner, J. (2018): Implementing the Global Sustainable Goals (SDGs) into Municipal Strategies Applying an Integrated Approach. In *Handbook of Sustainability Science and Research* (301-316). Springer, Cham.

Institute for Global Environmental Strategies (IGES) (2021): State of the Voluntary Local Reviews 2021. From Reporting to Action. IGES Research Paper.

Koch, F., Krellenberg, K., Reuter, K., Libbe, J., Schleicher, K., Krumme, K., Schubert, S. & Kern, K. (2019): How can the Sustainable Development Goals be implemented? Challenges for cities in Germany and the role of urban planning. *disP-The Planning Review*, 55(4), 14-27.

Organisation for Economic Co-operation and Development (OECD) (2020): A Territorial Approach to the Sustainable Development Goals. Synthesis report, OECD 2020.

Pipa, T. and Bouchet, M. (2020): Next generation urban PlanningEnabling sustainable development at the local level through voluntary local reviews (VLRs). Washington, D.C.: The Brookings Institution.

Siragusa A., Vizcaino P., Proietti P., Lavalle C. (2020): European Handbook for SDG Voluntary Local Reviews, EUR 30067 EN. Publications Office of the European Union, Luxembourg, 2020. doi:10.2760/670387.

Photo Credits

Chapter 2

Bonn panoramas:
Federal City of Bonn / Giacomo Zucca
SDG wheel of fortune:
Federal City of Bonn / Giacomo Zucca
Fair labor practices:
Barbara Frommann / Federal City of Bonn
Participation: Federal City of Bonn

Chapter 3.1

PV roof: Federal City of Bonn
Window renovation:
Federal City of Bonn / Kolja Matzke

Chapter 3.2

Urban Gardening project „Stadtfrüchtchen“:
Federal City of Bonn / Kolja Matzke
Flowering fields: Federal City of Bonn

Chapter 3.3

Tramway:
Martin Magunia / Public utility Bonn
Cyclist: Federal City of Bonn / Kolja Matzke

Chapter 3.4

Young people in class: Christian Schwier/
fololia.com
Engagement Gallery: Cynthia Rühmekorf/
Federal City of Bonn

Chapter 3.5

3 Generations: Company V/Fotolia.co
Bonn Inclusive: Federal City of Bonn / Kolja
Matzke

Chapter 3.6

Youth Center: Federal City of Bonn
Kita Rheindampfer: Federal City of Bonn /
Isabel Klotz

Chapter 3.7

Action day on personnel policy: Martin
Magunia
Disposal: Jörn Wolter/bonnorange AöR

Chapter 3.8

Unpacked food store: Armin Röser
ObstSolaWi: Georg Hirsch

Chapter 3.9

One World Construction Site: Jo Hempel
House of Nature: Federal City of Bonn

Short Portrait Service Agency Communities in One World



Who we are—the Service Agency Communities in One World

The Service Agency Communities in One World (SKEW) is a programme of Engagement Global. It is your partner for all issues related to municipal development cooperation in Germany. Since 2001, the Service Agency is available to municipalities as a service and consultation institution on behalf of the Federal Ministry for Economic Cooperation and Development. The focus is on future issues as municipal partnerships, migration and Development, Global Sustainability Municipalities-Localising SDGs and fair trade and fair procurement.

The Service Agency supports actors in administrations, local politics and civil society to shape their engagement in municipal development cooperation. It implements pilot projects and offers financial and professional support. With the aim of strengthening municipal partnerships, the Service Agency offers a dialogue platform to exchange experiences and jointly develop local solutions to global issues for municipalities from Germany and countries of the Global South.

The Support project Global Sustainability Municipalities

The project Global Sustainability Municipalities supports municipalities in implementing the strategic integration of the SDGs. The daily actions of municipalities should be following the principals of the Agenda 2030 – aiming to implement an eco-economic, social and ecologic sustainable development locally by taking global responsibility as well.

To be able to achieve this a key element is the development of an integrated sustainability strategy for municipalities in the context of the 2030 Agenda, as implemented in the “Global Sustainable Municipalities in North Rhine-Westphalia”

project. The anchoring of sustainability on all levels is a condition for visionary municipal development. The municipality prepares itself for the future and can thus use cost and efficiency advantages. Support services are provided throughout this processes, by carrying out inventories, advising on how relevant municipal actors (e.g. from politics, administration, civil society, companies, science) can best be involved and in sustainability management and its long-term establishment. This offer is being implemented in currently 10 federal states in Germany, with 171 municipalities taking part.

In addition to sustainability strategies and reporting, we offer the following support:

- Conferences to discuss and exchange possible actions to implement the 2030 Agenda in German municipalities;
- Support for the implementation of Agenda 2030 events in the municipalities (e.g. event series, information campaigns, dialogue processes);
- Information materials such as the SDG fact sheets, studies, SDG posters, SDG flags, municipal practical examples and flyers;
- Support in co-signing the specimen resolution “2030 Agenda for Sustainable Development: Shaping sustainability at the local level” and networking with other municipalities;

More information:

[https://skew.engagement-global.de/
municipalities-for-global-sustainability.html](https://skew.engagement-global.de/municipalities-for-global-sustainability.html)

Short Portrait Sustainability Network North Rhine-Westphalia (LAG 21 NRW e.V.)



Who we are, where we come from

The Sustainability Network North Rhine-Westphalia (LAG 21 NRW e.V.) is an independent network of municipalities and civil society associations, unions and actors in North Rhine-Westphalia that provides strategic support for local sustainability processes and implements them in a practice-oriented manner through education, consulting, projects and campaigns. In dialogue, we rely on the involvement of politics, administration, civil society, science and business to meet the social, ecological and economic requirements of sustainable development. In our actions, we are committed to Agenda 21 and the resolutions of the 1992 UN Conference on Environment and Development in Rio de Janeiro, and since 2016 to Agenda 2030 for Sustainable Development. In doing so, we are guided by the model of Strong Sustainability, which focuses on the limits of the planet Earth (planetary boundaries) as a guideline for human action.

The network's origins lie in the worldwide Local Agenda 21 movement, which creates solutions for central issues of socially, ecologically, and economically just development at the local level according to the guiding principle “Think globally, act locally.” In 2001, LAG 21 NRW was founded as a municipal network to enable an exchange of content and undertake statewide projects and campaigns together with local sustainability initiatives. We have helped professionalize Agenda 21 processes and anchor them more firmly in politics and administration. Within the NRW Sustainability Network framework, we have developed into a central point of contact for local sustainability both statewide and nationally and see the network as a moderator and shaper, facilitating the transformation process of sustainable development through discourse.

How we work

We believe a transformation toward sustainable development can only be achieved through a process in which civil society, politics, administration, science, and business can participate on an equal footing. Therefore, we strive to initiate and accompany lasting change processes through discourse, dialogue, consulting processes, projects, campaigns, and our research work. We focus our work locally, regionally, and nationwide and contribute our experience to national and international processes. We make the methods and results of our work transparently available.

What we offer

We support, advise, and accompany municipalities and civil society actors in the development and implementation of sectoral and integrated sustainability strategies and reports. Through our research work, we also teach children, young people, and adults the skills to shape sustainable development and contribute to the targeted transfer of knowledge. We bring together stakeholders and initiate participation processes to firmly anchor sustainability goals in society.

We believe that current and future challenges cannot be met with the problem-solving strategies of the past. Climate change, species extinction, population development, growth and prosperity, and a socially and environmentally compatible economy require a new, systemic, and cross-cutting approach to thinking and acting.

Have we stirred your interest?

You can find more information at www.lag21.de, or you can contact Dr. Klaus Reuter directly at k.reuter@lag21.de, tel. +49-231-936960.

