Freiburg
IM BREISGAU

Voluntary Local Review of the City of Freiburg 2023

Implementing the Agenda 2030 and the Sustainable Development Goals at the local level

Publication details

Published by:

City of Freiburg im Breisgau
The Mayor
Rathausplatz 2-4
79098 Freiburg
Germany

For more information, see:
www.freiburg.de
www.freiburg.de/nachhaltigkeitsmanagement
www.freiburg.de/nachhaltigkeit

Contact:

City of Freiburg Sustainability Management Unit (nachhaltigkeitsmanagement@stadt.freiburg.de)
Sebastian Backhaus (+49 761 201-1070)
Susanne Assfalg (+49 761 201-1071)

With support from:

Engagement Global gGmbH / Service Agency Communities in One World
www.engagement-global.de und www.service-eine-welt.de
service-eine-welt@engagement-global.de

Realisation and text:

Landesarbeitsgemeinschaft Agenda 21 NRW e.V.
www.lag21.de
info@lag21.de

Layout:

Matthias Höfer, Grafik- und Mediendesign, Cologne

Bildnachweis Titelfoto + Vorwort:

© FWTM, Spiegelhalter
© Stadt Freiburg

As at: 2023

Supported by
ENGAGEMENT GLOBAL
Service für Entwicklungsinitiativen

with its
SERVICE AGENCY
COMMUNITIES IN ONE WORLD

with funding from the
Federal Ministry
for Economic Cooperation
and Development

Foreword

Dear citizens of Freiburg, dear friends and partners of our city,

Here in Freiburg, we see sustainable development as a cross-cutting task that affects all areas of life in society. Promoting sustainability, as reflected in the maxim "Think globally - act locally", already has a long tradition in the city. As far back as1994, Freiburg signed the Aalborg Charter and committed itself to developing a Local Agenda 21. In 2006 the Freiburg Sustainability Council was founded, which developed the Freiburg Sustainability Goals covering twelve key action areas. These were then adopted in 2009 - several years ahead of the United Nations Sustainable Development Goals (SDGs). Since the establishment of the Sustainability Management Unit in 2011 - the central office that coordinates Freiburg's sustainability processes - the topic has been systematically mainstreamed and advanced across our City Administration.

Freiburg also plays a pioneering role in Germany by virtue of its long-standing and comprehensive sustainability reporting. I am therefore all the more pleased to present this First Voluntary Local Review (VLR) of the City of Freiburg. The report is intended not only to review our own progress, but also above all to motivate other municipalities worldwide to drive forward the sustainable transformation of their communities. Cities and communities do, after all, play an essential role in achieving the international Sustainable Development Goals (SDGs).

The report is devoted to five selected SDGs: (6) Clean water and sanitation, (7) Affordable and clean energy, (9) Industry, innovation and infrastructure, (11) Sustainable cities and communities, and (17) Partnerships for the Goals.

The City of Freiburg plans to systematically continue its extensive activities for sustainability in the coming years, with a focus on implementing the Freiburg Sustainability Goals. As Mayor, I intend to remain engaged on this both locally and internationally - also as part of my role as European President of the Local Governments for Sustainability (ICLEI) network.

I would like to thank the City of Freiburg's offices and municipal companies that helped to prepare this First Voluntary Local Review (VLR). I would also like to thank the North Rhine-Westphalian Working Party on Agenda 21 (LAG 21 NRW), the Service Agency Communities in One World (SKEW) and the German Federal Ministry for Economic Cooperation and Development (BMZ) for their support with this report.

In particular, however, I would like to thank the citizens of Freiburg, our engaged civil society, the academic and research community and the business community. As I said, sustainability is a challenging task for all of us. Only through partnerships - both local and global - can we achieve our ambitious goals.

Martin W. W. Horn
Lord Mayor of the City of Freiburg

Contents

01

1 Introduction

Photo 1: View of Freiburg Schwabentor and Münster © Stadt Freiburg

1.1 Voluntary local reviews in the context of the 2030 Agenda

In 2015, the UN member states adopted the 2030 Agenda with its 17 Sustainable Development Goals (SDGs). In the 2030 Agenda, the global community agreed on a framework for a worldwide transition to sustainable development. The 17 SDGs (see Fig. 1) are translated into greater detail in 169 targets, covering the environmental, social and economic aspects of sustainability. The SDGs are universally applicable, addressing all UN member states in the Global South as in the North, and aim to bring about radical changes at political and societal levels. The outcomes of the Global Sustainable Development Report 2019 (to be updated in September 2023) make it clear that rigorous action will be needed during the ongoing UN Decade of Action 2020-2030 if the SDGs are to be achieved by 2030. As a universal framework of reference, the 2030 Agenda guides actions within Germany too, at federal, state and local levels.

Figure 2: The 17 Sustainable Development Goals

To render visible the progress made towards achieving the SDGs, the 2030 Agenda calls for regular reviews.[1] At national level this takes the form of Voluntary National Reviews (VNR). The VNRs are presented annually at the UN High-Level Political Forum, the central platform for the follow-up and review of the 2030 Agenda at the global level. Every year the Forum focuses on different SDGs. In 2023, for instance, the focus is on SDGs 6, 7, 9, 11 and 17. In 2016 and 2021 Germany presented a Voluntary National Review to the High-Level Political Forum (HLPF).

Municipalities have a particularly vital part to play in the successful implementation of the 2030 Agenda, since this is the level at which the stage will be set in the most crucial way.[2] All 17 SDGs have targets that directly relate to local level responsibilities. Pertinent literature often points to the fact that at least 65 per cent of the 169 targets will only be achieved if municipalities are consistently involved in implementation and monitoring.[3] Accordingly, the 2030 Agenda underlines the key role to be played by local authorities and the importance of cooperation between different levels of action and actors.[4] Local actors are called on to identify and implement action required at local level based on the global goals. This is known as localising the Sustainable Development Goals. Three main areas of responsibility may be addressed: "at local level for local level" (measures that impact the municipality itself), "at local level for the

1 Reporting takes place within the framework of the 2030 Agenda review mechanism ("conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven"; UN, 2015 - paragraph 79). It is also indicated that the local level should be involved ("follow up and review at the regional and subregional levels can, as appropriate, provide useful opportunities for peer learning, including through voluntary reviews"; UN, 2015 - paragraph 80). By 2030 all UN member states are to have published a minimum of two national reports. Official requirements apply to the structure and content of reviews at nation state level.

2 See UCLG, 2021 and Gustafsson & Ivner, 2018.

3 See OECD, 2020.

4 UN, 2015 - Paragraph 45.

world" (local measures with a global impact), and "in and through other countries" (measures that are realised worldwide and in conjunction with other municipalities).[5] Municipalities thus play a pivotal role as trailblazers for change and as the level closest to citizens. Against this backdrop, over 200 German municipalities have already signed the specimen resolution "The 2030 Agenda for Sustainable Development: Building Sustainability at the Local Level" (Association of German Cities, German Association of the Council of European Municipalities and Regions (CEMR)).

As awareness grows of the importance of the local level for achieving the SDGs, an increasing number of municipalities around the world are reporting on their own individual contributions. In contrast to national reviews, local reviews of SDG implementation have no official status and thus no UN mandate with concomitant reporting requirements. Since 2018 (when New York and the three Japanese cities of Shimokawa, Toyama and Kitakyushu were the first to report on their progress), more and more municipalities have taken the initiative and reported voluntarily on the status of their local-level implementation of the SDGs. The reports are thus known as Voluntary Local Reviews, or VLRs. Local reporting has now become an extremely dynamic global movement, with several new VLRs published every year.[6] The first German municipalities to produce a VLR were Mannheim in 2019 and Bonn in 2020. In 2022, Dortmund, Düsseldorf, Hannover and Kiel followed suit. VLRs offer a huge potential to feed practical experience at local level into national and regional reporting, thus enhancing overall coordination, accountability and transparency. The dovetailing of the different levels (known as vertical integration) is pivotal. In this regard, the relevance of VLRs transcends mere monitoring, since VLRs accelerate localisation of the SDGs and the transition to greater sustainability in the spirit of bottom-up processes, while also supporting reciprocal learning.[7] This is also reflected in the growing trend to firmly integrate the local level in the UN High-Level Political Forum (e.g. as part of the Local and Regional Governments Forum) and involve local actors in national reviews.[8]

Given that there have not so far been any uniform standards for the production of VLRs, it is not surprising that the reviews published around the world vary widely in terms of structure and content. A growing number of publications do, however, offer guidance (including for instance UCLG & UN-Habitat Guidelines for Voluntary Local Reviews, the European Handbook for SDG Voluntary Local Reviews, the UNDESA Global Guiding Elements for Voluntary Local Reviews of SDG implementation and, in German, Engagement Global's Handreichung zu VLRs).[9] This VLR has taken account of the international guidelines in terms of the methodology used and the structure of the review.

5 See also the similar breakdown of measures in the German Sustainable Development Strategy.

6 For an up-to-date list of VLRs published to date see the Voluntary Local Review website of the UN Department of Economic and Social Affairs (UN DESA). Comparative analyses can be found in UN-Habitat & UCLG, 2021.

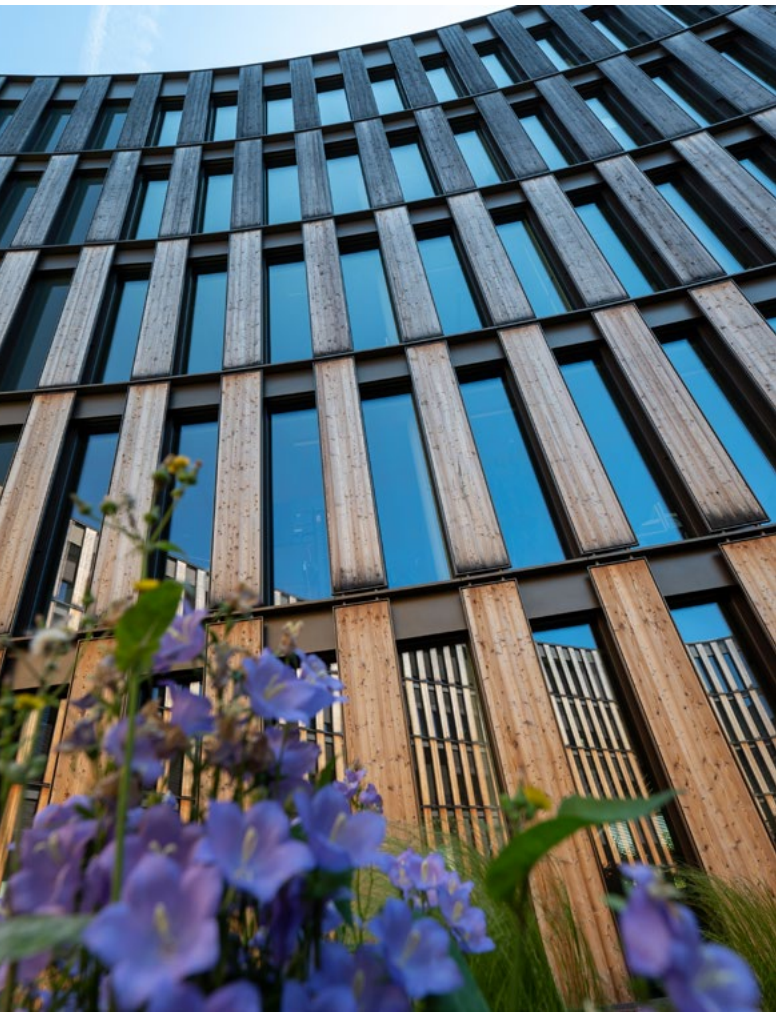
7 See also Deininger et al., 2019; Pipa & Bouchet, 2020 and Koch et al., 2019.

8 See German Institute of Urban Affairs & Bertelsmann Stiftung, 2021.

9 Cf. UCLG & UN-Habitat, 2020; Siragusa et al., 2020; UNDESA, 2020; Engagement Global, 2022; see also IGES, 2021 and UNESCAP, 2020.

1.2 Context, methodology and structure of this report

Photo 3: The courtyard of the town hall in Stühlinger © Stadt Freiburg



This Voluntary Local Review reflects the status quo in 2023 in terms of sustainable local development and provides a round-up of the progress made towards achieving the SDGs. The VLR has been produced within the framework of a project of Engagement Global's Service Agency Communities in One World on behalf of the Federal Ministry for Economic Cooperation and Development (Voluntary Local Reviews for Globally Sustainable Municipalities - Local-level support and advice on producing VLRs). In Germany, the Service Agency is the central contact point for local development policy. It enables municipalities to get involved in action for global sustainability and a more equitable world, as set out in the United Nations 2030 Agenda, with actions both at local level and in the Global South. During the project term from July 2022 to October 2023, six German municipalities (the City of Freiburg, the District of Fürstenfeldbruck, the Free and Hanseatic City of Hamburg, the City of Cologne, the Municipality of Bad Köstritz and the Municipality of Rottenburg am Neckar) were given support to help them draw up individual VLRs in German and in English. The municipalities involved could report on either all 17 SDGs or on the five focal SDGs to be addressed by the 2023 UN High-Level Political Forum (SDGs 6, 7, 9, 11 and 17). The VLRs were published to coincide with the HLPF in summer 2023. Alongside the ongoing support for the participating municipalities, inter-municipal exchange was important within the scope of the project, to encourage municipalities to learn from one another. Overall this has helped make German VLRs stronger and more uniform.

The individual municipalities put in place working groups to elaborate the VLRs. They conducted an extensive baseline survey to gather the information needed for the report. The process involved firstly forming a project team within the administration that brought together people from all relevant local

divisions (e.g. planning, environment, transport, social affairs, international affairs, public health and economic development). The project team was managed by a coordinator or coordinators (one or two individuals), who were responsible for organising the process at local level. With the help of information provided by the members of the project team, a systematic baseline survey was conducted, covering both qualitative and quantitative elements. The qualitative analysis looked at all core activities of the municipality that help achieve sustainable development. This included guiding strategies and concepts, measures and activities, projects, permanent responsibilities, programmes, political decisions, specific goals, cooperation arrangements and networks, as well as organisational structures. Additionally, key achievements and outcomes in recent years were identified in the various thematic areas. To complement this, general information was gathered on overarching aspects of sustainability. The quantitative analysis evaluated firstly a fixed set of indicators (SDG indicators for municipalities) and then supplementary municipality-specific indicators. The set of fixed indicators was developed by the Bertelsmann Stiftung and other institutions.[10] The project aims to identify indicators capable of illustrating the implementation of the SDGs at local level in Germany. An online portal (the SDG Portal) provides data available from a number of centralised sources for all German municipalities with a population of at least 5,000. The six municipalities participating in the Service Agency project were able to supplement these indicators with their own indicators, particularly in areas where little data was available, enabling them to take account of the specific local context. These data were then provided by the municipalities themselves. Within the framework of the baseline survey, various source materials (Excel tables broken down by SDG and overarching questionnaires) were combined in the project. A draft report was drawn up on this basis, and discussed at various project team workshops and in local consultation processes. The draft was expanded accordingly and subsequently finalised. Overall, this process surmounted traditional barriers within administrations, and allowed information to be compiled across departments and units. Given the thematic breadth and interconnected nature of sustainability issues, this horizontal integration was crucially important.

This VLR is broken down into two main sections. The first of these provides a general introduction to sustainability processes on the ground. Alongside a thumbnail sketch and a presentation of the main milestones in realising sustainability, this section includes an explanation of how sustainability is being mainstreamed at strategic and organisational level. The second part presents specific progress made towards achieving the individual SDGs in recent years. This includes both qualitative and quantitative elements, in line with the baseline survey. Firstly, all core activities undertaken to implement the SDGs are presented, and the individual activities indicated in the text. The indicators selected are then outlined (with illustrations for the key indicators). The indicators used map progress over the last decade, illustrating longer-term developments. At the start of each SDG section, all activities and indicators are summarised concisely. Every SDG section also contains an introductory text, which presents the SDG and its specific relevance for German municipalities.

10 See Bertelsmann Stiftung et al., 2022.

02

2 The City of Freiburg in the context of sustainable development

Photo 4: The old town of Freiburg at sunset, photographed from the Schlossberg © Stadt Freiburg

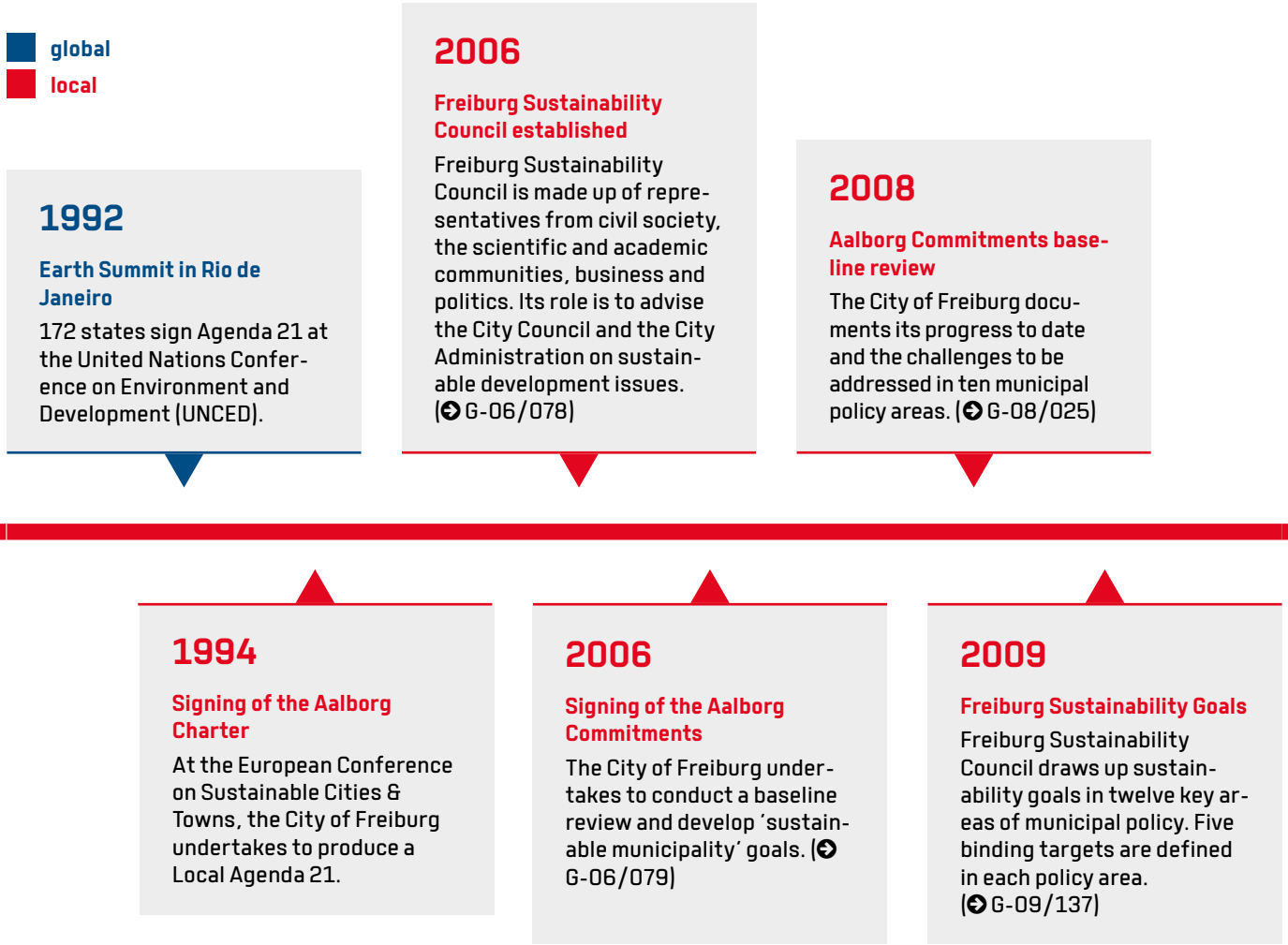
2.1 Brief profile of the City of Freiburg

Freiburg is the southernmost city in Germany, located in the region bordering France and Switzerland at the foot of the Black Forest. Thanks to its high-quality infrastructure, strong capacity for innovation and a wide range of research and educational institutions, Freiburg is one of Germany's most dynamic cities. As a business centre, its main focus is on services, the public sector and the health industry. Tourism is another crucial activity. Startups play a major role, too. In the 2021/2022 ranking published by the German Startups Association and Startup Detector, Freiburg came third in the list of cities with the most startups per 100,000 inhabitants. Since 2008, Freiburg has been known as the Green City, reflecting its commitment to environmental and sustainable action in many areas. Freiburg is also a growing city, with a population in 2022 of over 234,000, including many students.

The challenges of becoming a sustainable city were recognised early on. As far back as 1994, Freiburg signed the Aalborg Charter and, at the European Conference on Sustainable Cities and Towns, undertook to develop a Local Agenda 21. Freiburg Sustainability Council was established several years later in 2006, bringing together representatives from civil society, the scientific and academic communities, business and politics under the chairmanship of the Mayor, and went on to develop the Freiburg Sustainability Goals covering twelve key action areas. This agenda has been firmly embedded within the City Administration and driven forward since 2011, when a central Sustainability Management Unit was established to coordinate Freiburg's sustainability processes.

In Freiburg, the opportunities and challenges associated with matters such as population growth, scarce resources and social development are explored in the context of the Freiburg Sustainability Goals and the Sustainable Development Goals. The main issues are affordable housing; digitalisation; climate action

Figure 5: Key milestones in Freiburg's journey towards local sustainability, embedded in the global context © Stadt Freiburg



and sustainable mobility; biodiversity; schools and nurseries; social infrastructure and justice. However, against the backdrop of globalisation and an interconnected world, the global level is also a key element of this framework. Work to implement the Sustainable Development Goals continues - with contributions from relevant stakeholders at every level - in order to create a liveable future for everyone in Freiburg.

2011

Freiburg Sustainability Management Unit created within the Office of the Mayor

The municipal Sustainability Management Unit takes over responsibility for coordinating and guiding the city-wide sustainability process.

2012

Rio+20 Conference on Sustainable Development

The Rio+20 Conference is a stock-take of progress made since 1992. The findings are documented in the final report entitled The Future We Want.

2014

First Freiburg Sustainability Report

The first Sustainability Report documents excerpts from the sustainability process to illustrate the progress achieved.
(➔ G-14/201)

2012

Formation of the Sustainability Working Group

The City Administration's internal Sustainability Working Group provides additional support for the sustainability process.
(➔ G-12/031)

2014

Sustainability integrated into the municipal budget

Work continues on the municipal sustainability process. The municipal budget is linked to the Freiburg Sustainability Goals.

2015

2030 Agenda, Sustainable Development Goals

The UN Sustainable Development Summit adopts the 2030 Agenda for Sustainable Development with a total of 17 Sustainable Development Goals (SDGs).

2.2 Sustainability in the City of Freiburg - Milestones

The City of Freiburg regards sustainable development as a goal that cuts across every aspect of life in our society. The city already has a long tradition of promoting sustainability in line with the maxim 'Think globally - act locally'. Against this background, in 2012, Freiburg was honoured with the German Sus-

2016

Second Freiburg Sustainability Report

The report documents the systematic implementation of the Freiburg sustainability process through a range of indicators and measures. (➔ G-17/010)

2017

Freiburg Sustainability Goals updated

The Freiburg Sustainability Goals are aligned to the global SDGs and underpin all policy actions. (➔ G-17/207)

2018

Third Freiburg Sustainability Report

The report documents the systematic implementation of the Freiburg sustainability process through an extended set of indicators. (➔ G-18/208)

2019

First sustainability reports by municipal holdings

Freiburg instructs its municipal holdings to publish sustainability reports. The sustainable development of the 'municipality group' is highlighted using the German Sustainability Code (DNK) as a common reporting standard. (➔ G-20/001)

2020

Launch of new communication strategy for the Freiburg Sustainability Goals

The City of Freiburg launches a series of initiatives to actively engage citizens in efforts to implement the Sustainability Goals.

2020

Fourth Freiburg Sustainability Report

The Sustainability Report is divided into two separate reports aimed at municipal decision-makers and citizens. (➔ G-20/136)

tainability Award as the country's most sustainable city. The progress it makes towards implementing its goals has been set out in regular municipal sustainability reports since 2014. In terms of long-standing and comprehensive sustainability reporting, Freiburg acts as a role model nationwide. The following diagram presents the key milestones achieved on the path towards sustainable local development within the broader context of global sustainability processes.

2021

Freiburg adopts the resolution Municipalities for a Strong Supply Chain Act in Germany

The City of Freiburg im Breisgau passes a resolution entitled Municipalities for a Strong Supply Chain Act in Germany ahead of the national adoption of the Supply Chain Act. (G-21/113)

2021

Launch of the Freiburg 2030 project

Freiburg 2030 is an internal process launched by the City Administration to assign all its wide-ranging activities to the Freiburg Sustainability Goals and therefore align them more firmly with the goals.

2022

Fifth Freiburg Sustainability Report published and municipal budget linked to Sustainability Goals

The report uses a revised set of indicators and key figures to map the progress made towards implementing the Freiburg sustainability process. The municipal budget remains linked to the Sustainability Goals. (G-22/216)

2021

Freiburg Sustainability Council names spokespersons

The elected spokespersons (Sophie Schwer, Susanne Fröschl, Jörg Dengler and Oliver Benz) begin their period of office with proposals for the Stadtradeln (city cycling) campaign and more rooftop solar installations.

2022

Second sustainability report by municipal holdings

The city's municipal holdings produce their second report based on the German Sustainability Code (DNK), detailing their performance in the area of sustainability. The priority topic chosen for this report is 'sustainable human resources management'. (G-22/013)

2022

Fifth Freiburg Education Report, with a focus on ESD

The 5th Freiburg Education Report is the first education report in Germany to take a systematic look at the topic of ESD at the local level using various methods.

2.3 Strategic and organisational mainstreaming of sustainability

Freiburg's understanding of sustainable development is defined by the city's ***Sustainability Goals.*** These were adopted by the City Council in 2009 after a two-year participatory goal-setting process and confirmed in 2017 in an updated and expanded version. The update addressed current developments at international and national level, aligning them with the City Council's stated goals and embedding them in a comprehensive municipal sustainability strategy. In this way, the multifaceted concept of sustainability was translated in concrete form into a locally adapted system of goals through a process that involved multiple stakeholders at different levels. The 59 goals are divided into twelve areas of municipal action and geared towards the target horizon of 2030 (see Figure 2). As such, they give expression to a transformative and holistic vision.

Since their adoption, the Freiburg Sustainability Goals have served as strategic guidelines, as the basis for all city-wide policy-making decisions and as a central point of reference for municipal offices and departments. By introducing the Sustainability Goals, those in positions of responsibility at the political and administrative levels and within municipal enterprises have forged their respective ideas of what makes a sustainable city into a common set of principles and established them as the guiding framework for their endeavours. The political leadership regards sustainability as a top priority and is committed to implementing the goals accordingly.

1. Participation

1.1 Transparent access to information: By 2030, there is equal and transparent access for all to information written in plain language in order to enable the formation of public opinion.

1.2 Inclusive city with equal access: By 2030, Freiburg is an inclusive city that provides the same opportunities and equal access to all areas of social participation for everyone.

1.3 Equal opportunities at leadership level: By 2030, all citizens have equal opportunities to take on leadership roles at all levels of decision-making in political, economic and public life.

1.4 Participation in decision-making processes: By 2030, the full, effective and equal participation of all in participatory policy-making processes is governed by a corresponding framework of rules.

1.5 (Pro-)active citizenship: By 2030, all citizens are able to participate in the civic life of the city of Freiburg through (self-)organised, socially integrative and constructive methods of participation.

2. Local management

2.1 Implementation of the city-wide sustainability strategy: By 2030, implementation of the city-wide sustainability strategy in Freiburg is continuously monitored using a systematic, integrated sustainability management system and recognised as a consistent decision-making principle.

2.2 Mainstreaming the sustainability strategy across municipal structures: By 2030, structures have been created in each area of responsibility to provide technical guidance and implementation support for the sustainability strategy and to establish effective organisational procedures and interdisciplinary cooperation processes.

2.3 Global partnerships and (supra)regional cooperation: By 2030, (supra)regional cooperation mechanisms are in place to support local sustainable development, and the global partnership for sustainable development has been expanded, complemented by multi-stakeholder partnerships.

2.4 Sustainable finance: By 2030, a sustainable system of financial management has been established.

2.5 City-wide digitalisation strategy: By 2030, a city-wide digitalisation strategy is delivering maximum value by improving services, cost-effectiveness, civic participation and transparency.

3. Natural commons

3.1 Preservation of existing woodland: By 2030, 42.7% of the total city area is preserved as tree cover, thus protecting existing woodland.

3.2 Preservation of biodiversity: By 2030, mechanisms are in place that conserve native natural and cultivated landscapes and therefore preserve the biodiversity of native flora.

3.3 Species protection and preservation of semi-natural habitats: By 2030, mechanisms are in place that protect species and conserve natural and semi-natural habitats.

3.4 Sustainable forest management: By 2030, advanced methods of sustainable forest management have been developed to maintain supplies of wood as a renewable raw material and promote ecologically beneficial forms of land use.

3.5 Semi-natural ecosystems: By 2030, systems must be in place to preserve, protect and restore semi-natural ecosystems and facilitate their sustainable use.

4. Consumption and lifestyle

4.1 Sustainable and fair procurement: By 2030, sustainable, fair procedures are embedded in (public) procurement, and priority is given to durable, environmentally friendly and fair-trade products with quality labels.

4.2 Halved food waste: By 2030, food waste per capita has been halved at retail and consumer level.

4.3 Regional circular economy in the food supply chain: By 2030, the capacity of regional supply structures, circular business models and material flows to ensure generally sustainable food supplies has increased.

4.4 Raising awareness of conscious forms of consumption and behaviour: By 2030, a clear picture has been created of the interrelationships between consumers in the city and producers in the surrounding region or in global regions of origin as a basis for conscious forms of consumption and behaviour.

4.5 Reduced volume of waste: By 2030, the total volume of waste generated has been significantly reduced through prevention, reduction, recycling and reuse.

5. Urban development

5.1 Climate-friendly and liveable city: By 2030, settlement development is based on the economical use of land, with compact neighbourhoods and districts characterised by a good supply of open space, primarily through moderate, qualified infill development, taking into account the need to provide green and open spaces, in order to ensure that Freiburg is a climate-friendly and liveable city.

5.2 Attractive districts and settlements: By 2030, municipal districts and settlements are characterised by high-quality urban development that combines essential infrastructure, diverse patterns of use, vibrant centres, attractive shops, and opportunities for residents to meet and create local networks.

5.3 Access to needs-based housing: By 2030, there is an adequate supply of barrier-free, needs-based, safe and affordable housing.

5.4 Maintaining and expanding green and open spaces: By 2030, there is a good supply of high-quality green and open spaces.

6. Mobility

6.1 Reduction of motorised individual transport: By 2030, the volume of motorised individual transport has been reduced through integrated urban and transport planning, thus contributing to road safety.

6.2 Increased use of local public transport: By 2030, local public transport (LPT) contributes to an increase in the number of passengers as a proportion of all internal and incoming/outgoing journeys through attractive network expansion and by meeting individual passenger needs.

6.3 Increased use of the footpath network: By 2030, an attractively expanded network of pedestrian routes contributes to an increase in the proportion of journeys made on foot.

6.4 Increase in the modal share of cycling: By 2030, the modal share of cycling has increased, and cycle use is attractive and safe due to the expansion of cycling infrastructure.

6.5 Integrated mobility management and alternative forms of mobility: By 2030, the remaining forms of motorised transport are largely emission-free due to the increased use of drive systems powered by renewable energy. Alternative forms of mobility have become widespread due to the provision of suitable infrastructure and the development of integrated mobility management systems that connect up the services of different transport providers.

7. Resilient society

7.1 Adaptation to climate change: By 2030, through measures to adapt to climate change, Freiburg has established a society that is resilient and adaptable to climate-related extreme events and other economic, social and environmental shocks and disasters.

7.2 Protection of the population: By 2030, the population is protected in the best possible way from deaths, injuries and illnesses caused by traffic accidents, pollution and contamination of the air, water and soil, by adverse impacts on health and by climate disasters.

7.3 Healthcare infrastructure: By 2030, healthcare infrastructure and social protection systems are in place in a preventive role and to promote the well-being of all.

7.4 Ensuring public safety: By 2030, mechanisms must be in place to protect against all forms of discrimination and violence against people, in both the public and private spheres, and to ensure that public spaces are safe.

7.5 Health concerns in public planning: By 2030, health concerns are taken into consideration in all public planning across all departments, including the use of (building) materials that are safe and sustainable for domestic use and in terms of indoor air hygiene.

8. Economy and science

8.1 Decent employment and living wages: By 2030, decent jobs and employment opportunities offering a living wage have been created in all sectors of the economy and for a wide range of skills.

8.2 Sustainable business management: By 2030, sustainable approaches to business management are established, with due regard and support for companies with complex value cycles, micro, small and medium-sized enterprises, and startups.

8.3 Lived science: By 2030, Freiburg has evolved from a science hub to a centre of 'lived science' with support for the collaborative and qualitative transfer of knowledge between citizens and researchers (citizen science).

8.4 Sustainable agriculture: By 2030, sustainable agriculture has been expanded and incentives created for local and resilient food production.

8.5 Sustainable tourism: By 2030, sustainable, regional forms of tourism have been developed that create jobs and promote local culture and local products.

9. Social justice

9.1 Preventing and tackling poverty: By 2030, poverty is prevented and countered by promoting social integration through efficient and supportive care structures all circumstances.

9.2 Tolerant city: By 2030, different ways of life are viewed with tolerance and mutual acceptance.

9.3 Reconciling family and work: By 2030, the integration and reconciliation of family and work have improved as a result of family-conscious human resources policies, the availability of public services and infrastructure, the creation of high-quality, needs-based full-day care services for all children in the age group 0 - 12 years, and the provision of flexible care.

9.4 Integrated neighbourhood management: By 2030, integrated neighbourhood management is helping to create better district and social environments, strengthening neighbourhood identity and facilitating support for diversity in the neighbourhood through qualitative neighbourhood work.

9.5 Consideration of demographic change: By 2030, demographic change is taken into account in all areas of life, with particular consideration for the situation of senior citizens, women and children, and for the integration of refugees.

10. Life-long learning

10.1 Equal access to life-long learning: By 2030, all citizens have equal access to life-long learning and quality education, and the level of pre-vocational training skills has improved.

10.2 Successful educational transitions: By 2030, conditions are in place that enable students to achieve successful educational transitions - 'No graduation without continuation'.

10.3 Education for sustainable development: By 2030, practical and fully coordinated learning opportunities in the area of education for sustainable development are available, covering the various dimensions of sustainability (economic, environmental, social and cultural), at every stage of life and education.

10.4 Actively shaping the future and building capacity for democracy: By 2030, the skills needed to play an active role in and assume responsibility for shaping the future, to engage as a citizen and to take action at a political level (capacity for democracy) have been transferred.

10.5 Informal education and further education provision: By 2030, access to informal education and to general and vocational education and training has been expanded for all and is structurally embedded in Freiburg's educational landscape.

11. Climate and energy

11.1 Reduce CO_2 emissions by 60%: By 2030, carbon dioxide (CO_2) emissions have been reduced by 60% per inhabitant compared to 1992.

11.2 Significant energy savings: By 2030, further significant energy savings have been achieved in every area of climate action.

11.3 Use of renewables and smart energy systems: By 2030, further opportunities have been harnessed to boost the use of renewables as a proportion of total energy consumption, and there has been an increase in both the use of smart energy systems and the contribution made by combined heat and power systems.

11.4 Alternative energy generation: By 2030, the energy efficiency of local consumers and regional, decentralised energy production have been increased, and appropriate connection opportunities have been developed and used in a coordinated manner.

11.5 City-wide climate action strategy: By 2030, climate-related aspects are incorporated into strategies and into planning and implementation work, with a particular focus on increasing the proportion of residential and commercial buildings with high energy-efficiency standards.

12. Culture and sport

12.1 Preservation of natural and cultural heritage: By 2030, the city's cultural and natural heritage is protected and preserved for future generations, and information explaining its significance for the history of the city is made widely available.

12.2 Cultural diversity for peaceful coexistence: By 2030, the range of cultural activities that promote peaceful, tolerant, socially integrative forms of coexistence, reflecting the cultural diversity of the city's inhabitants, has been expanded.

12.3 Sport and physical activity: By 2030, the range of opportunities to take part in sports and other forms of physical activity has been expanded.

12.4 Innovative city: By 2030, work, education, science and (building) culture are interwoven in a decentralised, compact city that offers plenty of scope for innovative ideas.

12.5 Inter- and transcultural education work: By 2030, cultural activities are both inter- and transcultural in nature, cultural institutions promote intercultural opening as standard, and intercultural skills have been established through a broad programme of (inter)cultural education.

Work to implement the Freiburg Sustainable Development Goals at local level is embedded in the global context. The 2030 Agenda with its 17 Sustainable Development Goals (SDGs) forms the overarching frame of reference. The SDGs were taken into account when revising the 2017 Freiburg Sustainability Goals in order to align the local sustainability strategy with the SDGs. Additionally, in 2016, the City of Freiburg signed the draft resolution ***2030 Agenda for Sustainable Development - Shaping Sustainability at Municipal Level.*** The act of signing this draft resolution of the Association of German Cities (DST) and the German section of the Council of European Municipalities and Regions (CEMR) represents a commitment by Freiburg to work with others on local implementation of the SDGs through a municipal sustainability strategy.

The municipal ***Sustainability Management Unit,*** established in 2011 as part of the Mayor's Office, has the central role in steering and coordinating the citywide sustainability process. It drives progress towards Freiburg's sustainability goals through a long-term approach spanning multiple areas. In order to reach this goal, the Sustainability Management Unit works towards ensuring that sustainability factors are gradually taken into account in more and more decision-making processes and routines. To this end, it connects the various specialist departments of the City Administration and liaises between the City Administration and the City Council. In this role, it coordinates and organises numerous committees and working groups that are also crucially involved in the sustainability process. Examples of this are the internal Sustainability Working Group (with members from all relevant offices and departments), which meets six times a year, and a discussion group on sustainability in municipal holdings. The Sustainability Management Unit's other activities include managing internal and external sustainability communications, supporting the Fair Trade steering group, overseeing Freiburg's contribution to the German Council for Sustainable Development's national Sustainable City dialogue, participating in over 20 working and project groups, and designing concrete actions and

Photo 7: The Sustainability Management team in front of the Old City Hall of the City of Freiburg (from left to right): Peter Rinker, Sebastian Backhaus, Susanne Assfalg and Clemens Heidenreich. © Stadt Freiburg

projects. The Sustainability Management Unit also promotes intermunicipal exchange, both nationally and internationally, and the corresponding transfer of knowledge.

Reflecting its integrated approach, the Sustainability Management Unit collaborates with partners from business, civil society and the scientific and academic communities, as well as voluntary organisations and the city's municipal companies. For example, it acts as an office for ***Freiburg Sustainability Council,*** a 40-member body with representatives from the scientific and academic communities, civil society, business and politics, chaired by the Mayor. Freiburg Sustainability Council advises the City Council and the City Administration on the implementation of the Freiburg Sustainability Goals. It develops recommendations and position statements on sustainable development issues within the municipality, acts with an eye to the future and addresses long-term questions. Drawing on their expertise and capacity for innovation, the Council's members help to critically examine actions at political and administrative level, develop readjustment proposals and ultimately implement solutions together in order to achieve the sustainability goals. At the same time, the institutions act as multipliers, disseminating ideas widely among the city's residents. Freiburg Sustainability

Council also produces a regular stream of new campaigns and concrete projects that have a positive impact on sustainable development in Freiburg. Thematic working groups are set up to address specific aspects of sustainability through intensive discussion and through concrete projects that make them more tangible. The Sustainability Council's four spokespersons provide further input and are in close contact with the Sustainability Management Unit.

Collectively, the City Council (which, in terms of overall control, is the highest-ranking body within municipal self-government and defines the objectives and underlying framework of municipal policy measures), the Sustainability Management Unit, the City Administration and the Sustainability Council, in cooperation with other partners, jointly contribute to the local implementation of Freiburg's municipal sustainability goals (see Figure 3 below for an overall perspective).

Sustainability processes in Freiburg are managed using various instruments, which are implemented by the Sustainability Management Unit on behalf of the City Administration. These instruments are reviewed and optimised at regular intervals in order to boost their impact even further. They are presented individually below.

First of all, continuous monitoring is vital for the efficient management of municipal sustainability processes. Political and administrative bodies can use integrated sustainability reporting as a key monitoring tool. Since Freiburg published its first sustainability report in 2014, this tool has been continuously developed under the leadership of the Sustainabil-

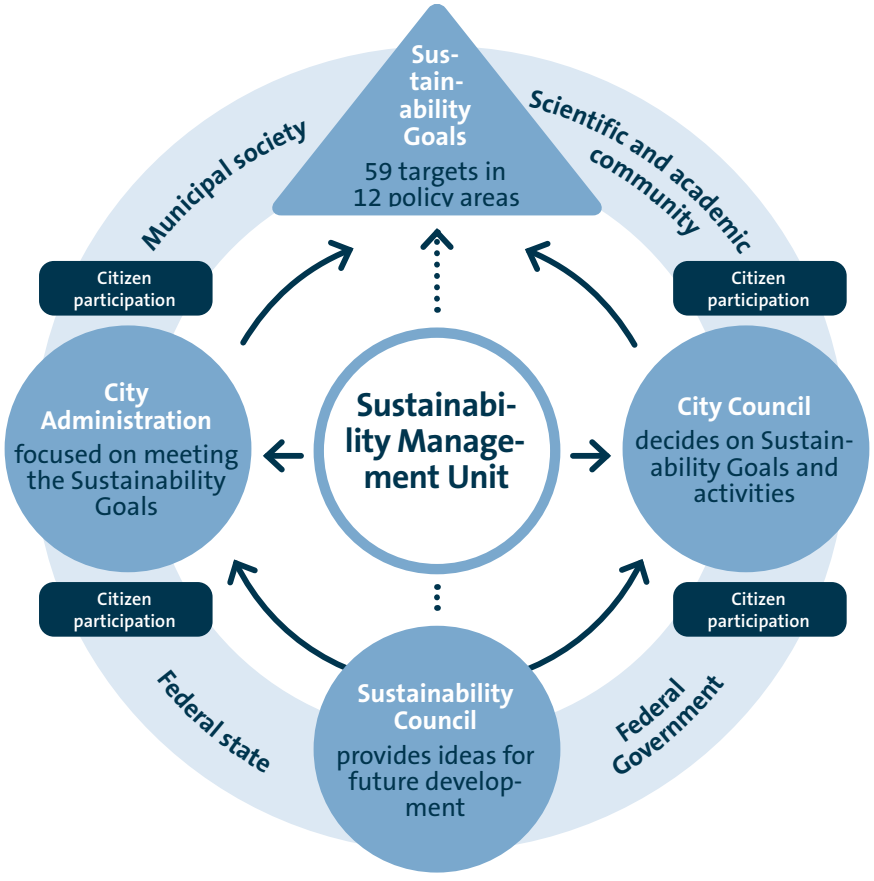


Figure 8: Key actors in the Freiburg sustainability process © Stadt Freiburg

ity Management Unit and with the involvement of numerous municipal offices and external partners. The system of municipal sustainability reporting is recognised nationwide as one of the most advanced in Germany. The fifth Freiburg sustainability report was published in December 2022. The report is intended to provide a systematic basis for information and decision-making. For example, it supports the efforts of city councillors to align financial decisions and policy measures with Freiburg's sustainability goals. Furthermore, the report facilitates monitoring and analysis, in order to keep track of the sustainable development of the City of Freiburg 'as a whole'. Overall, the sustainability report therefore fulfils the four functions set out below:

- a formal commitment to sustainable municipal development by the city leadership on behalf of the City of Freiburg and the presentation of the 59 municipal sustainability goals
- an analytical tool for measuring sustainable development through indicators and presentation of the various options for action
- a steering instrument to support monetary decisions that promote forward-looking sustainable municipal development by providing a systematic basis of information
- a communication tool for documenting the achievement of objectives and a basis for discussion of the required implementation measures within the City Council.

In terms of its structure, the sustainability report is based on the internationally recognised guidelines of the Global Reporting Initiative (GRI) and the SDG Indicators for Municipalities, which are used to map the SDGs at local level. In collaboration with the City Administration's internal Sustainability Working Group and the respective offices, a set of indicators was developed which is being continuously evaluated and refined. The quantitative presentation of developments is supplemented by qualitative descriptions of the steering instruments and measures adopted by specialist departments as well as in-depth thematic discussions in each of the specialist reports (e.g. on

education and social issues). The sustainability report is aimed primarily at municipal decision-makers, first and foremost the City Council, which can use it as an extended basis for managing its budget decisions. It is also addressed at the city leadership and administration level, providing an overview of the wide range of municipal sustainability activities and helping to identify which synergies could emerge and be harnessed to improve control between specialist departments. Finally, it is also aimed at other municipalities, the federal state of Baden-Württemberg and the German Government for comparison, as a source of inspiration and to promote further debate on local sustainability management. Overall, in this way, the Freiburg sustainability report highlights the city's local contribution to the global 2030 Agenda, the progress it has made towards achieving the Freiburg Sustainability Goals, the contributions each department is making towards the goals and the options available to municipal decision-makers in terms of further action. Individual departments have the lead role in monitoring the implementation of specific measures. They are responsible for developing concepts, strategies and tools and for creating databases to support the technical implementation of the Freiburg Sustainability Goals. Many of the municipal action areas require an integrated approach so that multiple offices can work together across departments and contribute in this way to achieving the goals.

Since 2020, a separate report for citizens has been published alongside the sustainability report for decision-makers. It addresses the residents of Freiburg directly in a simplified and more tightly focused format. The report provides a rough overview of the progress made locally towards sustainable development and is supplemented by a variety of concrete proposals for action and opportunities to get involved.

In line with Freiburg's approach to consistent, citywide sustainability reporting, the long-term objective is to link financial and sustainability reporting across all departments, municipal companies and independent municipal agencies *(Eigenbetriebe)*. As a step in this direction, the Sustainability Management Unit has developed the use of a common reporting standard together with the municipal companies. Freiburg is one of the first municipalities in Germany to undertake sustainability reporting together with its municipal companies, thus providing information on the city's overall contribution to sustainable development as a 'municipality group' *(Konzern Stadt)*. In 2018, the city's large municipal holdings (ASF, badenova, Freiburger Stadtbau Verbund, FWTM and VAG) reported for the first time in accordance with the German Sustainability Code, which has been established nationwide since 2011 as a voluntary mechanism for presenting information on corporate sustainability performance. Since then, alongside the reports on municipal holdings, the City Council has received the sustainability reports of the municipal companies every two years on a rotating basis.

A further key sustainability management tool that complements the city's sustainability reporting involves ***linking the budget to sustainability goals through a system of 'double-entry sustainability management'.*** In 2014, the City of Freiburg was the first municipality in Germany to introduce double-entry sustainability management in the municipal budget. Products (including financial resources) are linked to sustainability goals in the municipal budget, and the many different services provided by the Council's specialist departments are presented through indicators. In line with the commitment to integrated reporting, the sustainability report is presented to the City Council every two years in addition to the budget. This linking of financial and sustainability reporting makes it possible to measure progress towards objectives using monetary and qualitative indicators. In this way, the budget priorities of individual departments are set, with reference to specific objectives, in the overall context of sustainable municipal development. On this basis, the City Council is able to use the available resources in a generationally fair and targeted manner. At the same time, this approach highlights the limits to the sustainability of municipal action. Looking forward, it is intended that

the linking of objectives and their appropriate presentation are to be analysed in future with regard to control benefits and successively developed further. Consideration is also being given to the development of target values for the Freiburg Sustainability Goals with a time horizon of 2030 in order to be able to measure the progress made towards goals. The budget is a suitable medium for presenting the contributions of the specialist departments and progress in achieving the goals - in the context of sustainable financial management.

Other sustainability management tools include ***cooperation and networking*** (e.g. as part of a wider discussion on the use of SDG indicators at local level with the partner cities of Besançon, Guildford and Suwon) and ***climate/biodiversity relevance checks*** on City Council proposals. This check is applied to draft resolutions, therefore ensuring that the Council receives transparent information about the corresponding impacts and is better able to assess the climate and biodiversity relevance of its decisions.

Sustainability communication is also an important mechanism for implementing the Freiburg Sustainability Goals. Given that cities are multi-layered structures, shaped and influenced by many actors and by their citizens, Freiburg's City Administration can only achieve the goals through collaboration with stakeholders at many different levels. It follows that the impacts of the sustainability process must extend way beyond the administration and deep into municipal society. To ensure that citizens, institutions and businesses are engaged in the implementation process, it is important to motivate and empower these stakeholders in order to make the step from knowledge to action as easy as possible. This complex undertaking involves implementing selected target group-specific communication measures and formats in order to systematically drive progress towards the sustainability goals. Communication is not an end in itself, however, and all these measures should be understood as individual pieces of a jigsaw puzzle that mark out the path towards achieving the goals. The municipal sustainability portal is a first key component of the new sustainability communication plan. The portal provides an overview of the action areas into which Freiburg's city-wide sustainability goals are divided. The information is presented in a condensed form and specially prepared for local citizens as a target group. In addition to contributions from the City Administration, the action areas include numerous examples and suggestions of how each individual can be actively involved in efforts to create a sustainable and liveable city. Looking ahead, the portal will be expanded even further and will provide a source of information for other future communication formats that are specifically aimed at citizens.

Processes that support ***public engagement*** are widely regarded as crucial to democratic structures and efforts to implement sustainable development. In this context, the City of Freiburg has also created extensive participation opportunities for its citizens. Overall, these processes encourage a culture of discussion and participation and promote social cohesion. Municipal society as a functioning whole depends crucially on the diversity of opinions, roles and perspectives. For example, citizens are regularly selected at random from the register of residents to participate in various public engagement activities. These include, for example, the Citizens' Report on Education for Sustainable Development and the Freiburg Survey, both of which are designed to obtain a comprehensive picture of the views of local citizens. The results flow into municipal decision-making processes and objectives. Concrete hands-on projects for citizens in which all Freiburg residents can actively participate, have also been set up. The online engagement portal mitmachen.freiburg.de is a central platform for informal citizen engagement in Freiburg. The range of opportunities to get involved is extremely diverse. Examples include a participatory budgeting initiative (including a discussion forum) that allows Freiburg citizens to contribute their own wishes and ideas to the budget planning process, as well as opportunities to provide input for the 2040 Preparatory Land-Use Plan, the Climate Mobility Plan and construction projects. Furthermore, in 2014, a

Competence Centre for Citizen Participation was established as an executive unit within the Planning Department and tasked with continuously improving engagement processes and formats.

Photo 6: Flowers in front of the City Hall in Stühlinger, the world's first public zero-energy building, which opened in 2017. © Stadt Freiburg

03

3 Implementation of the Sustainable Development Goals (SDGs) in the City of Freiburg

3.1 SDG 6 - Clean Water and Sanitation

3.1.1 SDG 6 - Introduction and relevance for German municipalities

SDG 6 is designed to ensure availability and sustainable management of water and sanitation for all. It concerns access to drinking water and sanitation/hygiene for all. It also includes wastewater management, water protection, long-term water availability, efficient water use and the promotion of integrated water resources management. Groundwater is the major drinking water resource in Germany. However, water plays an important role not only for human supply, but also for instance in agricultural production and the preservation of ecosystems. To ensure the maintenance of natural and near-natural water cycles and water supply, water resources must be protected against pollution and overexploitation. The key focus of implementing SDG 6 in Germany is therefore on improving water quality. However, the effects of climate change mean that seasonal/regional water scarcity will increase in the future. This also brings the responsible use of water resources into focus.[11] For German municipalities, the following themes are therefore especially relevant at the local level (please also compare these with the targets for SDG 6 in the annex):

- Ensuring water quality and avoiding water scarcity
- Protecting aquatic ecosystems
- Guaranteeing municipal sanitation and wastewater disposal.

11 See Germany's Voluntary National Review to the High-Level Political Forum 2021 and the German Sustainable Development Strategy 2021.

3.1.2 Overview of qualitative aspects and indicators

Qualitative aspects:

- Introduction - Overarching goals in the area of water
- Sustainable water management in the City of Freiburg
- Intermunicipal support for the provision of drinking water and sanitation in the Global South
- Public toilets in Freiburg

Indicators:

- Nitrogen surplus in agriculture
- Drinking water consumption
- Nitrogen dioxide

3.1.3 Contributions of the City of Freiburg to the SDG

Introduction - Overarching goals in the area of water

Water is the basis of all life. Apart from its general importance from an environmental perspective, water is used for a variety of purposes, in particular for drinking and everyday use. The protection of groundwater and water bodies as an important component of the natural balance is therefore indispensable for the health of the population, for the preservation of the natural basis of life and as a prerequisite for economic development. Against this background, access to clean drinking water is enshrined as a human right. The water sector - in the sense of water supply and wastewater disposal - is accordingly treated in Germany as 'critical infrastructure'.

In Germany, drinking water and sanitation are provided as public services of general interest. Even in Germany, however, water resources are coming under increasing pressure against the backdrop of climate change. The consequences of climate change, with regionally varied impacts on the water balance, are increasingly noticeable in Germany. Heavy rainfall and flooding, heat waves and prolonged drought are occurring more frequently and with greater intensity. There is still considerable room for improvement in the quality of Germany's surface waters and its water.

The basic requirements for the quality of surface waters (rivers, lakes, transitional waters and coastal waters) and groundwater are regulated in the ***European Water Framework Directive (WFD).*** The goal of the Water Framework Directive is for all surface waters and groundwater across Europe to achieve 'good status' by 2027 at the latest. For surface waters, this means good ecological and chemical status, while for groundwater it means good chemical and quantitative status. According to the WFD, ecologi-

cal status refers to quality in terms of the structure and functioning of aquatic ecosystems. Good status is defined for surface waters as achieving minimum requirements with regard to various biological and chemical parameters. Chemical status is assessed as good if the threshold values of certain nutrients and pollutants are not exceeded. With regard to good quantitative status, a balance must be ensured between groundwater abstraction and recharge. A good overall status of surface waters and groundwater therefore leads to structures that are as close to the natural state as possible with little pollution.

In Germany, the Water Framework Directive is embedded in the Federal Water Act *(Wasserhaushaltsgesetz)*, the Regulation on the Protection of Surface Waters *(Verordnung zum Schutz der Oberflächengewässer)* and the Groundwater Regulation *(Grundwasserverordnung)*. The WFD enables water protection measures to be to be carried out across the catchment area from the source to the mouth. In Germany, ten river basin districts have been designated for this purpose and form the national planning areas in which the WFD is implemented. The management plans and programmes of measures drawn up for entire river basins or parts thereof are core elements of water management planning. The management plans and programmes of measures - at present covering the period 2022 to 2027 - are regularly updated.

Germany's 2021 Voluntary National Review to the HLPF (Report on the Implementation of the 2030 Agenda for Sustainable Development) states that all of the 9,800 bodies of surface water and more than a third of the 1,200 bodies of groundwater in Germany have so far failed to achieve 'good status' overall in terms of quality. A report on the status of water bodies published in 2022 by the Federal Environment Agency and the Federal Environment Ministry ('The Water Framework Directive. Water Bodies in Germany 2021. Progress and Challenges') sets out this finding in stark detail. Currently, for example, only 9 per cent of all surface waters achieve good ecological status, and none of the surface waters achieve

Photo 9: The Freiburger Bächle in summer © FWTM, Escher

Photo 10: The Freiburger Bächle in summer © Stadt Freiburg

good chemical status. In the case of groundwater, 67 per cent of water bodies achieve good chemical status, while 95 per cent achieve good quantitative status. Whether groundwater or surface waters, contamination from nutrients and pollutants can be found everywhere - especially from phosphorus, nitrogen and mercury (only 1 per cent of surface waters and 53 per cent of groundwater bodies in Germany are currently deemed to be uncontaminated). However, the main reasons why most surface waters do not achieve good ecological status are construction, straightening and interruptions to water flow continuity due to transverse construction. Accordingly, extensive measures are planned in Germany for the next few years. Plans for the current management period (2022 to 2027) include the restoration of surface waters to improve habitats for animals and plants and measures to reduce nutrient and pollutant inputs. With regard to groundwater, the main target of measures to reduce contamination is the agricultural sector.

Against the background of current and future challenges affecting water as a resource, the German Federal Government adopted a further measure in the form of a specific ***National Water Strategy*** in 2023. Through this strategy, the Federal Government aims to safeguard Germany's natural water reserves, take pre-emptive action against water scarcity, prevent conflicts of use, address the rehabilitation of water infrastructure and improve the condition of water bodies and water quality. Taken as a whole, the 78 measures set out in the associated action programme, which will be implemented

step by step over the period up to 2030, are therefore intended to ensure that water is used sustainably as a resource and to lay the foundations of a modern water management system.

Photo 11: Art installation Garden Hose by artists Claes Oldenburg and Coosje van Bruggen in Freiburg's Eschholz Park © Stadt Freiburg

Sustainable water management in the City of Freiburg

Against the background described above, the City of Freiburg is also committed to achieving 'good status' for its local groundwater and surface waters. Freiburg was awarded a ***Blue Community*** certificate in the summer of 2022. Blue Communities focus on the protection of water and on free access to water as a human right. Worldwide, around 100 communities (cities, municipalities, churches, religious orders and universities) are now committed to the principles. Blue Communities see water as a public good and support access to clean drinking water and sanitation. They use water resources sparingly and advocate for public-sector control of water supplies and wastewater management. They also promote the use of piped water instead of bottled water and support the efforts of other countries to provide a functioning public drinking water supply. They are also committed to preserving and restoring natural water cycles.

Freiburg has already successfully implemented many of these principles. As long ago as 2003, for example, the City Council's Climate and Environment Committee adopted corresponding guidelines on recognising access to free water as a human right. At the same time, further measures were specified with a view to increasing public awareness of water, minimising the consumption of energy and raw materials, and using water resources without harming the natural environment. The City of Freiburg also actively supports the Blue Community goal that water services should remain in public hands. As early as 2000, in the so-called 'liberalisation document', Freiburg expressed its view that the areas of drinking water and wastewater should not be opened up to the private sector. Freiburg also supports other municipalities through international partnerships. One such example is the municipality of Wiwilí in the north of Nicaragua (see also below and the section on SDG 17), where the City of Freiburg has supported a number of projects, including the construction of drinking water pipes. The commitment to reach out beyond borders and engage in collaborative public-sector partnerships of this kind at international level is an integral part of the Blue Communities ethos. Another fundamental principle - one that Freiburg already fulfils - is the commitment to promote piped water instead of bottled water. For example, there are drinking water fountains in 80 per cent of schools, with plans to expand this provision in the future. Through the Waldsee Water District project, the Environmental Protection Office has worked with local people to replace bottled water with tap water (even at music festivals, for example, the intention is to make drinking water freely accessible). Climate change is marked by warmer seasons, making it increasingly important for people to be able to obtain drinking water at decentralised locations in public spaces. Together with the network operator badenovaNETZE GmbH, the City of Freiburg therefore supports the conversion of suitable wells into drinking water fountains. Freiburg now has a total of 39 drinking water fountains and dispensers spread throughout the city.

Pesticide contamination of rivers, lakes and groundwater is a serious problem in Germany. With this in mind, Freiburg is also committed to ***avoiding the use of pesticides on agricultural land belonging to the city that it leases to farmers.*** Pesticides often originate from agriculture and enter water bodies through seepage, surface runoff and drift. The city of Freiburg is reducing the use of chemically synthesised plant protection pesticides on its own agricultural leased land with the help of a leased land with the help of a voluntary agreement to refrain from using pesticides and biodiversity counselling, which it offers to farmers. On other municipal land, such as green spaces, this has been prohibited since the 1990s. As part of the city's biodiversity targets for agricultural land, the aim is to reduce pesticide use, increase the proportion of semi-natural fringe and edge structures, and establish more ecologically high-quality open land habitats. In order to be able to achieve its biodiversity goals, Freiburg City Council adopted a biodiversity action plan in 2019 and provided additional funding for implementation. The ac-

Photo 12: Stone constructions in the Freiburg Dreisam river © FWTM, Antal

tion plan stipulates that the reduction in pesticide use and the enhancement of agricultural areas on the city's own leased agricultural land should be undertaken as a model of good practice. Freiburg has opted for a cooperative approach with the agriculture sector and developed an innovative and sustainable agreement for its lease contracts in discussions between the City Administration, farmers and associations. The agreement is based on cooperation and is concluded as an addendum to the existing lease contract with the tenants of arable land owned by the city. In this way, each farming business agrees in future to cultivate arable land leased by the city without the use of synthetic chemical pesticides. Wherever possible, this undertaking not to use pesticides should be implemented directly on the municipal land

covered by the lease. Implementation is voluntary but pays off for the farmer. If the tenant avoids using pesticides, the city reduces the rent for the land in question by 50 per cent.

Rainwater is an important component in the water cycle. In 2022, the City of Freiburg published a new rainwater management strategy, committing itself to a near-natural system of rainwater management. For both water management and ecological reasons, the principle of channelling rainwater away from built-up areas as quickly as possible is outdated. This drainage practice disrupts the water balance. As water is not retained in the area, it does not contribute to local groundwater recharge. Large volumes of uncontaminated rainwater reduce the efficiency of sewage treatment plants and can lead to hydraulic stress on surface waters and exacerbate localised flooding. Freiburg's rainwater management strategy aims to limit the proportion of rainwater discharged to the sewage treatment plant and any interference in the natural water cycle as much as possible. The near-natural rainwater management system relies in particular on the infiltration of rainwater or the local discharge of rainwater into a surface water body. The City of Freiburg's municipal drainage regulations have long since required construction projects to meet environmental criteria in relation to rainwater management. Thanks to the split wastewater charge, i.e. the separate billing of costs for rainwater and wastewater disposal, there is also a financial incentive to invest in systems that allow for the infiltration of uncontaminated or sufficiently purified rainwater.

In order to reduce the risk of flooding in the municipal area, especially for particularly vulnerable parts of the city, Freiburg relies on ***flood retention basins***. The key measures being implemented by the city are the expansion of the flood retention basin on the Breitmatte and the construction of a new basin in the Bohrer valley. The issue of water, in reducing the increasing heat load in the city, also plays an important role in the city's climate adaptation strategy, which was adopted in 2019. The climate adaptation strate-

gy for 'heat' is currently being expanded to include its own action area for 'rainwater', which will include measures for rainwater management in the sense of the sponge city as well as heavy rain precautions as municipal area precautions.

Intermunicipal support for the provision of drinking water and sanitation services in the Global South

As part of its ***town twinning link with Wiwilí in Nicaragua,*** the City of Freiburg supports the provision of local drinking water and sanitation services. This includes various partnership projects that promote integrated water resource management and basic sanitation in the catchment areas around Wiwilí. To begin with, a sustainable municipal development project to establish a secure drinking water supply for around 3,000 inhabitants in rural areas of both districts of Wiwilí was successfully completed in 2017. The experience gained from this collaborative project was

Photo 13: High water at the Dreisam, height Schwabentor bridge © Stadt Freiburg

then applied to the next project partnership between 2018 and 2021, which aims to improve basic sanitation for those living in the water catchment areas and to reduce contamination in the future drinking-water protection areas through awareness-raising measures and practical solutions. A further objective is to improve the supply of drinking water (currently inadequate in terms of both volume and quality) for the previously neglected town-centre districts. The population and the municipal administrations, each with their specialist departments for water and basic sanitation, are actively involved in the project. Overall, the planned measures are designed to improve water quality and provide an adequate water supply to the town centres, especially in view of climate change and anticipated population growth. To protect the water catchment areas in Wiwilí, there are also plans to set up a monitoring system that will help to maintain a secure, sustainable and permanent supply of water in terms of both quality and quantity.

Public toilets in Freiburg

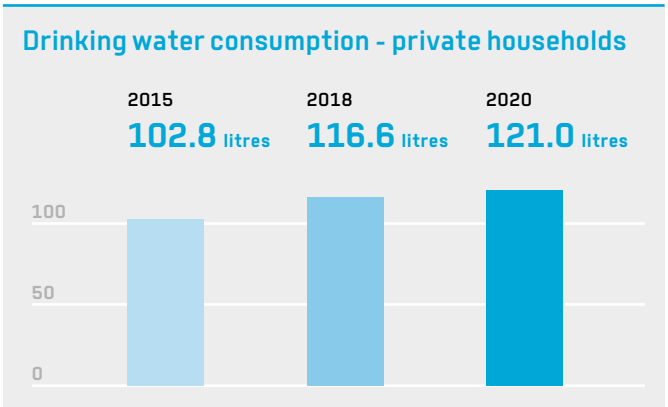
Public toilets not only increase the quality of public spaces but also contribute to public health. However, there is no obligation for German municipalities to provide their citizens with free public toilets as a basic service. Altogether, Freiburg has 14 ***public toilet facilities.*** For people with severe and multiple disabilities, the city has also installed specially equipped ***'Toilets for all'*** at several locations. These are barrier-free toilets with additional equipment, such as ceiling lifts. Baden-Württemberg's Ministry of Social Affairs supports the creation of such toilets.

3.1.4 Indicators

Drinking water consumption - private households

Drinking water consumption (households and small businesses) in litres per day per inhabitant (Source: SDG core indicator (35), Statistical Offices of the Federal States; see Municipal Sustainability Report)

Drinking water is one of the most precious resources, especially in view of increasing droughts and hot summers. Germany is basically a water-rich country, and direct consumption has remained mostly constant over recent years. There is also sufficient drinking water in the region around the City of Freiburg. Nevertheless, supplying water always requires energy and materials. In the City of Freiburg, saving water therefore makes sense, especially during prolonged drought. It should be noted, however, that if drinking water consumption is too low, drainage pipes must be artificially flushed to keep them clean. Drinking water consumption in Freiburg does not show any major fluctuations over time, although a slight increase in consumption can be observed. In 2020, around 121.0 litres of water per inhabitant were consumed daily, which is slightly below the average consumption nationwide (2020: 126.6 litres/inhabitant). The German Sustainable Development Strategy does not contain any targets for drinking water consumption by private households.



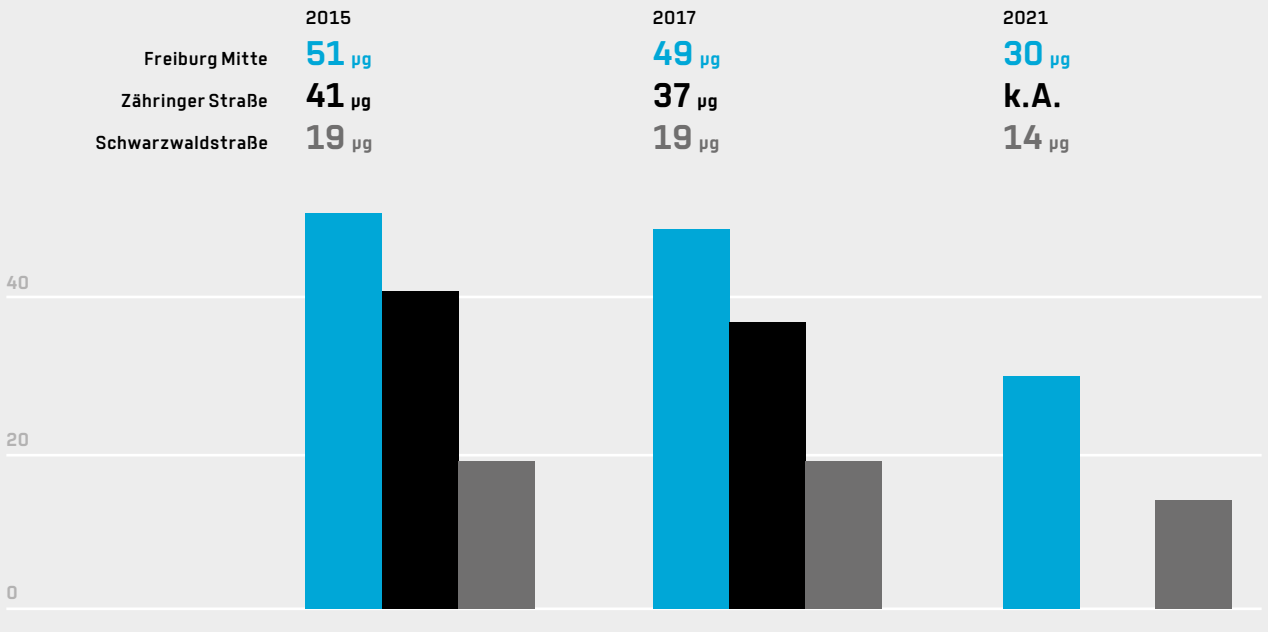
6 CLEAN WATER AND SANITATION

Nitrogen dioxide

Mean values of nitrogen dioxide in micrograms (µg) per cubic metre at the three different measuring points in the municipal area (Source: SDG core indicator (8), Landesanstalt für Umwelt, Measurements and Nature Conservation Baden-Württemberg; see Municipal Sustainability Report)

Nitrogen dioxide (NO_2) is a gas that is mainly produced by combustion processes (especially combustion engines and when energy is generated using coal, oil, gas, wood or waste). Nitrogen dioxide is considered to be particularly harmful to health and primarily affects densely populated areas. At high concentrations, it can damage the mucous membranes in the respiratory tract and cause eye irritation. Due to the resulting inflammatory reactions, it exacerbates the irritating effect of other air pollutants. High levels of nitrogen dioxide in the air are also indirectly problematic for the water balance because it also contaminates the soil and groundwater in the form of acid rain. Maximum levels are set by the European Union and the World Health Organization, e.g. through 'Air Quality Guidelines'. The 'Nitrogen dioxide' indicator shown above records the concentration of nitrogen dioxide at selected measuring points in the municipal area and therefore indicates the extent of the potential impact on people or the natural environment. In the City of Freiburg, nitrogen dioxide emissions are at a high level, especially at the measuring points Freiburg Schwarzwaldstraße and Freiburg Zähringer Straße (passive measurement). However, the trend is downward. Data collection at Zähringer Straße was discontinued after 2017. Although the German Sustainable Development Strategy does not address nitrogen dioxide separately, it sets out the following guideline for particulate matter in target 3.2.b: 'EU annual average particulate matter limit of 40 mcg/m^3 for PM_{10} to be achieved as widely as possible by 2030.'

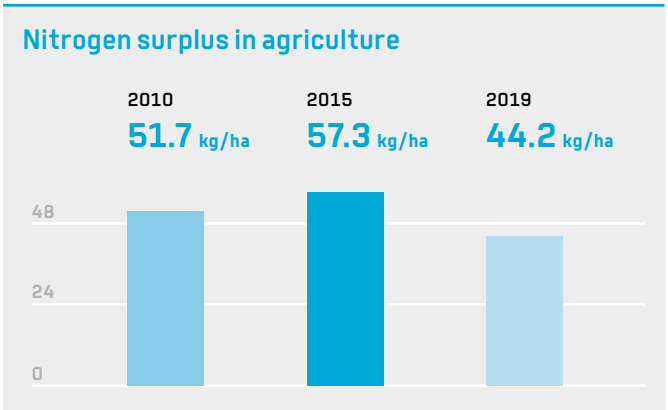
Nitrogen dioxide



Nitrogen surplus in agriculture

Nitrogen surplus in kilograms per hectare of land in agricultural use (Source: SDG Portal)

The excessive use of fertilisers in agriculture is particularly responsible for a variety of environmental problems, and in this respect the global planetary boundary has already been exceeded. In addition, nitrogen surpluses lead to acidification of surface waters, oceans and various terrestrial ecosystems, as well as nitrate pollution in groundwater. Figures for the City of Freiburg have fluctuated over time. In 2019, the nitrogen surplus per hectare of land in agricultural use stood at 44.2 kg. National data for the same year are not available. In Baden-Württemberg, however, the figure is significantly higher overall, with a nitrogen surplus of 56.8 kg/ha in 2019. Nevertheless, the progress made so far is already contributing to Goal 2.1.a of the German Sustainable Development Strategy: 'Reduction of the nitrogen surpluses of the overall balance for Germany to 70 kilograms per hectare of utilised agricultural area on an annual average between 2028 and 2032'.



3.2 SDG 7 - Affordable and Clean Energy

3.2.1 SDG 7 - Introduction and relevance for German municipalities

SDG 7 aims to ensure access to affordable, reliable, sustainable and modern energy for all. A secure, environmentally sound and affordable supply of electricity and heat is key to social and economic development. It is also directly linked to environmental protection and climate action. Energy and heat security, environmental compatibility and affordability form a triad of energy policy goals. In Germany, climate and energy policy as part of the energy transition aims to decarbonise energy systems by promoting renewables, reducing energy consumption and increasing energy efficiency. This is designed to achieve the overarching goal of carbon neutrality. The transformation towards a sustainable energy supply must be implemented in various sectors (energy and agriculture, industry, buildings and transport). Achieving digitalisation and innovation by investing in research and new technologies plays an important role in this.[12] When localising implementation of this SDG, German municipalities on the whole face the following thematic tasks (please also compare these with the targets for SDG 7 in the annex):

- Promoting renewable energy
- Increasing energy efficiency
- Ensuring access to an affordable and reliable energy supply.

12 See Germany's Voluntary National Review to the High-Level Political Forum 2021 and the German Sustainable Development Strategy 2021.

3.2.2 Overview of qualitative aspects and indicators

Qualitative aspects:

- Energy and climate action - overarching goals and activities in the City of Freiburg
- Sustainable heating solutions and support for renewables
- Climate-friendly buildings and districts

Indicators:

- CO_2 emissions
- Final energy consumption
- Renewable energy production
- Electricity from renewable sources
- Charging point infrastructure

3.2.3 Contributions of the City of Freiburg to the SDG

Energy and climate - overarching goals and activities in the City of Freiburg

In the Federal Climate Change Act (2021), the German Government set itself the goal of reducing greenhouse gas emissions by 65 per cent by 2030 compared to the year 1990. The intention is to achieve greenhouse gas neutrality by 2045, which means that there must be a balance between greenhouse gas emissions and their reduction.

Based on the goals of the Federal Government and the state of Baden-Württemberg, the City of Freiburg set itself the goal of ***reducing CO_2 emissions by 60 % by 2030*** (compared to 1992). In 2022, Freiburg City Council decided to tighten the city's climate targets, with the result that it now ***aims to achieve climate neutrality for the city by 2035*** (and as early as 2030 in the case of the City Administration's own operations).

Freiburg has been focusing on climate policy for decades. It is actively engaged in many areas with the goal of reducing greenhouse gas emissions through the growth of renewables, sustainable heating solutions, support for climate-friendly buildings and the expansion of CO_2-free mobility. The Climate and Biodiversity Manifesto was approved in 2019 (see above under the heading 'Strategic and organisational mainstreaming of sustainability'), and in 2023 the City Council adopted the Climate Mobility Plan (see the section below on SDG 11).

Since the first climate strategy was drawn up in 1996, the city has implemented a large number of projects and measures. Evidence of the impact of these measures is published every two years in the form of a climate audit. As a key mechanism for the

Photo 14: The so-called Sonnenschiff in the Vauban district, part of the Solarsiedlung and a climate-positive building. © FWTM, Schoenen

systematic recording and monitoring of actions to protect the climate, the audit contains information on changes in the CO_2 emissions of each sector, broken down into different stakeholder groups. The most recent climate audit covers the year 2020 and shows a generally positive trend. Compared to the baseline year 1992, CO_2 emissions in Freiburg have fallen by 45.6 per cent per capita. By contrast, the decline observed as recently as the 2018 audit was still only 37 per cent per capita. Further significant reductions have been achieved compared to previous years, especially in the area of energy consumption.

In 2019, the City of Freiburg published a new climate strategy. A new, medium-term master plan was developed in a one-year participatory process. In future, this will serve as a guideline for all municipal offices and subsidiaries. The climate strategy is divided into six 'action areas':

- Climate-friendly buildings, urban planning and administration
- CO_2-free mobility
- Renewables
- Sustainable heating solutions
- Trade and industry
- Climate-friendly lifestyles.

The climate strategy comprises a total of 90 detailed measures. 30 of these are defined as special key measures. A further 19 measures were specified in the Freiburg Climate and Biodiversity Manifesto adopted by the City Council in 2019 and are currently being implemented. The climate strategy was drafted with input from twelve expert workshops, two public events, an online consultation and a consultation aimed at young people. These contacts and the corresponding networks are also used to help implement the measures. Work to implement the various packages of measures developed for the climate strategy will continue over the coming years together with partners. Progress towards completion is evaluated through a regularly updated monitoring system. The online portal Freiburger Klimaampel can be used to track the current status of each

measure using a traffic light system that give local residents a clear picture of the progress being made. The most important measures in the climate strategy (covering sustainable heating, renewables and climate-friendly buildings) are set out in more detail below under separate sub-headings.

The ***European Energy Award*** (eea for short) was introduced in Freiburg in 2021 as a core monitoring tool, allowing success to be measured through a recognised auditing system. The eea is both an international quality management and accreditation tool for municipal climate policies and a programme for energy and climate policies in municipalities. It is process-oriented with a focus on saving energy, using energy efficiently and increasing the use of renewables. Through a systematic baseline survey, municipalities can assess the current status of their energy and climate policy work and identify their own strengths and weaknesses. Relevant measures can then be identified, planned and implemented on the basis of these findings. An external audit is conducted every three years to check the progress being made. Yearly analyses and reports on the climate action being taken by the City of Freiburg began with the introduction of the European Energy Award in 2021. Questionnaires were used to record and evaluate the implementation status of all climate measures adopted by the City Administration and municipal companies. A baseline analysis was then finalised, evaluated and used to create a detailed 'strengths and weaknesses' profile. On this basis, the City Administration developed an energy policy work programme that includes the most important measures for a climate-neutral Freiburg and a climate-neutral administration by 2030. If the work programme is implemented as planned, Freiburg can qualify for the GOLD European Energy Award. It will be eligible for accreditation in 2024 at the earliest.

In 2008, the city of Freiburg set up the Freiburg Climate Protection Fund to finance additional climate protection projects and measures. The basis of assessment for the financial resources of this climate protection fund was the concession fee paid to the city by the regional energy supplier badenova. Initially it was 10%, but over the years a steadily increasing proportion was allocated to additional climate protection measures. In 2019 and 2020, around 50% of the concession fee was finally reinvested directly in climate protection, totalling around €6 million per year. The budget is generally available for additional measures and projects of the municipal departments, municipal enterprises and companies and is used in addition to the funds already regularly budgeted. In autumn 2021, the municipal council decided on a climate protection campaign. A central component of this is the further increase in the municipal financing programme, now known as the Climate Protection Future Fund, to 12 million euros per year. A further 8 million euros in external funding is to be added each year. The climate protection offensive initially covers six years until 2028, so that personnel resources can also be recruited for temporary contracts for project implementation.

Sustainable heating solutions and support for renewables

Sustainable heating solutions can make a huge contribution as the City of Freiburg transforms itself into a climate-neutral municipality. In 2020, heating accounted for around 1,900 gigawatt hours or almost 50 per cent of the city's final energy demand from domestic, commercial and industrial consumers. Since most heat is still generated using fossil fuels, this sector is central to achieving Freiburg's climate goals. Fossil natural gas is the dominant source of heat energy in Freiburg at over 50 per cent, followed by district heating (also still predominantly fossil fuel-based) at over 20 per cent and heating oil at 17 per cent. Renewable heating systems make up only a small proportion of the total at just under 7 per cent. Against the background of Freiburg's climate goals, strategic action is needed to upgrade the city's heating systems and the associated infrastructure. If those systems are to become climate-neutral, heat will need to be generated in future from renewable electricity, ambient heat, industrial waste heat and other renewable sources. The heating supply can be provided either through centralised heating grids or from a standalone system in each building. The roadmap towards sustainable heating solutions of this kind is shown in the ***Freiburg 2030 Heating Master Plan,*** which was adopted by the City Council in 2021 as the outcome of long-term municipal planning for the heating sector. The aim of the 2030 master plan is to develop a strategy for supplying all areas of the city with heating based on renewables and to highlight proposals showing which areas should be supplied with which renewable heating system going forward. The Heating Master Plan builds on existing preparatory work by the City of Freiburg, especially the 2019 Climate Strategy, the climate audit, assessments of the potential of renewables and the District Heating Strategy produced in 2019. Three priorities were identified: the gas network, heating networks and decentralised heating systems. Using available data, a building-specific heating registry was created that shows the spatial distribution of demand for supplies of heat energy in the city area. With the help of this heating registry, the master plan provides accurate district-level information on the potential for climate-neutral heating solutions.

A key measure in the area of heating supplies is the ***transformation of heating networks*** towards renewables and 'low-ex' systems. As we move away from fossil fuels, long-term decarbonisation poses many challenges, especially in the heating sector. We need solutions that make it possible to integrate a large number of different energy sources (waste heat, solar thermal energy, geothermal energy, combined heat and power, etc.) through heating networks. This can only be achieved efficiently if the temperature level of the heating networks is also adapted. One of the terms often used here is 'low-ex networks'. The use of climate-neutral heat from deep underground could also prove important for the heating transition in Freiburg. The city's location on the edge of the Upper Rhine Graben offers potential for the use of hydrothermal ***deep geothermal energy,*** which is suitable as a baseload heat supply for entire municipal districts. Against this background, there are plans for a hydrothermal geothermal project (to be set up by the municipal energy supplier badenova) to investigate from a technical angle whether and where heat from deep water could be used to supply around 40,000 households in the region. Corresponding preliminary investigations and a site search have already been carried out.

In order to increase the share of renewable heat in the heating market, the City of Freiburg has launched a ***Freiburg Solar Thermal Initiative.*** Thanks to 1,800 hours of sunshine per year, Freiburg is well placed to harness the benefits of solar energy. Given that around half of all residential units in Germany are located in multi-family houses, the potential for larger solar heating systems on such buildings in particular is considerable. Solar thermal energy is already being used extensively in newly constructed multi-family buildings - around one third are currently being equipped with solar thermal systems. However, there is still a lot of potential in solar thermal energy for ex-

isting multi-family buildings. The City of Freiburg wants to play its part in harnessing the potential of solar heating in multi-storey residential construction. To this end, as an initial measure, it initiated a solar thermal demonstration project that was funded by the Badenova Innovation Fund and implemented by Bauverein Breisgau eG in Freiburg. The Fraunhofer Institute for Solar Energy Systems provided technical support for the project, which was realised in 2015. Through the solar thermal initiative, the city now aims to raise awareness of the project and the knowledge gained to stimulate further solar thermal projects in multi-family buildings.

In Freiburg, there is also a great deal of potential to supply renewable electricity from rooftop photovoltaic systems. The economic viability of these systems depends on a variety of factors, making investment decisions increasingly complex. The ready availability of advice can therefore make an important contribution to future expansion. Against this background, the City of Freiburg's ***photovoltaic campaign 'Dein Dach kann mehr' (your roof can do more)*** has been supporting homeowners and businesses that want to install a photovoltaic (PV) system since 2017, whether as a balcony PV system or a larger installation on the roof or the building façade. The campaign is being implemented in collaboration with the company Energieagentur Regio Freiburg GmbH with a view to increasing the number of PV systems installed in Freiburg. In future, the campaign will be boosted by measures to increase its visibility within the cityscape and by expanding the provision of advice. Another priority is to integrate and bring together all the various target groups more effectively (i.e. owners of single-family and multi-family houses,

Photo 15: Wind turbines on a mountain in the Freiburg region © Stadt Freiburg

homeowner associations and tradespeople) under the umbrella of the campaign. Together with the municipal energy supplier badenova, the city offers advice on how best to carry on operating existing systems that are no longer eligible for subsidies and to feed the electricity into the grid without hindrance. Both this advisory service and a subsidy for optimising old systems are paid out of the City of Freiburg's climate fund. A new programme entitled 'Large Roofs' has been designed to identify and advise the owners of PV-suitable commercial roof space and of parking areas that could potentially be covered by photovoltaics. The use of municipal roof space for photovoltaics will also be gradually expanded.

Wind power is currently the renewable energy source with the greatest potential for expansion and the highest spatial efficiency. The choice of location is based not only on the best wind yield but also on landscape and nature conservation concerns, for example. The planning and construction of wind turbines

Photo 16: The facade of the town hall in Stühlinger covered with photovoltaics. © Stadt Freiburg, Amt für Bürgerservice

is therefore subject to a complex approval process. In 2018, Freiburg City Council adopted a partial preparatory land-use plan for wind power. Freiburg's goals for energy production from wind power can only be achieved if, on the one hand, the areas designated in the functional partial preparatory land-use plan are fully developed and, on the other hand, the plan is selectively updated in order to designate additional sites. Based on current turbine technology, the areas currently designated for wind turbines in Freiburg are far from sufficient to achieve Freiburg's goals. This means there is a pressing need not only to develop further areas but also to use each area as efficiently as possible. Due to major improvements in wind turbine yields, the replacement of old wind turbines with modern, more powerful turbines (known as repowering) is a way of significantly increasing yields while simultaneously reducing the number of turbines. The partial preparatory land-use plan for wind power lays the foundation for the ***repowering of existing turbines*** in Freiburg (e.g. a new wind turbine is due to begin operating on the Schauinsland no later than 2024, and the two 19-year-old wind turbines on the Holzschlägermatte will be replaced by a larger turbine that will generate twice as much electricity as both its predecessors). The partial preparatory land-use plan for wind power has also cleared the way for the ***designation of further sites*** for wind turbines (one example is the newly designated Taubenkopf site). Looking ahead, the city intends to update the partial preparatory land-use plan and to identify and develop additional sites.

Climate-friendly buildings and districts

The building sector accounts for around one third of energy consumption in Germany. Municipal climate policy has a key role to play in addressing this effectively. Energy consumption in the building sector must be significantly reduced if we are to meet our climate goals. This includes both new and existing buildings. To achieve climate neutrality in the building sector, Freiburg's above-average renovation rate (currently 1.6 per cent per year) will need to increase further still. Two to three per cent of properties should undergo energy retrofitting every year. The scope of that refurbishment must also increase. This means that buildings need to be modernised to an ambitious level so that they are genuinely fit for the future. High energy standards must also be applied to new construction to avoid the need for future renovation.

Since 2002, the City of Freiburg has been helping private homeowners to meet this challenge by subsidising the energy-efficient renovation and modernisation of residential buildings in the municipality through its ***Climate-Friendly Living funding programme.*** Going forward, the city will provide support in three specific areas: 'Optimum insulation of the building envelope', 'Efficient and renewable heating and ventilation' and 'Renewable power generation with photovoltaics'. As part of the funding programme, various free information events are held several times a year, and free initial consultations are offered covering every subject.

Since 2019, the city has also been helping homeowners to save energy in their buildings through the ***Freiburg Energy Caravan,*** a collaboration between the city and the locally based association fesa e.V. The scheme reverses the usual approach to providing energy advice, since the energy advisors come directly to building owners following the initial notification and contact. The advice is both provider- and product-neutral and is offered free of charge as a mu-

nicipal service. The aim of the Energy Caravan is to encourage building owners to undertake energy-efficient renovation measures by providing impartial expert advice. The Energy Caravan has successively targeted various districts in Freiburg since 2019.

In collaboration with the Baden-Württemberg Consumer Advice Centre, the ***Freiburg Energy-Saving Advice Service*** offers free expert advice for all Freiburg residents in their own home as a first step for owners who are interested in undertaking energy-efficient renovation work. A building check paves the way for individual measures as a prerequisite for funding. Low-income households can significantly reduce their electricity costs through the ***electricity savings check.*** The check is free of charge and specifically tailored to the needs of each household.

A large proportion of the public buildings in Freiburg are schools, which are big energy users. To reduce energy consumption and greenhouse gas emissions in schools, the City of Freiburg initiated an ***energy-saving and climate project entitled 'fifty fifty for Freiburg schools'.*** The project was set up in 1997 and extended in 2019 under the title 'fifty fifty 2.0'. The project focuses on what schools are doing to protect resources and the climate. By changing the behaviour of users and optimising the technology, it aims to provide energy savings and drive climate action. To this end, schools are offered wide-ranging support for campaigns and measures with support and guidance from professional advisors. In addition, schools receive annual rewards for activities that they implement through the project.

As well as taking steps to renovate and modernise existing buildings (and transitioning towards renewable forms of heating, see above), Freiburg will need to ensure that new buildings are 'nearly climate neutral' if it is to meet its climate goals. With this in mind, Freiburg has adopted its own standards. ***Freiburg's Energy Standard for Buildings*** goes beyond the legal requirements of the German Buildings Energy Act, which specifies the energy requirements that heated and air-conditioned buildings must fulfil. The aim is for new buildings in Freiburg to become even more energy-efficient by a significant margin. The City Administration took this step after positive experiences with low-energy construction, especially in the newly built districts of Rieselfeld and Vauban. In Freiburg, Efficiency House Standard 55 (for new residential buildings) and Efficiency House Standard 70 (for new office and service buildings) form a binding and verifiable component of the agreement when selling municipal land and in contracts with investors. Freiburg's building energy standards are stipulated in municipal development contracts for new buildings that are intended wholly or in part for residential or office-type use.

In addition to promoting individual climate-friendly buildings, the City of Freiburg is also addressing the challenge of making entire districts more climate-friendly. This approach is being piloted, for example, in the ***Waldsee climate district.*** Together with local residents, the City of Freiburg wants to develop a positive vision and holistic solutions. The goal is to create a people-friendly district that combines measures to protect the climate and to build a liveable future. Working with the city, a wide range of stakeholders are developing practical solutions for sustainable climate-friendly behaviour and a more climate-friendly residential environment. The project goes beyond the building sector and takes in energy, mobility, diet and consumption. The city offers know-how, networks, advice, coordination and, for particularly innovative ideas, financial support through the funding programme 'Our Waldsee Climate District'. Freiburg also wants to set new municipal development and climate standards in ***Dietenbach,*** a new district in the west of Freiburg that will create living space for around 16,000 people. The goal is for Dietenbach to become the first climate-neutral district. Given the size of the development, this a pilot on a national scale. To achieve this goal, the energy plan for the new development will include energy-efficient buildings, photovoltaic systems for roofs and façades, district heating and heat-from-waste systems to supply domestic heating and hot water, and hydrogen for transport and

Photo 17: The roof of the trade fair building covered with photovoltaics and a view over the North Industrial Park. © FWTM, Spiegelhalter

industrial applications. All in all, it is a concept that guarantees a particularly climate-friendly greenhouse gas balance. As such, the new district will not only have zero emissions but also a negative CO_2 balance by the middle of the century, meaning that more CO_2 will be avoided than emitted.

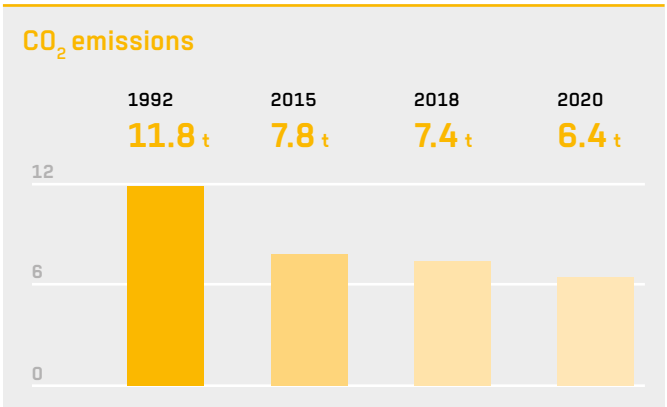
3.2.4 Indicators

7 AFFORDABLE AND CLEAN ENERGY

CO_2 emissions

Total emissions (Scope 1 and 2) of the city of Freiburg per inhabitant in tonnes of CO_2 (Source: SDG core indicator (38c), City of Freiburg: Environmental Protection Agency, IFEU Heidelberg; see Municipal Sustainability Report)

Carbon dioxide (CO_2) is a chemical compound of carbon and oxygen and is produced in particular in the energy sector. CO_2 emissions contribute substantially to global warming, making it the most significant climate-damaging gas in terms of quantities emitted. One of the most important goals on the path to sustainable development is to abandon the use of fossil fuels as completely as possible and therefore drastically reduce CO_2 emissions. In Germany, carbon dioxide emissions have been decreasing almost continuously since 1990 - globally, however, carbon dioxide emissions are increasing. Absolute CO_2 emissions in the City of Freiburg have also been reduced when compared with the baseline year 1992 (11.8 t CO_2 per inhabitant). However, as set out in Goal 13.1.a of the German Sustainable Development Strategy ('Reducing greenhouse gas emissions'), policymakers, the business sector and civil society must continue to significantly reduce CO_2 emissions in order to contribute to the goal of the Paris Agreement.

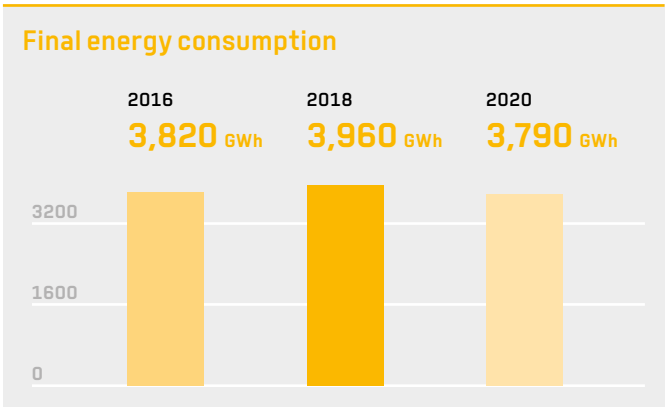


7 AFFORDABLE AND CLEAN ENERGY

Final energy consumption

Total final energy consumption in gigawatt hours
(Source: City of Freiburg: Environmental Protection Agency, ifeu Heidelberg; see Municipal Sustainability Report)

Reducing energy consumption, for example through energy-efficiency measures, is an important component of municipal climate action and can have a major impact, especially in the building sector, in the area of mobility and in the manufacturing industry. The term 'final energy consumption' refers to the amount of energy that is actually used or consumed, such as electricity from the socket, gas from the pipes, oil in the heating tank or district heating from the transfer station. At national level, final energy consumption in Germany has hardly decreased since the beginning of the 1990s. In the City of Freiburg, too, there is no sign of a significant decrease in the period under consideration. In 2020, compared to 2016, final energy consumption had decreased by 30 GWh but was still at 3,790 GWh. In order to reduce energy consumption in Freiburg by an even greater margin, the city's declared goal is to increase the renovation rate of residential buildings, save energy in the city's own buildings and its mobility systems, and cut energy use in commercial enterprises. Goal 7.1.b of the German Sustainable Development Strategy also states that primary energy consumption should be reduced.



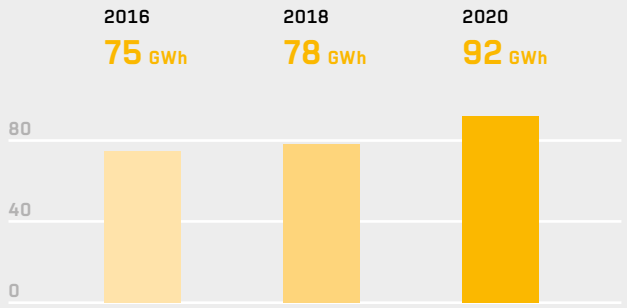
7 AFFORDABLE AND CLEAN ENERGY

Renewable energy production

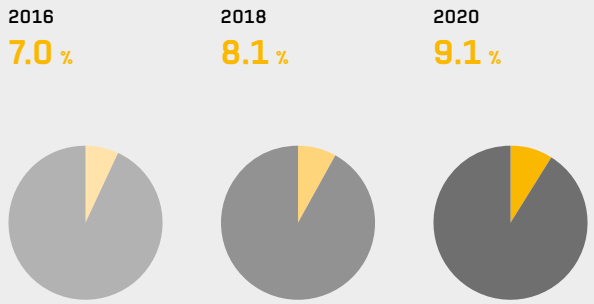
Renewables in electricity generation in gigawatt hours and share of total electricity consumption in per cent (Source: Environmental Protection Agency, Climate protection concept and climate balance; see municipal sustainability report)

Renewables are among the most important sources of electricity in Germany, and their expansion is crucial to the success of the energy transition. In order to achieve energy independence, the aim is for energy supplies in Germany to be become increasingly climate-neutral while moving away from imports of fossil fuels, power and heating. The City of Freiburg has driven the expansion of renewable energies in recent years. At 92 GWh in 2020, the power generated from renewable energies accounted for 9.1 per cent of total electricity consumption. The City of Freiburg has set specific targets for the expansion of renewable energies and aims to meet them by 2030: expanding wind energy to generate 100 GWh per year (about 10 per cent of electricity consumption), expanding photovoltaic systems to generate 100 GWh per year (about 10 per cent of electricity consumption) and maintaining the share of biomass and hydropower. Through this expansion, the City of Freiburg is also contributing to goal 7.2.a of the German Sustainable Development Strategy ('Increase the share of renewable energies in gross final energy consumption').

Renewable energy production



Renewable energy production - Share



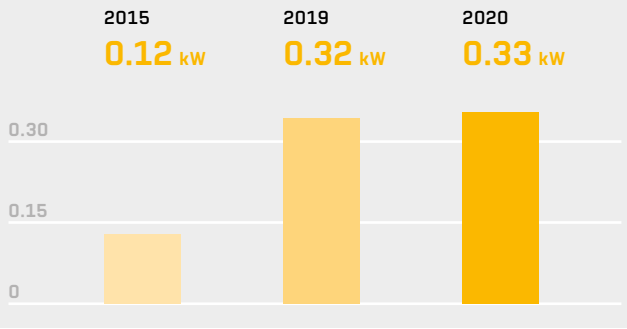
7 AFFORDABLE AND CLEAN ENERGY

Electricity from renewable sources

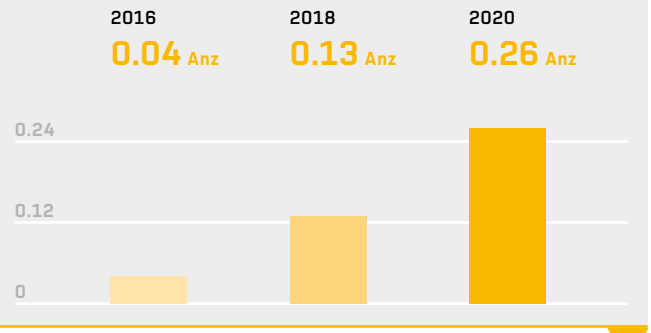
Installed net nominal capacity of renewable electricity from biomass, solar radiation energy, water and wind in kilowatts per inhabitant (Source: SDG portal)

A sustainable energy economy relies primarily on renewable energy sources. The indicator provides information on the installed net nominal capacity of renewable electricity from biomass, solar radiation energy, water and wind per inhabitant of a municipality. In the City of Freiburg, the amount of installed net nominal capacity of renewable electricity increased from 0.12 kilowatts per inhabitant in 2015 to 0.33 kilowatts per inhabitant in 2020. The most recent increase (2019 to 2020) is very small at 0.01 kilowatts per inhabitant. The German average in 2020 is significantly higher at 1.51 kilowatts per inhabitant. The continuous expansion of installed capacity for generating renewable electricity in Freiburg is contributing to goal 7.2.b of the German Sustainable Development Strategy ('Increase the share of electricity from renewable energy sources in gross electricity consumption to at least 65 % by 2030').

Electricity from renewable sources



Charging point infrastructure



Charging point infrastructure

Number of publicly accessible normal and fast charging points (min. 3.7 kW) per inhabitant (Source: SDG portal)

7 AFFORDABLE AND CLEAN ENERGY

Electrification, especially of road transport, is vital to achieving climate targets. The expansion of electromobility therefore requires a consumer-friendly and reliable charging infrastructure. The indicator provides information on the number of publicly accessible normal and fast charging points (min. 3.7 kW) in the municipal area per inhabitant. In Freiburg, there are currently (2020) 0.26 publicly accessible normal and fast charging points per inhabitant. This shows a significant overall improvement in the charging point infrastructure for the period under consideration. However, the national average of 0.35 charging points per inhabitant is higher than the current figure in Freiburg. Nevertheless, the improvement in Freiburg is contributing to goal 11.2.b of the German Sustainable Development Strategy ('Reduce final energy consumption in passenger transport').

3.3 SDG 9 - Industry, Innovation and Infrastructure

3.3.1 SDG 9 - Introduction and relevance for German municipalities

SDG 9 aims to build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation. These three elements touch on many areas - such as digitalisation, or information and communications technology. Innovation has the potential to make a key contribution to current challenges, such as climate action and resource conservation, or demographic change. Innovations also play an important role in promoting sustainable industrialisation, which aims among other things to achieve more resource-efficient and low-emission production. The term "infrastructure" includes both technical and social infrastructure (e.g. infrastructure for transport, energy and water/wastewater, as well as education and health care). When planning and designing infrastructure, various requirements (for instance concerning health, climate change mitigation and adaptation, securing natural resources or equal participation) must be taken into account simultaneously.[13] For German municipalities, the following areas are therefore especially important for implementing this SDG (please also compare these with the targets for SDG 9 in the annex):

- Promoting innovation
- Supporting sustainable industrialisation and business start-ups
- Establishing sustainable infrastructure, especially for information and communications technology.

13 See Germany's Voluntary National Review to the High-Level Political Forum 2021 and the German Sustainable Development Strategy 2021.

3.3.2 Overview of qualitative aspects and indicators

Qualitative aspects:

- Digitalisation - Freiburg Digitalisation Strategy and broadband provision
- Sustainable business management, support for startups and innovation
- Infrastructures

Indicators:

- Startups
- Highly qualified professionals
- Broadband provision - private households
- Doctors per inhabitant
- Coworking spaces
- Digital process management
- EMAS and DNK certificates

3.3.3 Contributions of the City of Freiburg to the SDG

Digitalisation - Freiburg Digitalisation Strategy and broadband provision

Photo 18: The newly built soccer stadium of the Bundesliga club Sportclub Freiburg. © Stadt Freiburg

The digital transformation has brought about profound changes in many areas of society over recent decades, with major impacts on people's living and working environments. The aim of the Digitalisation Strategy adopted by Freiburg City Council at the end of 2019 is to set out these wide-ranging changes in a focused manner and suggest ways in which they can be shaped through collaboration. The motto chosen for the city's Digitalisation Strategy is FREIBURG. DIGITAL. GESTALTEN. (digitalising Freiburg). The strategy itself is an important milestone in the joint process of reflection and negotiation that will decide how the City of Freiburg should develop. The focus is on transparency, participation and communication as key elements of integrated municipal development. Reflecting a conviction that digitalisation is penetrating almost every single area of municipal life, that it is primarily a social issue and that new forms of collaboration are needed in order to build a forward-looking approach, the strategy development process was not organised from the top down, but rather from the bottom up. It began with an intensive engagement phase in which the people of Freiburg contributed their ideas and suggestions for the digital transformation. These results were enriched and discussed in condensed form with the help of expertise from the partner and support network. A first draft of the strategy was then formulated and presented to interested citizens and the partner and support network. As a result, the Digitalisation Strategy combines the perspectives of very different people in Freiburg with a broad range of expertise. It is divided into the following six topic areas:

- Living environments, family and health
- Society, ethics and trust
- Education, culture and science
- Digital municipal management
- Labour, economy and tourism
- Networks, energy and transport.

For each topic area, the next step was to jointly identify goals that promote the development of municipal society. All the goals are described using a few key statements and the most important action areas. The Freiburg sustainability criteria and criteria for civic participation play an important role. It is intended that the Digitalisation Strategy will contribute significantly to the development of the City of Freiburg in the period up to 2025. It will be responsive at all times to changes in the wider context, and the specified objectives and measures will be continuously reassessed and adapted.

Freiburg's ***City Administration*** is leading by example in the area of digitalisation through a wide range of measures, such as digital mailboxes, digital file and process management, digital municipal planning and building design, a new service platform in line with the German Online Access Act and the development of administrative structures that are both agile and digital.

One of the strategy's core measures in the section entitled 'A proactive, shared and values-driven approach to shaping digitalisation' was to set up a Digitalisation Advisory Board. The first meeting of this body was held in 2022 under the motto 'Close up - forward-looking - discursive' . The Advisory Board's role is to provide a broad spectrum of academic expertise and raise awareness of the technical issues among local residents and policymakers. This approach is designed to ensure that the most important development implications are discussed from different perspectives, for example with regard to municipal development, sustainability, democracy, the public sphere, public engagement/participation, mobility, health and culture.

In particular, the digital transformation requires a high-performance data transfer infrastructure. Network expansion has been driven in Germany since 2009 by the so-called broadband strategy. Effective digital infrastructure - whether in terms of broadband or mobile communications - is indispensable as the basis for digital progress and as the technical backbone of a forward-looking municipality. Unlike copper DSL technology, high-performance broadband communication based on fibre optics is considered future-proof as it permits a fast and stable internet. The major internet nodes and connecting cables, i.e. the main transport routes in Germany, are now all made of glass fibre. The reason for the deficits in network quality in Germany up to now has been the large proportion of copper cables on the so-called 'last mile', i.e. on the route from the nearest distribution box to the individual household. Accordingly, the Federal Government has set itself the goal of achieving nationwide expansion, with gigabit networks in place by 2025.

The City of Freiburg has been making great progress towards universal ***broadband coverage*** since 2021. Several telecommunications companies are now involved in expanding the fibre-optic network across the municipal area. Looking ahead, private households and business customers will have a choice between different providers and transmission speeds in many parts of the city. With regard to private households, fibre-optic connections will be installed directly into the homes of end-users (FTTH expansion, Fibre to the Home), enabling transmission rates of 1,000 Mbit/s (Gigabit network). In 7 of the city's 28 districts, the full expansion phase has already been completed or is well under way; in another four districts, significant areas have already been connected. Fibre-optic expansion programmes have been announced for seven other districts. This means that expansion plans or activities already cover more than half of the districts. Currently, ten districts have either not yet been earmarked by a company for broadband roll-out or there are no plans for any larger-scale expansion. Overall, the expansion of fibre optics in Freiburg will still take several years. In the business

sector, compared with private household connections, other requirements need to be met. Several industrial estates have already been fully equipped with fibre optics. Smaller commercial areas, such as shops and businesses in those districts where the network has already been rolled out, have also been connected. It is therefore anticipated that fast internet at gigabit speeds will be available in approximately 75 per cent of Freiburg's commercial areas by the end of 2023. It should also be noted that many commercial customers outside these areas already have an individual/direct fibre connection. Overall, broadband coverage in Freiburg is now at a good level, and the network is being steadily rolled out.

Photo 19: The Freiburg trade fair building at night © Stadt Freiburg

Sustainable business management, support for startups and innovation

The Freiburg Sustainability Goals include the following goal under the heading 'Sustainable business management': By 2030, sustainable approaches to business management are established, with due regard and support for companies with complex value cycles, micro, small and medium-sized enterprises, and startups.

The Freiburg economic region - consisting of the City of Freiburg and the administrative districts of Breisgau-Hochschwarzwald and Emmendingen - includes an innovative growth cluster with a unique 'environmental and solar industry' profile. Internationally renowned enterprises and institutions and numerous pioneers are contributing to Freiburg's success as the 'Green City'. Research and development, knowledge transfer and environmental education are the main engines driving the ongoing development of an industry portfolio that encompasses solar technologies, renewable energies, sustainability, energy efficiency, planning, construction and environmental technology. The many different activities of small and medium-sized enterprises - from skilled manual trades and retail through to production and services - form another key pillar.

The ***Freiburg Region Economic Development Corporation*** was set up by the City of Freiburg as long ago as 1994. The Corporation's goal is to develop the specific potential of the region, market it worldwide as a business hub and create the best possible conditions for new and established enterprises. The regional business team offer the following services and support to enterprises, members and potential start-ups: regional business location marketing; site development; regional commercial space management; consulting; specialist information and contacts with government agencies; support for regional, supraregional and cross-border collaborations and for contacts, networks and partnerships.

The City of Freiburg's municipal holding ***Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG*** supports local businesses with a view to strengthening the economic power of the region and creating jobs. One of its roles is to coordinate the ***Freiburg Green City Cluster*** initiative, which has been forging links between enterprises and institutions from the environmental sector and helping them to share their experiences with each other since 2008. From the Fraunhofer Institute for Solar Energy Systems to the Energy Agency, from consulting firms to solar architects, from zero-emission hotels to skilled manual trades, the spectrum covers the entire breadth of the environmental sector and thus promotes the transfer of technology. Through its activities, the Green City Cluster contributes to the positioning of cluster members on global markets for services and products in the fields of renewable and solar energies, energy efficiency, sustainable planning and construction, and environmental technologies. The aim is to safeguard jobs in these sustainable industries and to create new ones. This involves taking a range of measures, such as marketing the skills available in the regional cluster and the 'Green City' of Freiburg (e.g. by distributing flyers and brochures), showcasing Freiburg as a business location (e.g. through trade fairs and conferences), and participating in and communicating innovative flagship projects. 2014 saw the launch of the ***Green Industry Park Freiburg*** initiative, with the idea of transforming Freiburg's oldest and largest industrial area (Industriegebiet Nord) through a series of processes into a ground-breaking, sustainable, energy- and resource-efficient industrial area that would stand as a national model. Since then, the initiative has been extended to include Hochdorf industrial estate and has established itself as a programme framework for climate action by businesses. The general aim is to promote the joint development of new, innovative and model projects, and to identify and harness potential savings and opportunities for cooperation and optimisation in the climate and environmental fields. Thanks to the Green Industry Park project, the City of Freiburg was one of the winners of the Climate-Active Community 2018 competition.

In addition, through its role in operating startup and innovation centres, Freiburg Wirtschaft Touristik und Messe can offer support in the search for commercial space as well as facilitating technology and innovation transfers between the research and business sectors. With regard to startup support, it offers quickly accessible collaboration platforms and springboards for founders through regional cluster initiatives (see above) and networks, as well as linking startups and SMEs and creating new spaces in a wide range of formats to foster the exchange of ideas, networking and inspiration. The online portal ***'Startinsland'*** is a meeting place for all those involved in the startup sector, including startups, founders, enterprises and investors from all over the Freiburg economic region. The goal of the portal is to pool individual strengths by addressing all those who are right at the start of their business journey. It acts as a network, bringing together key players from across the startup scene as well as information and offers. In turn, this makes it easier for the region's budding founders, startups and successor companies to share experience and advice, and to find out about financing opportunities and potential collaborations.

Freiburg Wirtschaft Touristik und Messe is also the initiator and sponsor of ***the Kreativpark Lokhalle startup centre,*** which targets coworking, startups, entrepreneurs and business support programmes. Since 2018, the Kreativpark has been the ideal location for young startups and established companies operating in the cultural and creative industries and the 'smart green' economy, making it a 'launch pad and think tank' for creative innovation in Freiburg. It offers entrepreneurs and startups new and modern working environments in a unique location that forms part of Freiburg's industrial culture. As well as offering the space needed to generate new ideas, encounters, forms of communication and sharing as part of a coordinated workspace and operating concept, the Kreativpark can facilitate access to appropriate support mechanisms.

In 2017, the Freiburg Economic Development Corporation and the Gründerzentrum Grünhof (a privately

Photo 20: The bike station at Freiburg main station © Stadt Freiburg

run incubator for the startup and sustainability scene that has received the Start Green Award) joined forces in a new initiative. With input from other partners and sources of expertise, they developed an innovative concept for a regional accelerator aimed at startup projects with a focus on the smart green economy. The aim is to provide intensive and comprehensive support and guidance for promising startup projects in innovative high-tech and service sectors. These include spin-offs from universities, non-university research institutions and established companies, as well as projects involving students and workforce returnees who are keen to start up their own business. Since the start of the project, the partnership has produced one of the most important players within the regional startup ecosystem in Freiburg - the Smart Green Startup Accelerator in the Lokhalle Kreativpark, which has since evolved into a hotspot for startup innovations in the green economy, winning recognition at both federal state and national level.

The DigiHub Südbaden 2.0 project is an association of several partners from the region. In the district of Freiburg 'Südlicher Oberrhein', they contribute to providing small and medium-sized enterprises, start-ups and investors with access to content, methods and skills in the digital transformation process. The participants are part of a large network with valuable synergy effects. DigiHub Südbaden 2.0 focuses on the four thematic areas: Digitalisation, sustainability, transformation and innovation. The integrat-

ed offering of the DIGIHUB Südbaden 2.0 consortium partners focuses thematically on current trends and is aligned with the regional key topics in the context of digitalisation.

The ***RegioWIN 2030 flagship project Zukunft.Raum. Schwarzwald*** (future.space.Black Forest) was launched in 2021 in recognition of the fact that innovation rarely happens by chance and depends on creating the right enabling conditions. At federal state level, the competition RegioWIN 2030 - Regional Competitiveness through Innovation and Sustainability is designed to support flagship projects in the areas of innovation and sustainability. The goal of the award-winning flagship project Zukunft.Raum. Schwarzwald is to boost the capacity of SMEs for innovation through targeted measures that promote needs-based transfers of knowledge and technology from universities and research institutions, while also facilitating the creation and expansion of decentralised coworking and innovation hubs in the rural sub-regions covered by the RegioWIN competition. This makes it possible to integrate rural and suburban areas into a decentralised, cross-border innovation network. Regional contact points at a total of 17 locations serve as work and creative spaces and are being established or expanded to facilitate innovation and technology transfer. The approach adopted by Zukunft.Raum.Schwarzwald is designed to address a crucial but often neglected point: the systematic integration of rural areas into the process of regional technology transfer, which has been concentrated up to now in urban centres. By focusing on transparency, networking and collaboration, the project aims to provide a further significant boost in terms of the capacity of SMEs for innovation, while also improving access to the services offered by academic institutions across the region. All in all, the project will allow knowledge and technologies from universities, other higher education centres and research institutions to be rolled out more quickly in the region, where they will be put to good use as value drivers. This increases transparency and helps to reduce obstacles and any inhibitions about the role of science. From a broader perspective, Zukunft.Raum.Schwarzwald is about sustainable networking and cooperation between very different partners in the trinational Southern Upper Rhine-High Rhine region. At the end of the day, the current and future challenges of economic and ecological transformation can only be met through jointly networked stakeholders thinking and acting across borders.

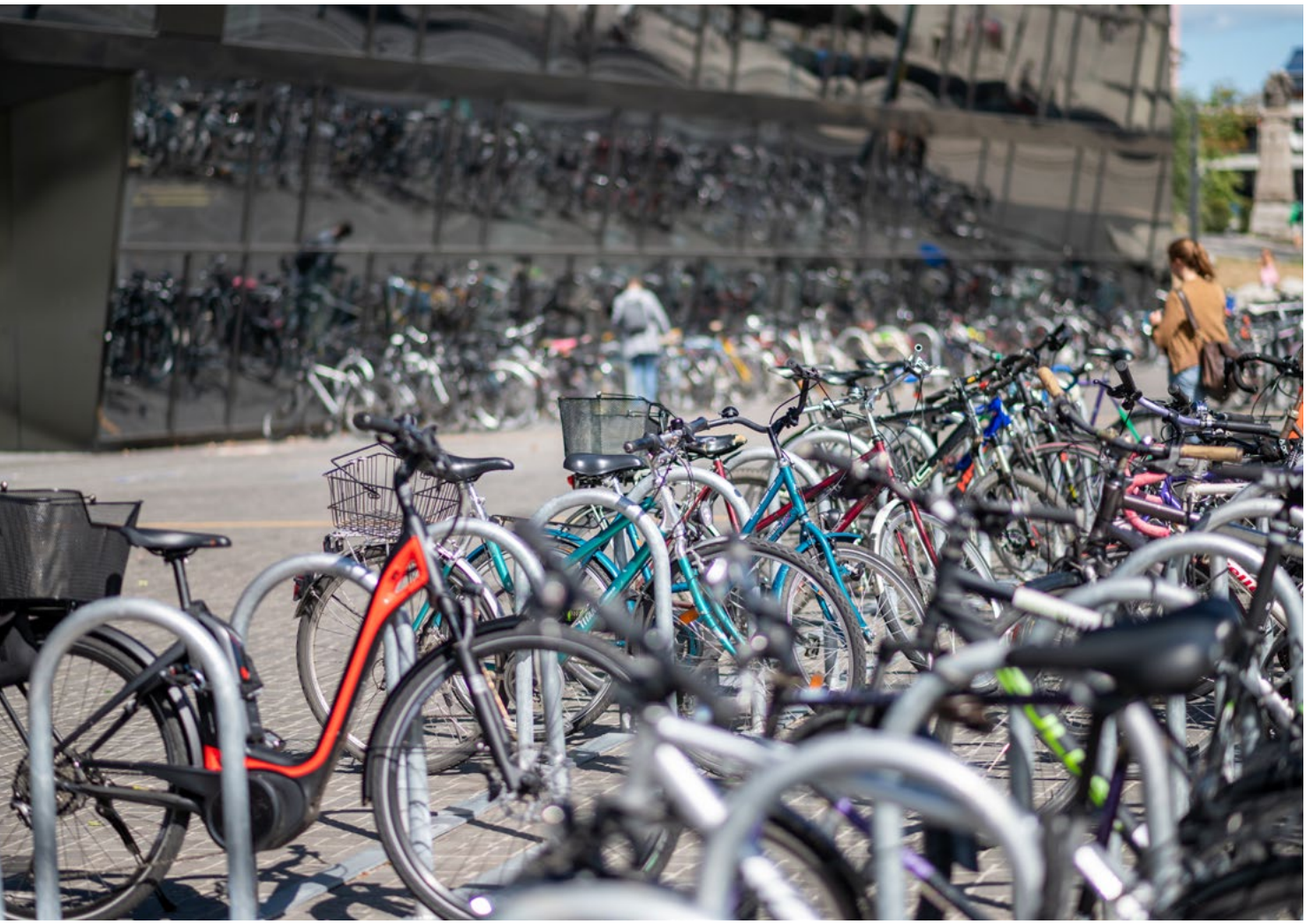
As part of the Freiburg Sustainability Goals, the action area 'Innovation' sets out the following overarching goal on the way to creating an 'innovative city': 'By 2030, work, education, science and (building) culture are interwoven in a decentralised, compact city that offers plenty of scope for innovative ideas'.

Infrastructure

The term 'public infrastructure' encompasses both technical infrastructure (e.g. for energy; transport; drinking water; information and communication technology) and social infrastructure (e.g. with regard to education or health). The sections of this report on SDGs 6, 7 and 11 address numerous infrastructure facilities and systems. In the area of transport, these include, for example, priority cycle routes, which are constantly being expanded in order to increase the proportion of journeys made by cycle.

The expansion of broadband infrastructure (see above) is also a good example. The Freiburg Sustainability Goals cite other examples of important infrastructure: 'By 2030, healthcare infrastructure and social protection systems are in place in a preventive role and to promote the well-being of all' and 'By 2030, the capacity of regional supply structures, circular business models and material flows to ensure generally sustainable food supplies has increased'.

Photo 21: Parked bicycles in front of the University Library. © Stadt Freiburg

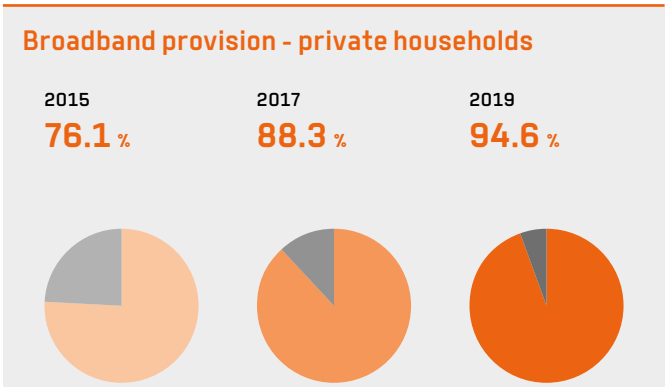


3.3.4 Indicators

Broadband provision - private households

Percentage of private households that can use a bandwidth of 50 Mbit/s (Source: SDG portal)

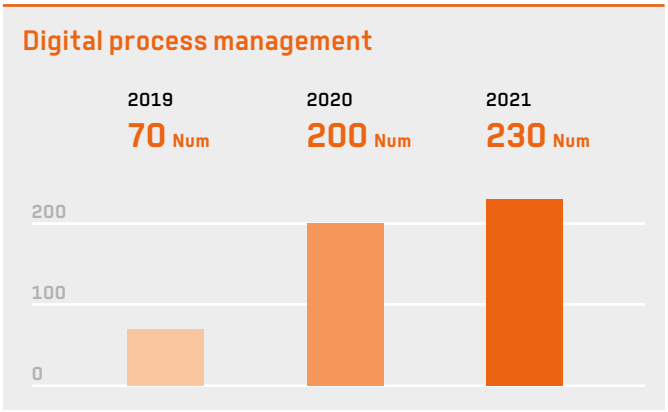
Comprehensive broadband provision for private households is related indirectly to the sustainability agenda since access to information and electronic services (e.g. e-medicine, e-government) or working in a 'mobile office' can ease the pressure on private households by allowing them to save time and money. Digital access to a wide range of education and information services also contributes to intergenerational justice. In the City of Freiburg, the proportion of private households that can use a bandwidth of 50 Mbit/s has remained high over the entire period. At 94.6%, the latest figure (2019) is above the average for Baden-Württemberg, for which the most recent figure (2019) is around 90%. Due to a lack of data, it is not possible to make a national comparison. The City of Freiburg is therefore contributing to Goal 9.1.b of the German Sustainable Development Strategy: 'Universal gigabit network rollout by 2025'.



Digital process management

Number of 'service-bw processes' at maturity level 3
(Source: City of Freiburg: DIGIT; see Municipal Sustainability Report)

Digital transformation is an important issue for those in public administration roles. The public sector is committed to the well-being of all citizens. Accordingly, in this age of digitalisation, public services must be delivered transparently and digitally. For this change to happen, however, it is no longer adequate to simply present existing processes on the internet or make them available on mobile devices. What is needed instead, as the digital transformation proceeds, is a fundamental rethink of established procedures, processes and service culture. If the City Administration is to offer maximum value, administrative processes must be delivered seamlessly. In line with its city-wide digitalisation strategy, Freiburg is gradually switching to digital forms of process management. As a result, by 2021, the City Administration had digitalised around 230 of its processes. By 2022, it will fully implement those services relevant to Freiburg at maturity level 3. Where possible, over time, it will aim for a higher maturity level. The German Sustainable Development Strategy does not contain any explicit targets for this indicator.



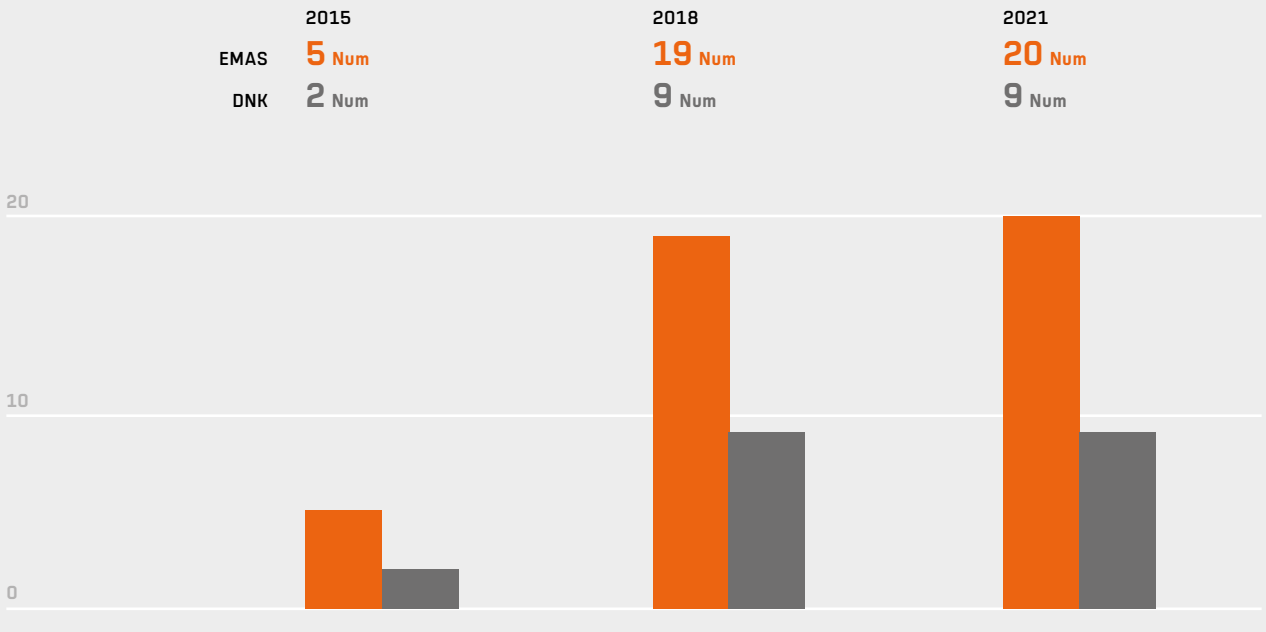
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

EMAS and DNK certificates

Number of EMAS-certified company sites and DNK-certified companies (Source: DNK database; SDG core indicator (37), EMAS Register of the German Chamber of Industry and Commerce; see Municipal Sustainability Report)

Reporting and due diligence requirements are becoming more stringent. The Corporate Sustainability Reporting Directive (CSRD) was adopted by the EU Parliament in November 2022. The CSRD is broader in scope and introduces an external audit requirement. To improve their environmental management and performance, companies may choose to use EMAS (Eco-Management and Audit Scheme), an internationally recognised Community-wide system developed by the European Union. EMAS also includes an environmental audit for organisations. EMAS is focused on environmental safeguards. By contrast, the German Sustainability Code (DNK) is an internationally recognised reporting standard for companies that includes a statement on 20 DNK criteria in areas such as strategy, process management, environment and society, as well as supplementary non-financial indicators selected from the Global Reporting Initiative (GRI) and the European Federation of Financial Analysts Societies (EFFAS). In the City of Freiburg, the number of EMAS and DNK certifications has increased over the recorded period. The aim is to maintain this trend. The list of certified DNK users includes the five municipal companies, which receive support from the Sustainability Management Unit to help prepare their sustainability reports. The German Sustainable Development Strategy also aims to expand environmental and sustainability management systems (Goal 12.2 'Increase the number of locations (enterprises) with environmental management systems').

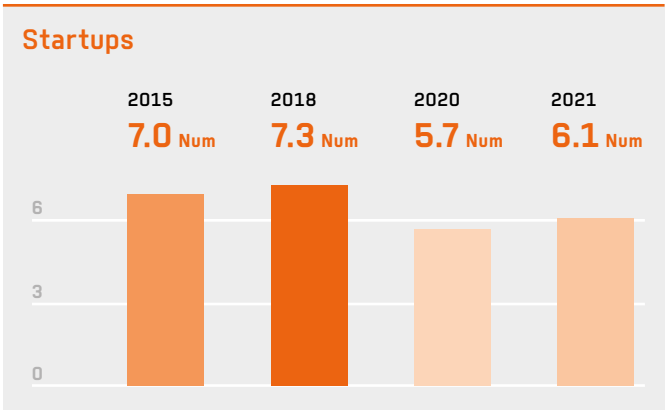
EMAS and DNK certificates



Startups

Newly established businesses per 1,000 inhabitants
(Source: SDG core indicator (24), Statistical Offices of the Federal States; see Municipal Sustainability Report)

Startups can help to create jobs and promote competition - and can also be an expression of an innovative, sustainable economic structure. The indicator provides information about the number of newly established businesses per 1,000 inhabitants and can therefore be used to show how dynamic a given location is. However, it cannot tell us whether there is anything innovative about those startups and as such provides only a limited picture of the actual degree of innovation within a municipality. After a lengthy period during which the number of startups in the City of Freiburg remained stable, the indicator declined significantly from 2020 onwards, as expected, due to the Covid-19 pandemic. The same downward trend can also be observed nationally, although at this level there was a slightly higher proportion of startups in 2020 (6.6 new businesses per 1,000 inhabitants). Comparable national data are not available for 2021. In the 2021/2022 Startup Ranking published by the German Startups Association and Startup Detector, Freiburg moved up from 27th to 3rd place among the cities with the most startups per 100,000 inhabitants in Germany. Goal 9.1 of the German Government's Sustainable Development Strategy is to increase 'private and public expenditure on research and development' to 'at least 3.5% of GDP per year by 2025'. Visionary founders with sustainable business models can obtain support, for example, through tax breaks or economic stimulus packages and can increase the level of innovation in a municipality.



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Coworking Spaces

2018	2020	2022
n.a.	9 Num	14 Num

Absolute number of coworking spaces in the municipal area (Source: City of Freiburg: Sustainability management; see Municipal Sustainability Report)

Coworking is widely recognised as a new form of working. The service is primarily aimed at freelancers or smaller startups from various sectors. Coworking spaces are characterised by shared premises, networking and an innovative atmosphere. The indicator provides information about the number of coworking spaces in the municipal area. In 2022, there are 14 coworking spaces in the City of Freiburg, five more than in 2020: Coworking Freiburg, Grünhof Augustinerplatz, Grünhof Belfortstraße and Grünhof Lokhalle, Social Innovation Lab, Halle23, Denkraum Freiburg, Flex Rooms Freiburg, Haus des Engagements, UKS Fabrik, Workspace, Ecos Office Center, Alte Blechnerei and Co-Working Freiburg. There are no comparable figures for the federal state or for Germany as a whole. Equally, the German Sustainable Development Strategy does not contain any explicit targets for this indicator.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Highly qualified workers

Number of workers with compulsory social insurance and an academic vocational qualification as a percentage of all workers with compulsory social insurance at the place of employment (Source: www.statistik-bw.de)

The proportion of highly qualified workers in a municipality has various positive effects. As well as boosting the operational capacity and therefore the future viability of (municipal) companies, qualification levels also have an economic impact - for example by generating trade tax revenue for the municipality. However, the indicator tells us nothing about the actual level of demand for highly qualified workers or the required degree of specialisation at a given location.

In the City of Freiburg, the percentage of highly qualified workers has risen continuously since 2015 and in 2021 reached 31.4%. This high level is significantly above the German national average of 17.4% in 2020 (comparable national data are not available for 2021). The Federal Government's Sustainable Development Strategy does not contain any explicit targets on the level of highly qualified workers.

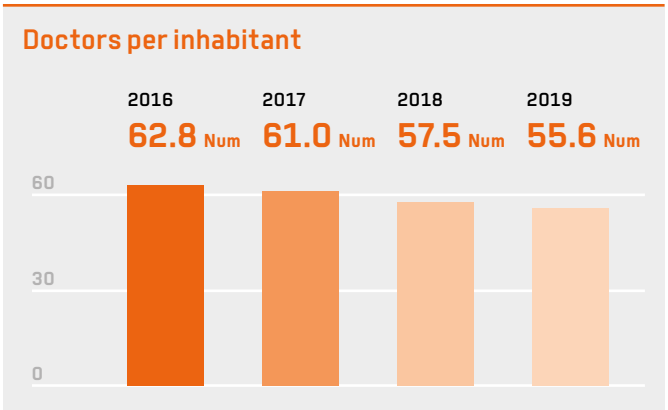
Highly qualified workers

2018	2020	2021	2022
28.2 %	30.5 %	31.4 %	32.6 %

Doctors per inhabitant

Number of general practitioners (GPs) per 100,000 inhabitants
(Source: City of Freiburg: FR.ITZ, State Statistical Office of Baden- Württemberg (based on SDG indicator 7); see Municipal Sustainability Report)

In cases of acute illness, being able to contact your own doctor quickly and directly is vital. As a general rule, working people, families with children and older people in particular can rely on basic and affordable medical attention close to home. As well as the above-mentioned social factors, demographic and economic structures (urban-rural divide) play an important role in the density of GP coverage: the higher the population density, the greater the proximity to basic healthcare. The indicator provides information about the number of GPs per 100,000 inhabitants. In the City of Freiburg, this number has decreased over the recorded period. In 2016, there were still 62.8 GPs per 100,000 inhabitants, in 2019 by contrast only 55.6. Nevertheless, GP density in Freiburg is very high compared with Germany as a whole. According to data from the Federal Medical Registry, Freiburg (together with Heidelberg) leads the Top 10 list of cities with the highest GP density by a wide margin. The German Sustainable Development Strategy does not contain any explicit targets for this indicator.



3.4 SDG 11 - Sustainable Cities and Communities

3.4.1 SDG 11 - Introduction and relevance for German municipalities

SDG 11 aims to make cities and human settlements inclusive, safe, resilient and sustainable. Municipalities must rise to face current challenges such as climate change, resource scarcity, demographic change and migration. Against this background, a sustainable, integrated urban development policy will combine social, economic and ecological goals and takes all relevant interests into account. Among other things, this involves promoting compact and green urban structures, socially balanced and mixed urban neighbourhoods, and affordable housing. Neighbourhoods are places where people reside and interact socially. They also form the space where people lead their everyday lives. This makes them especially important for sustainable development. The reduction of environmental pollution by municipalities (e.g. air quality and noise abatement), and the promotion of sustainable mobility (e.g. by strengthening modes of eco-transport), are also key components of SDG 11.[14] In summary, for German municipalities the following themes play a particularly important role in implementing this SDG (please also compare these with the targets for SDG 11 in the annex):

- Implementing integrated urban development, promoting sustainable neighbourhoods and affordable housing, and reducing land take
- Promoting sustainable mobility
- Implementing comprehensive disaster risk management
- Promoting air quality and noise abatement.

14 See Germany's Voluntary National Review to the High-Level Political Forum 2021 and the German Sustainable Development Strategy 2021.

3.4.2 Overview of qualitative aspects and indicators

Qualitative aspects:

- Sustainable urban planning, land-use management and climate adaptation
- Affordable housing and sustainable neighbourhoods
- Sustainable mobility

Indicators:

- Land take
- Local recreation space
- Neighbourhood offices
- Districts with neighbourhood work teams
- Neighbourhoods with binding target agreements
- Access to local supplies
- Living space
- Rent prices
- Rent burden ratio
- Waste volume
- Car density
- Traffic accident victims
- Electromobility
- Car sharing
- Cycle hire
- Street trees

3.4.3 Contributions of the City of Freiburg to the SDG

Sustainable urban planning, land-use management and adaptation to climate change

In line with the Freiburg Sustainability Goals, the city aims to develop settlements that make economical use of land and are characterised by compact neighbourhoods and districts with plenty of open space (primarily through moderate, qualified infill development, taking into account the need to provide green and open spaces) in order to ensure that Freiburg is a climate-friendly and liveable city. Against this background, Freiburg's ***Municipal Planning Office*** is developing plans for the spatial development of the City of Tomorrow. Citizens and politicians are consulted intensively on urban development strategies and framework plans (such as the district guidelines and the Perspektivplan 2030) to ensure that Freiburg develops in ways that reflect the wishes of the majority of its residents. The Municipal Planning Office is therefore responsible for various informal and formal plans covering the city as a whole, municipal districts, neighbourhoods and individual areas. This involves important disciplines such as urban development (including strategic open space and landscape planning), preliminary and binding land-use planning (including the environmental assessment), urban planning and urban development framework planning, the drafting and negotiation of municipal development contracts and urban design.

Looking ahead, a new ***Preparatory Land-Use Plan 2040*** will reconcile social, economic and environmental interests and ensure that future structural development is sustainable. The preparatory land-use plan, including an integrated landscape plan, sets out land-uses for the entire city area on a rough scale. As such, it provides a top-level overview of spatial planning at the municipal level. The preparatory land-use

Photo 22: A construction site in Freiburg © Stadt Freiburg

plan indicates which areas are earmarked for which purpose, e.g. for residential areas, commercial areas, mixed areas, green areas, traffic areas, community areas (such as schools) or supply and disposal facilities. The preparatory land-use plan itself does not constitute building law. Under planning regulations, however, it is a prerequisite for the binding land-use plan. Binding land-use plans must be developed from the preparatory land-use plan. The Preparatory Land-Use Plan 2040 combines all the individual topics into an overall picture. The landscape plan serves as a decision-making aid for sustainable development that uses land and landscapes sparingly. To begin with, as part of the development process, various future scenarios were created. This highlighted a broad spectrum of possible future developments by critically analysing social, economic and policymaking opportunities and challenges specifically for the City of Freiburg. A 'target scenario' was then derived from these scenarios. This will provide fundamental strategic guidance when designing the preparatory land-use plan. The redrafting of the preparatory land-use plan and the landscape plan will follow a clearly regulated legal process known as the 'formal procedure'. This procedure sets out a precise framework for the participation of citizens and public authorities (e.g. regional and state authorities or neighbouring municipalities). In order to involve the citizens of Freiburg in discussions even before the formal participation process begins, each formal step is embedded in a wider-ranging and voluntary informal participation process. This is intended to complement and strengthen the formal procedure through important preliminary work on the content of the plans.

Climate change considerations are a key aspect of sustainable urban planning. As part of the Upper Rhine Graben (plain), the City of Freiburg is one of the warmest regions in Germany. Against this back-

ground, the City of Freiburg has drawn up a city-wide plan for dealing with the increasing heat load in planning. In 2019, the City Council decided to integrate the plan into all urban land-use planning procedures and urban development framework planning. The adaptation to climate change master plan shows where the greatest heat loads are found today in the city, where they are likely to be found in the future, and where they (will) affect particularly sensitive urban areas. These are, for example, areas in which the proportion of vulnerable population groups is particularly high and where there are not enough green spaces for cooling and recreation. In these worst-affected 'hot spots', it is particularly important to create favourable urban climatic conditions when developing urban and open space structures. The adaptation concept sets out a catalogue of measures designed

Photo 23: The Freiburg Cathedral Market © Stadt Freiburg

to adapt the city's urban and green infrastructure to climate change. These include guidance on spatial planning. When preparing future urban land-use plans and urban development frameworks, the Municipal Planning Office can apply the plan to quickly assess the potential impact on each planning area and determine which approaches are suitably climate change-compatible when designing settlement and open space structures. In 2019, the concept was awarded a prize in the Climate Adaptation category in the Climate Active Communities 2019 competition organised by the Federal Ministry for the Environment and the German Institute of Urban Affairs. Work is also currently underway on a climate adaptation concept for the rainwater field of action, which includes measures for natural rainwater management in the sense of the sponge city and heavy rainfall prevention in urban land-use planning. Work is also underway on a comprehensive climate adaptation strategy that will show the overall strategic orientation of adaptation to climate change in the city of Freiburg in all affected fields of action.

Affordable housing and sustainable neighbourhoods

In relation to SDG 11, the City of Freiburg is particularly concerned to create affordable housing. The lack of affordable housing is one of the greatest social policy challenges currently facing municipalities, the federal state and the German Government. Against this backdrop, the City Council and senior management in the City Administration have declared the creation and preservation of affordable housing to be a core agenda issue. Since 2019, the ***Affordable Housing Department,*** which reports directly to the Mayor, has been responsible in a centralised steering capacity for the city-wide coordination and strategic planning of housing and building-land policy measures. The aim is to create and maintain affordable housing with fair rents for Freiburg. Key goals here are to promote 'co-housing', to make even more efficient use of residential space and land, and to support groups with special needs.

The City of Freiburg's Affordable Housing 2030 Master Plan is designed to guide the creation of affordable housing in the coming years. Adopted by the City Council in 2020, its purpose is to provide a comprehensive overview of existing, expanded and new municipal measures and of strategies for creating and preserving affordable housing. This will help to identify connections, generate new ideas and create a basis for discussion with a view to formulating goals for the future. Covering around 40 different topic areas, the housing master plan was presented to the City Council as the city's housing policy guideline. Responsibility for steering and monitoring the implementation of these measures lies with the Affordable Housing Department. Another of the Department's roles is to support co-housing initiatives. In addition to projects set up with the goal of ensuring that rents are affordable over the long term, these include initiatives such as building cooperatives with a specific environmental focus. One of the priorities is to make efficient use of existing housing. To this end, the measures introduced to date include the development and publication of an online housing exchange for Freiburg. In 2022, the Affordable Housing Department also launched a campaign against excessive rents. The goals of the campaign are to make landlords and tenants aware of the legal framework governing rent levels and to work towards lower rents. Another campaign in 2021 concerned the image and acceptance of subsidised housing. The goal here is partly to strengthen the image of subsidised housing and partly to promote it among property owners in order to increase supply. There are plans to relaunch the campaign in the future with a stronger public appeal.

Two examples of districts in which affordable housing is to be built are Dietenbach in the west of Freiburg (creating 6,900 predominantly affordable flats for around 16,000 people and a climate-neutral district) and in Kleineschholz (an urban neighbourhood with plans for around 500 residential units and

a focus on low-cost housing as well as innovative social, environmental, inclusive and cultural initiatives).

The municipal house-building enterprise Freiburger Stadtbau (FSB) plays a key role in the creation of affordable housing. In 2020, Freiburg City Council adopted a strategy entitled FSB 2030 - More housing. Fair rents. For Freiburg. This is a significant step for Freiburg's housing policy. A total of 2,500 attractive and affordable flats will be created by 2030 in the largest housing campaign in the city's history. The strategy also represents a paradigm shift because - for the first time in municipal rental policy - it focuses on tenants individually. Low-income households in particular benefit from the new FSB 'social bonus' scheme, under which rent increases can be reduced or completely suspended if they would result in tenants spending more than 30 per cent of their net income on the 'net cold rent'. Overall, the target is for the average of all FSB rents to remain 25 per cent below the municipal rent index.

Another important topic in relation to SDG 11 is neighbourhood work. In this context, one of the targets embedded in the Freiburg Sustainability Goals states: 'Integrated neighbourhood management is helping to create better district and social environments, strengthening neighbourhood identity and facilitating support for diversity in the neighbourhood through qualitative neighbourhood work.' Neighbourhood work addresses issues that are important to residents and encourages people in a neighbourhood to deal with their own concerns. To this end, neighbourhood workers bring people and institutions together locally, coordinate activities and projects, support civic engagement and promote self-organisation. Often, neighbourhood work is supported by neighbourhood councils, redevelopment advisory boards or other bodies. There are designated contact points (e.g. a neighbourhood office or district meeting place) and premises where residents can meet. The City of Freiburg contributes to sustainable and inclusive neighbourhood development through the work of its ***integrated neighbourhood management team,*** which is based in the Municipal Neighbourhood Management Office. In its steering role, the Municipal Neighbourhood Management Office promotes neighbourhood development in the city districts and therefore facilitates integrated action. In this role, the office builds connections within the administration and with stakeholders and residents at neighbourhood or district level. The focus is consequently on joint socio-spatial interventions that engage relevant actors within the administration and in the district. Following a decision to restructure the delivery of neighbourhood work and an EU-wide tender for contracts covering 13 Freiburg neighbourhoods, neighbourhood-specific target agreements were concluded as a coordination and steering mechanism. These were developed in a participatory process on an equal footing between the responsible neighbourhood work providers and the corresponding neighbourhood managers. Individual target actions reflect the concrete and specific needs and characteristics of each neighbourhood. So far, 11 out of 13 target agreement processes have been completed. Annual follow-up meetings are held to evaluate the target agreements. As well as measuring the progress made, the meetings can be used to address current developments and to adapt or update services and targets.

In 2022, the City of Freiburg hosted a first ground-breaking symposium entitled ***Sustainable Neighbourhood Development in Freiburg,*** which promotes social sustainability as an issue that affects multiple aspects of urban society. By inviting contributions from all relevant sectors, the symposium aims to generate inspiration and identify options for building a socially sustainable city. Representatives of various municipal departments and the City Council use the opportunity to share ideas with experts in social affairs; housing and urban development; mobility and transport; education and culture; neighbourhood work; and citizens' associations. Together, they lay the foundations for concrete steps towards the sustainable development of Freiburg's neighbourhoods and districts. Additional input is provided by selected civil society groups with expertise in social environments. They also contribute to sustain-

Photo 24: Green residential buildings in the Freiburg district of Vauban © FWTM, Schoenen

able neighbourhood development by offering their perspectives and ideas as part of an interdisciplinary dialogue. The results of the symposium were documented and made available in the form of a brochure to all those with an interest.

Sustainable mobility

The modal split, i.e. the distribution of total transport volume between different modes of transport, is still dominated in Germany by the car. Passenger and freight transport (i.e. total transport volume) has increased significantly in recent decades. The current transport system has a wide range of climate, environmental and health impacts. This means that we face a number of crucial challenges on our journey towards sustainable mobility - protecting the cli-

Photo 25: Lake park bike path lined with trees © Stadt Freiburg

mate, controlling air and noise pollution and protecting green spaces and natural resources. The overall aim is to promote the use of environmentally friendly methods of transport (walking, cycling and local public transport) while also designing more sustainable approaches to motorised individual transport. This goal makes an important contribution towards protecting the climate (see the section on SDG 7). In Freiburg, more than 20 per cent of CO_2 emissions come from the transport sector.

For decades, Freiburg has pursued the goal of developing transport in a way that is both city- and environment-friendly. The comparatively low proportion of journeys made by Freiburg residents using a car and the high proportion of journeys made using public transport, by bicycle or on foot show that this transport policy is bearing fruit in Freiburg in terms of the traffic situation. Around 80 per cent of inner-city trips are made by bus, train, bicycle or on foot. This makes Freiburg one of the leading cities in Germany. Thanks to this tremendous success, Freiburg's transport policy has gained recognition at national level and contributes significantly to Freiburg's positive image. Freiburg even enjoys a worldwide reputation among experts as an example of successful environmentally friendly transport planning. Despite this, overall traffic-related CO_2 emissions are not decreasing, because the city keeps growing. In the area covered by the City of Freiburg, CO_2 emissions in the transport sector fell by just 13.5% per capita between 1992 and 2018; in absolute figures, CO_2

emissions in Freiburg's urban transport actually rose by 1.1% over the same period due to population and employment growth. Overall, the contribution made by Freiburg's transport sector to protecting the climate remains insufficient.

Against this background, the city developed a comprehensive Climate Mobility Plan in 2022. In this regard, Freiburg was one of six model municipalities that took part in a pilot project set up by the state of Baden-Württemberg. The Climate Mobility Plan is a new state government mechanism that was trialled during the pilot phase. Municipalities that demonstrate how they can reduce their CO_2 emissions in the transport sector by 40 per cent by 2030 compared to 2010 receive significantly higher grants for climate-related transport investments. The climate mobility plans are embedded in the legal framework of the state of Baden-Württemberg and open up the possibility of tackling measures in the transport sector with the help of a state grant as part of the implementation plan, which is scheduled to run until 2030. Freiburg's Mobility Unit, which was created in 2021, assumed the lead role in developing the city's first Climate Mobility Plan during a two year-long process with continuous input from local residents and numerous actors across the city and the wider region. This involved gathering information about the expectations and opinions of citizens and stakeholders and conducting an open dialogue. One of the key findings of the Freiburg Climate Mobility Plan is that the goal of reducing CO_2 emissions by 40 per cent by 2030 can be achieved. The plan's overarching goals are shown below.

- Mobility systems must be designed in such a way that they are resource-saving and environmentally friendly. In particular, they must be aligned with climate goals. Within this framework, the Freiburg 2030 Climate Mobility Plan aims to achieve a CO_2 reduction of 40% by the target year 2030 in the city's transport sector compared with the baseline year 2010.
- Mobility planning must be geared to the needs of all population groups, enabling everyone to participate in society.
- Mobility systems should be compatible with the city. This means that they should enliven public spaces and avoid any negative impact on the urban environment.
- Mobility systems must be designed in such a way that the city's growth can be managed.

The goals can only be achieved through a combination of municipal action on the one hand and regulations and developments at EU, federal and state level on the other. At municipal level, these measures span the entire mobility system in Freiburg and are divided into the following areas:

- Mobility infrastructure
  - Expand the cycle network
  - Expand the light rail and bus networks
  - Expand 'park and ride' and 'bike and ride' provision
  - Support pedestrian infrastructure
  - Promote e-mobility
  - Electrify the VAG bus fleet
- Mobility services
  - Expand local public transport services
  - More attractive prices and online information about services
  - Improve advice and communications about mobility services
  - Expand car-sharing schemes
  - Expand bike-sharing schemes
- Regulation of vehicle-based mobility
  - Reorganise parking in public spaces
  - Create safe and environmentally friendly road/street environments
- Urban development and spatial planning
  - Plan low-traffic development of residential areas
  - Plan low-traffic development of commercial areas
- Communication
  - Strategic communication and implementation support

- Scale up the provision of advice on mobility options
- Intensify regional cooperation

The Climate Mobility Plan gives the city an opportunity to consider existing mobility and climate plans (e.g. the Climate Strategy, see section on SDG 7) together from the perspective of its CO_2 reduction targets. In particular, the Climate Mobility Plan ties in with the Climate and Mobility strategy paper adopted by the City Council, which was previously developed as a strategic basis for the further development of transport policy and transport planning in Freiburg. It also updates and supplements the Transport Development Plan 2020 adopted in 2008 and overlaps with the Green City Master Plan, which was completed in 2018. The Federal Government's Emergency Clean Air Programme 2017-2020 was launched in response to the fact that many German municipalities had long exceeded nitrogen dioxide limits. Part of this programme involved developing municipal Green City Plans, which established a strategic roadmap for local measures. In Freiburg, a total of 33 measures were defined in four areas to improve the air pollution situation. These included 'conventional' measures designed to expand environmentally friendly transport infrastructure, measures to promote digitalisation and transport information systems, measures to incentivise the most environmentally friendly vehicles and a series of mobility management measures (see also the 'Nitrogen dioxide' indicator in the section on SDG 6).

With regard to ***walking and cycling,*** the Climate Mobility Plan ties in with the Cycling Strategy 2020 adopted in 2013, the main purpose of which was to create an extended network of priority cycle routes. As a result, Freiburg now has several priority cycle

Photo 26: Rental station of the Freiburg bike rental system Frelo © Stadt Freiburg

routes that are constantly being expanded in order to increase cycling rates. Freiburg has long been a cycling city. More than 400 kilometres of cycling network and Freiburg's enthusiastic cycling population have made the bicycle the most popular means of transport. In fact, over a third of all journeys in the city are already made by bike. Freiburg also attaches great importance to walking, and almost the entire city centre is a pedestrian zone. In recent years, the city has ramped up action in these areas even further through a ***walking and cycling campaign*** on a scale that is unprecedented in Freiburg and unparalleled anywhere else in Germany. In just 1.5 years, the City Administration has invested around €16 million in better walking and cycling infrastructure. The 30 or so measures implemented make walking and cycling safer and more attractive in many ways, e.g. by creating wider and new cycle paths, more space for pedestrians, barrier-free crossings or stops, safe junctions and better lighting. The Frelo ***bike hire system,*** introduced in 2019 in cooperation with Freiburger Verkehrs AG, also helps to encourage cycling in Freiburg. With a total of 665 rental bikes available at 90 docking stations all over the city, the process of hiring a bike at one station and returning it to any another is very straightforward.

The City of Freiburg and the surrounding areas also have a very well-developed ***local public transport network.*** Freiburg has joined forces with the rural districts of Breisgau-Hochschwarzwald and Emmendingen to create the RVF network. The goal is to further expand local public transport throughout the region in the coming years. With this in mind, the integrated regional public transport strategy Breisgau-S-Bahn 2005 brings together all the different methods of public transport in the region. Since 2016, the ***Sozialticket*** has offered concessionary fares on local public transport for those receiving social benefits. Residents who qualify can choose monthly between a personal Regiokarte Basis or a 2x4 journey ticket if they only travel occasionally by bus and train.

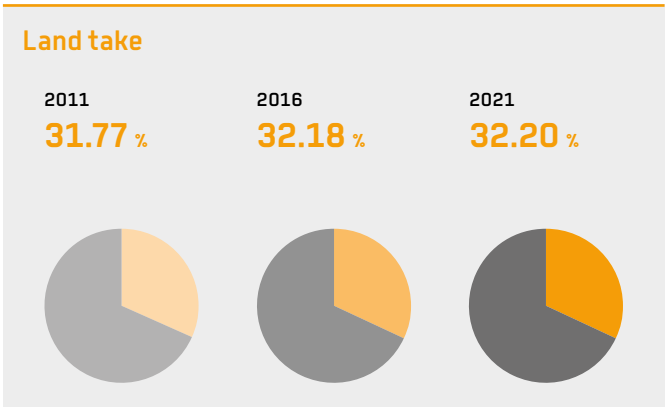
Freiburg's City Administration is leading by example on the issue of mobility by addressing its own vehicle fleet. In 2017, for example, a cross-departmental car pool was set up at several locations, using purely electric cars as far as possible. At the same time, an internal charging infrastructure was set up. Thanks to 100% green electricity, the system operates on a completely CO_2-neutral basis.

3.4.4 Indicators

Land take

Surface area used for settlement and transport as a proportion of the total municipal surface area (Source: www.statistik-bw.de)

The total area allocated to 'settlement and transport' consists of settlement and open space, factory/workshop areas, transport infrastructure space and recreational and cemetery areas, and can include both surfaced and unsurfaced land. The 'land take' indicator measures the 'settlement and transport' area as a proportion of the total surface area of a municipality. In the context of ongoing urbanisation, it should be interpreted in connection with the goal of focusing less on expansion and external development and more on efficiency and infill development. In the City of Freiburg, the indicator shows a slight but continuous increase in settlement and transport area as a percentage of the total area, reaching 32.20% in the most recent survey (2021). However, this increase can be described as moderate. Although the proportion of land used for settlement and transport in Freiburg is significantly higher than the national average of around 14.5%, it is not unusual for large cities in Germany. In order to achieve goals 11.1.a Reduce new land take for settlement and transport to an average of less than 30 ha per day by 2030', 11.1.b 'Reduce per capita loss of open space' and 11.1.c 'No reduction in settlement density' of the German Sustainable Development Strategy, the current trend would need to be reversed or the rate of infill development increased.



Local recreation space

2010	2015	2020
23.33 m²	23.19 m²	29.01 m²

Local recreation space per inhabitant in square metres
(Source: SDG portal)

Local recreation space in a municipality includes undeveloped areas (e.g. green spaces, parks, allotments, sports fields and campsites) that are predominantly used for sports and recreation but also provide habitats for animals and plants and therefore have a high social and ecological value. In the City of Freiburg, the proportion of local recreation space per inhabitant has increased significantly over time, especially since 2015, and most recently (2020) stands at 29.01 m² per inhabitant. This proportion is low compared to the national average (2020: 63.34 m² of local recreation space per inhabitant). The figure for Baden-Württemberg as a whole is similar to Freiburg (2020: approx. 34.00 m² of local recreation space per inhabitant). The Federal Government's Sustainable Development Strategy does not set any targets for local recreation space.

Street trees

2015	2018	2021
51.5 Num	53.8 Num	55.4 Num

Number of street trees per km of road
(Source: City of Freiburg: Garden and Civil Engineering Office; see Municipal Sustainability Report)

Street trees provide numerous benefits. As well as shading the roadway, cycle paths and footpaths, they absorb a certain amount of noise and pollutants through their foliage, and they absorb and store carbon dioxide and supply oxygen. In addition, street trees lower the air temperature on hot days through evaporation, and they help to create a more attractive visual environment. The indicator provides information on the number of street trees per kilometre of road. Since 2015, the total length of the city's streets and roads has fluctuated slightly. In 2021, the total road length of 414.9 km was back at the same level as in 2015. The number of street trees in the Freiburg urban area has gradually increased since 2015. In 2021, there were an average of 55.4 street trees per kilometre of city road in Freiburg. The Federal Government's Sustainable Development Strategy does not explicitly cover the German tree population, although it does address 'biodiversity and landscape quality' in Goal 15.1.

Living space

2010	2015	2020
35.2 m²	36.3 m²	36.9 m²

Available living space per person (source: SDG portal)

The amount of living space per person has tended to increase in Germany over the years, partly due to households with fewer people on average. This trend is also reflected in the City of Freiburg. In 2010, the available living space per person was 35.2 m2 , but in 2020 the figure stood at 36.9 m2 . Nevertheless, the City of Freiburg is still well below the national average of 45.6 m2 per person (2020). The German Sustainable Development Strategy does not contain any explicit targets with regard to living space. However, target 11.1.b is to 'reduce the loss of per capita open space area' as a valuable asset which is also of great importance in connection with housing construction.

Rent prices

2010	2015	2020
11.00 €	12.20 €	14.00 €

Supply and re-letting rents in euros per square metre (Source: SDG core indicator (30), BBSR (Federal Institute for Research on Building, Urban and Spatial Research); see Municipal Sustainability Report)

'Housing' is a hugely important issue for everyone and has a major impact on quality of life. In this context, the trends that have emerged in many German cities are all the more worrying, ranging from shortages in the supply of affordable housing as a result of the privatisation and capitalisation of the housing market to migration trends and the associated decline in housing quality. The 'rent prices' indicator shown above provides information on quoted rents and relet rents (net cold rents) in Freiburg based on an evaluation by the Federal Office for Building and Regional Planning (BBSR). As this procedure has been changed, the average figure for new contract rents is no longer shown. With regard to existing contracts, the average monthly net rent for all apartments in the City of Freiburg - irrespective of living space, year of construction and other amenities - is €9.79/m² (source: Freiburg rent index 2021/22) and has recently increased (compared to €8.56/m² in the Freiburg rent index 2019/2020). An overarching comparison is not possible given the lack of comparable statistical data at federal level. However, goal 11.3 of the Federal Government's Sustainable Development Strategy is to 'reduce the proportion of people who are overburdened by 2030'.

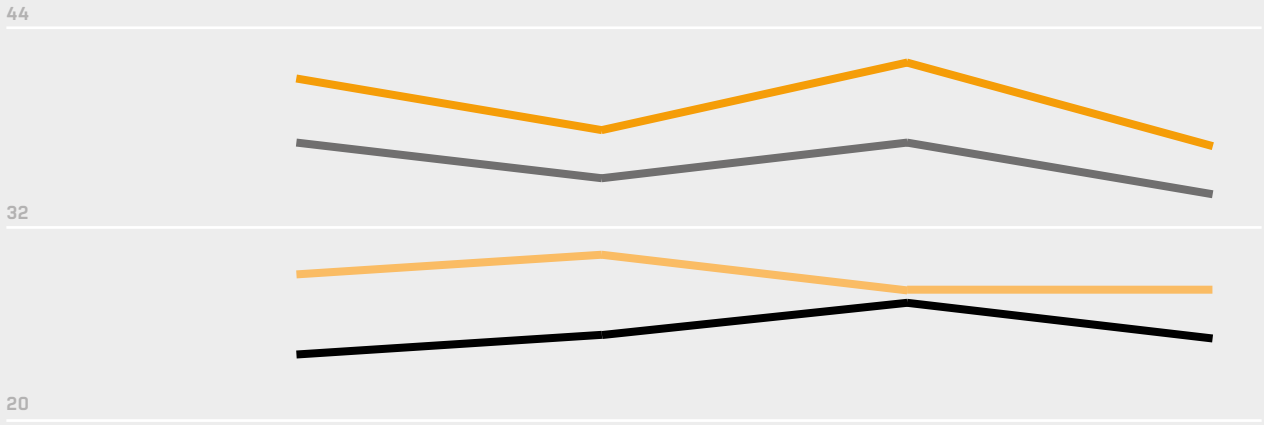
Rent burden ratio

Housing costs (rent and ownership) as a percentage of net household income
(Source: City of Freiburg: Office for Citizen Services and Information Management; see Municipal Sustainability Report)

The rent burden ratio provides information about the financial burden on private households due to housing costs as an indicator of their capacity for spending on other items, such as food, insurance, mobility and leisure. The higher the rent burden ratio, the higher the risk of financial overload, which can lead to personal insolvency. The 'rent burden ratio' indicator provides information on housing costs as a percentage of net household income and differentiates between costs for rent and ownership. The ratio has fluctuated at a high level over the years. The seemingly lower figures in 2020 are due to a change in the methodology (an adjustment to the upper categories of net household income). Goal 11.3 of the Federal Government's Sustainable Development Strategy calls for a reduction in the 'proportion of people who are overburdened by 2030' and therefore sends a signal to Germany's major cities and university towns in particular.

Rent burden ratio

	2014	2016	2018	2020
Flat (rented)	41.0 %	38.0 %	42.0 %	37.0 %
Flat (owned)	24.0 %	25.0 %	27.0 %	25.0 %
Own house	29.0 %	30.0 %	28.0 %	28.0 %
Total	37.0 %	35.0 %	37.0 %	34.0 %

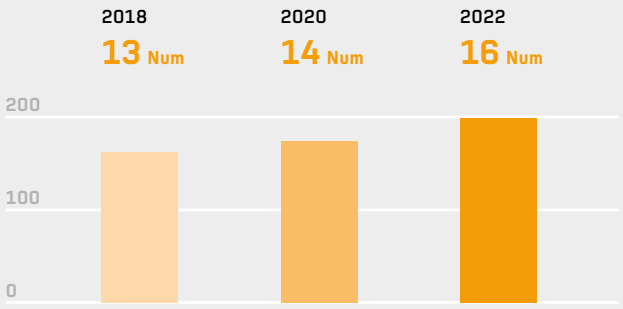


Neighbourhood offices

Number of neighbourhood offices, neighbourhood meeting places and district neighbourhood work centres (Source: City of Freiburg: Office for Social Affairs, Municipal Office Neighbourhood Management; see Municipal Sustainability Report)

Neighbourhood offices fulfil different purposes. They act as a contact point for residents, a meeting place for groups and a venue for smaller events. They can also be used to run projects and courses. Neighbourhood offices are often set up in cooperation with local organisations and make an important contribution to the goal of improving housing and living conditions in the neighbourhood. They also serve as the first point of contact for neighbourhood residents seeking advice on issues such as health, care, assistive devices, culture, leisure, volunteering, services, housing and meeting people. The indicator provides information on the number of neighbourhood offices, neighbourhood meeting places and district neighbourhood work centres in Freiburg. The number has increased continuously over the period under review, and low-threshold contact points are available in all districts with neighbourhood work teams. In some municipal districts there are several contact points, e.g. in Weingarten, Haslach-Haid and Brühl. The Federal Government's Sustainable Development Strategy does not include any targets on neighbourhood development.

Neighbourhood offices



Districts with a neighbourhood work team

2018	2020	2022
10 Num	12 Num	12 Num

Number of districts with a neighbourhood work team (Source: City of Freiburg: Office for Social Affairs, Municipal Office Neighbourhood Management; see Municipal Sustainability Report)

Neighbourhood work involves a wide range of activities - engaging with different actors, evaluating neighbourhood data, planning and implementing concrete measures. The job description and requirements for neighbourhood workers are therefore equally wide-ranging. The indicator provides information on the number of districts with an established neighbourhood work team. Over the period shown above, reflecting the increase in the number of neighbourhood offices, neighbourhood work teams have been set up in an increasing number of municipal districts. In turn, this reflects levels of need as recorded in the 'social index'. Since 1 January 2020, following the City Council's decision to expand the service, neighbourhood work teams have been set up in two more districts (Mooswald and Zähringen). The Federal Government's Sustainable Development Strategy does not include any targets on neighbourhood development.

Neighbourhoods with binding target agreements

2018	2020	2022
1 Num	3 Num	11 Num

Number of neighbourhoods with binding target agreements (Source: City of Freiburg: Office for Social Affairs, Municipal Office Neighbourhood Management, see Municipal Sustainability Report)

The indicator provides information on the number of neighbourhoods with binding target agreements for neighbourhood work in the City of Freiburg. In addition to binding action areas and key targets, the agreements, which are concluded between the City of Freiburg and the respective district or neighbourhood office, include information on areas of responsibility, the social situation and infrastructure of the neighbourhood, and concrete measures to achieve the targets. The target agreements can be found on the municipal website. The Federal Government's Sustainable Development Strategy does not include any targets on neighbourhood development.

Access to local supply

2017	2019	2021
82.0 %	82.0 %	82.0 %

Local supply isochrones - proportion of the population that can reach a local supplier within 10 minutes on foot from their home (source: SDG portal).

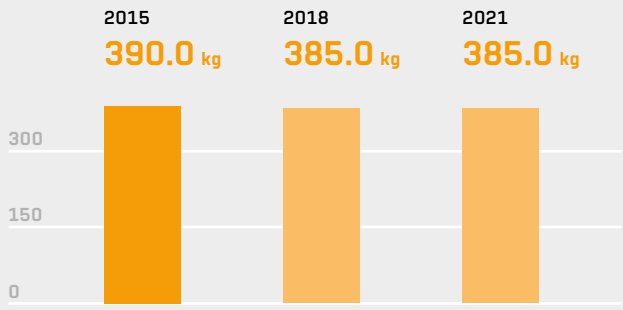
Access to supplies of food is a basic human need and an important aspect of regional development. It should therefore be possible to cover the distance to the nearest supermarket without expending a great deal of time or logistical effort. Nevertheless, the trend towards large, relatively distant supermarkets has increased, making it difficult to reach them on foot, especially in rural areas. The indicator shows the proportion of the population that can walk to a supermarket within 10 minutes of their home. One advantage of local supply isochrones over commonly used distance radii is that spatial barriers (e.g. rivers, railway lines, busy roads) and even topographical differences in altitude are factored into the calculation. As this method was only recently introduced, the indicator period refers to the years 2017 to 2021. It is assumed that the indicator will remain stable up to 2022. In some locations, supermarkets are closing, while new local shopping facilities can be created through construction in other areas. Access to local supplies is not explicitly addressed in the objectives of the Federal Government's Sustainable Development Strategy.

Waste volume

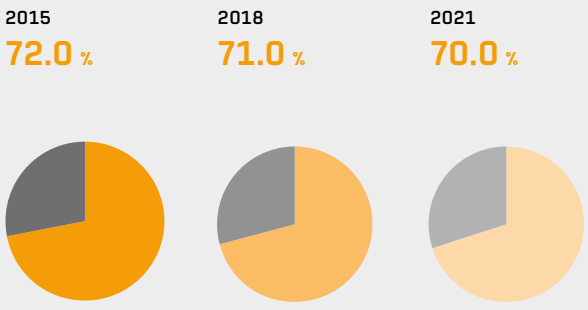
Household waste disposal (in kg per inhabitant) and waste recycled (as % of total waste generated) including bio and green waste, paper, glass, light materials, scrap metal, old textiles, waste wood, plastics and old electronic devices (Source: Based on SDG core indicator (36), framework data ASF, BBSR (Federal Institute for Research on Building, Urban and Spatial Research), State of Baden-Württemberg (waste balance sheet 2021 Baden-Württemberg); see Municipal Sustainability Report)

The amount of waste in a municipality and the resulting need for disposal can be directly influenced by individuals through their consumption decisions. Over time, waste disposal volume per inhabitant can be used to draw conclusions about the urgency of waste prevention measures and the extent to which they are required. The amount of waste generated is also an indicator of how efficiently measures to reduce, recycle and reuse materials and resources are implemented. Waste separation has a major role to play. Low levels of waste, especially non-recyclable waste, have a positive impact on resource consumption, on efforts to protect water and the environment, and on our energy footprint. Over the period from 2015 to 2021, the amount of waste disposed of in kilograms per inhabitant and year has fallen slightly to 385 kg in 2021. However, the percentage of recycled waste is also declining - from 72% of the total waste volume in 2018 to 70% in 2021. An overarching comparison with the national picture is not possible as different calculation methods are used. In the German Sustainable Development Strategy, however, Goal 12.1.ba aims to achieve a 'steady reduction in the global environmental impact of private household consumption'.

Waste volume - Disposal



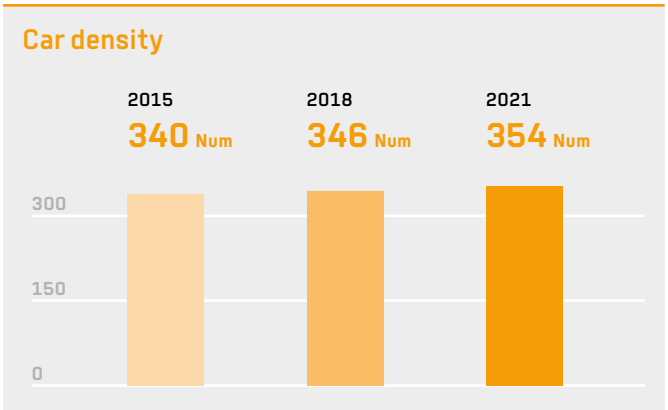
Waste volume - Recycled



Car density

Registered cars per 1,000 inhabitants (Source: City of Freiburg, State Statistical Office of Baden- Württemberg; see Municipal Sustainability Report)

Private motorised transport has an impact on land use, the consumption of non-renewable resources, emissions of climate- and health-damaging exhaust gases and noise pollution. The indicator provides information on the number of registered cars per 1,000 inhabitants. In the City of Freiburg, the number of cars has increased slightly but continuously over the period, although the number of car-sharing services in Freiburg has also increased significantly in recent years. Compared with national and state-level figures, car density in Freiburg is nevertheless below average (Baden-Württemberg: 613 cars per 1,000 inhabitants, Germany: 580 cars per 1,000 inhabitants, source: Federal Statistical Office 2021). This trend is contrary to the following goals of the German Sustainable Development Strategy: 3.2.a. 'Reduce emissions of air pollutants', 3.2.b. 'Reduce the share of the population with excessive exposure to PM10', 11.1.a. 'Reduce the expansion of settlement and transport area' and 11.2.b. 'Reduce final energy consumption in passenger transport'.



Traffic accident victims

2010	2015	2020
5.2 Num	5.7 Num	5.3 Num

Number of people injured or killed in road accidents per 1,000 inhabitants (Source: SDG portal)

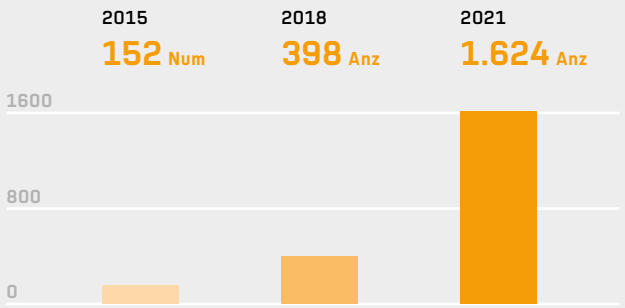
The indicator 'Traffic accident victims' helps to assess general road safety, although it does not distinguish between different means of transport. Pedestrians and cyclists have more frequent and more severe accidents due to the impact of cars. Conversely, the probability of car drivers being seriously injured in such accidents is very low. This imbalance cannot be represented by the indicator. In the City of Freiburg, the number of people injured or killed in traffic accidents per 1,000 inhabitants has fallen (most recently (2020): 5.3 people injured or killed) but is not yet back to the level of 2010. By contrast, the national figure for 2020 was lower than in Freiburg at 4.0. There are no corresponding targets in the Federal Government's Sustainable Development Strategy.

Electromobility

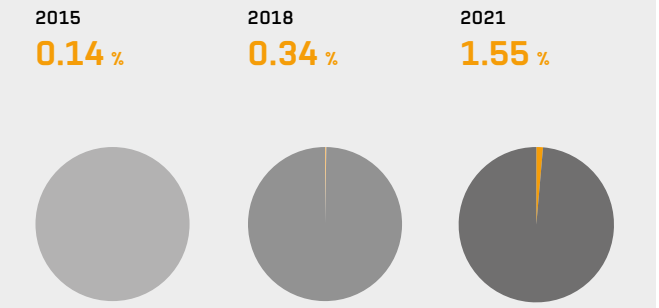
Number and percentage of motor vehicles with an electric drive (e-vehicles)
(Source: City of Freiburg: FR.ITZ, Motor vehicle register; see Municipal Sustainability Report)

Electromobility is an important building block of climate-friendly transport systems worldwide. The use of electric vehicles, especially in combination with renewable electricity, generates significantly less CO2 and thus significantly fewer climate-relevant greenhouse gases. E-vehicles can even act as mobile electricity storage units to compensate for fluctuations in wind and solar power by releasing unneeded energy back into the electricity grid. The indicator provides information on the number of motor vehicles with an electric drive in Freiburg in terms of actual numbers and as a proportion of all vehicles. The figures point to a significant increase in e-vehicles. Among other factors, this can be explained by state subsidies for purchasing e-vehicles, expansion of the charging infrastructure, the growing choice of e-cars suitable for everyday use and increasing environmental awareness. The City of Freiburg wishes to maintain this trend. The Federal Government's Sustainable Development Strategy does not include any targets for expanding electromobility.

Electromobility - Number



Electromobility - Share



Carsharing

2016	2018	2021
250 Num	301 Anz	374 Anz

Number of car-sharing vehicles
(Source: City of Freiburg: Garden and Civil Engineering Office; see Municipal Sustainability Report)

According to the Federal Environment Agency, private vehicles are only driven for one hour a day on average, which means that for 23 hours a day they are parked somewhere, taking up valuable space. Car sharing is the organised, shared use of motor vehicles without having to own a car. On its own, car sharing can therefore mitigate the environmental impact of car travel while also significantly reducing costs when compared to buying and maintaining your own vehicle. The indicator provides information on the number of car-sharing vehicles in Freiburg. The number of vehicles operated by the two main providers in the City of Freiburg has increased over the period, with the most recent figure (2021) at 374. The providers do not publish information on the number of users. The Federal Government's Sustainable Development Strategy does not include any targets on car sharing.

Cycle hire

2019	2020	2021
151,653	300,038	374,567

Number of Frelo bikes hired
(Source: City of Freiburg: VAG Freiburg; see Municipal Sustainability Report)

In combination with public transport, car-sharing systems and ride-sharing services, public cycle-hire systems have the potential to significantly reduce private motorised transport as a proportion of all forms of transport. As such, they are an important building block of environmentally and socially sustainable transport infrastructure development. The indicator provides information on the number of cycles hired per year through the scheme operated by Freiburger Verkehrs AG (Frelo). The total, including 'Lastenfrelo' cargo bikes, has been steadily increasing since their introduction in 2019. Since 2021, cargo pedelecs have also been available for hire. In 2021, a total of 374,567 cycle hires were recorded. The Federal Government's Sustainable Development Strategy does not include any targets on cycle hire.

3.5 SDG 17 - Partnerships for the Goals

3.5.1 SDG 17 - Introduction and relevance for German municipalities

SDG 17 calls on the world to strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development, with respect to all the SDGs. These can only be achieved through strong partnerships at multiple levels. Politics, civil society, academia and business must work together to implement the goals - locally, regionally, nationally and globally. This means that multi-actor partnerships between public, private and civil society partners are key. The core principle of "leave no one behind" describes the special responsibility to include all people on the path to sustainable development. In particular, the needs of the poorest and most disadvantaged should be taken into account - both within a society and in the context of the global community. Accordingly, the 2030 Agenda calls for the countries of the Global North to support the countries of the Global South, e.g. in capacity building for sustainable development.[15] For German municipalities, the following themes are therefore especially relevant for implementing this SDG (please also compare these with the targets for SDG 17 in the annex):

- Forming and supporting partnerships and cooperation arrangements
- Promoting global justice
- Implementing local development policy and cooperation.

15 See Germany's Voluntary National Review to the High-Level Political Forum 2021 and the German Sustainable Development Strategy 2021.

3.5.2 Overview of qualitative aspects and indicators

Qualitative aspects:

- Promoting global justice and supporting fair trade
- Partnerships, collaborations and networks

Indicators:

- Development cooperation
- Partnerships in countries of the Global South
- Fair trade schools
- Sustainability groups
- AgriKultur festival

3.5.3 Contributions of the City of Freiburg to the SDG

Promoting global justice and supporting fair trade

Freiburg has been a certified ***Fairtrade Town*** since 2013. Fairtrade Towns promote fair trade at municipal level and are the result of successful combined action by networks of local actors representing civil society, politics and business. Fair trade is about raising awareness of fair production conditions and promoting socially responsible and environmentally friendly manufacturing and trade structures. In Germany, the international Fairtrade Towns campaign is supported by the association Fairtrade Deutschland e.V. Worldwide, there are more than 2,000 Fairtrade Towns in over 36 countries. In Germany, over 800 municipalities are already certified as Fairtrade Towns and form a joint network. In order to become a Fairtrade Town, a municipality must demonstrate that its actions meet five criteria at different levels. As well as a council resolution, there must be a local steering group to coordinate fair trade activities. There are also criteria governing the sale of fair trade products, awareness-raising and educational activities (including civil society engagement) and appropriate forms of media and public relations work. Once a municipality fulfils all the criteria, it is awarded the title of Fairtrade Town for two years. After this period, it can apply for recertification by demonstrating that it still meets the criteria.

Over recent decades, in collaboration with numerous actors from civil society, the City of Freiburg has implemented and supported various projects designed to promote fair trade and general awareness in society. From the 1990s onwards, this process was guided by the City of Freiburg's former Agenda 21 office. Since 2018, the Sustainability Management Unit has acted as the main point of contact for all issues related to fair trade. The ***Fair Trade Steering Group*** coordinates the process and, together with the City

Photo 27: Children hands on a water game © Stadt Freiburg

Administration and other commercial sector and civil society actors, is actively engaged in efforts to strengthen fair trade in Freiburg. This approach has successfully raised awareness not only of sustainable and fair consumption but also of the need to integrate sustainability and fairness into the general operations and procurement activities of organisations and companies. Against this background, in the Freiburg Sustainability Goals, the city explicitly declares its support for action to highlight conscious forms of consumption and behaviour. To underpin those choices, the goal is to shine a light on the interrelationships between consumers in the city and producers in the surrounding region and worldwide. Reflecting its ongoing commitment in this area, City of Freiburg has successfully extended its Fairtrade Town designation continuously since 2013.

As well as municipalities, schools can also request Fairtrade certification. Schools integrate the subject into their activities at various levels while also promoting awareness of global justice. Freiburg already has two certified ***Fairtrade Schools,*** the German-French Gymnasium (since 2014) and the Max Weber School (since 2018). The Fairtrade Schools campaign offers schools as a whole the opportunity to be actively engaged in creating a better world and to share the responsibility for tackling this global issue.

In recognition of its own shared global responsibility, the City of Freiburg has established fair trade criteria that must be considered whenever goods are sourced by the City Administration through ***public procurement*** procedures. The Freiburg Sustainability Goals stipulate that sustainable, fair procedures should be embedded in (public) procurement and that priority should be given to durable, environmentally friendly and fair-trade products with quality marks. Legal steps in this direction are regularly coordinat-

Photo 28: Meeting of the European Regional Executive Committee (REXCom) of ICLEI, a global association of cities, municipalities and counties for environmental protection and sustainable development. Freiburg is a member of this association and is represented in the REXCom by the Lord Mayor. The meeting took place in March 2023 in Freiburg. © Stadt Freiburg

ed between the Central/Human Resources Office, the Procurement Unit and Legal Affairs. The responsible departments are kept informed about new developments, e.g. through the employee portal, where guidelines and advice from external institutions (such as the Federal Environment Agency) are published.

Partnerships, collaborations and networks

Building up partnerships and collaborations is at the heart of the Joint Action for Sustainable Development initiative. The Freiburg Sustainability Goals also refer explicitly to this approach. The aim is both to expand global partnerships for sustainable development and strengthen (supra)regional cooperation on sustainability issues.

Since the adoption of the 2030 Agenda, there has been much greater emphasis on municipalities sharing the responsibility for tackling global issues. In Freiburg, development cooperation is strongly characterised on the one hand by a large number of committed associations and initiatives that run projects with not only a local but also a global impact and are therefore assuming global responsibility. In addition, for many years, the ***Department for International Contacts*** has actively supported efforts to achieve the SDGs and the Freiburg Sustainability Goals through various cross-border partnership projects. In this context, the multi-stakeholder approach plays just as important a role as exchanges of specialist knowledge and technologies.

The City of Freiburg maintains a total of ***12 town twinning partnerships*** worldwide: Besançon (France), Granada (Spain), Guildford (UK), Innsbruck (Austria), Isfahan (Iran), Lviv (Ukraine), Madison (USA), Matsuyama (Japan), Padua (Italy), Suwon (South Korea), Tel Aviv-Yafo (Israel) and Wiwilí (Nicaragua). Alongside regular events, such as the Partnership Market, numerous other projects are planned and coordinated together with Freiburg's partner cities. These include a particular focus on 'climate and environment' as well as 'solar and energy efficiency' (for example, the largest photovoltaic system in Italy was built in Padua). Another related example is the project entitled ***Green Technologies District - Energy Optimisation at Neighbourhood Level in the City of Lviv (Ukraine).*** As part of the work on the Lviv Sustainable Energy Action Plan, a model energy optimisation project was implemented in one district between 2017 and 2020 (focusing on energy saving, energy efficiency, renewable energies and awareness-raising). Looking ahead, this district is intended to serve as an example of good practice and a role model for further energy refurbishments in Lviv and beyond. In addition to modernisation projects, energy lessons were introduced in schools to raise awareness of issues such as energy efficiency and energy saving. Another part of the initiative required a combined effort to develop and implement technical concepts for sustainable energy use, for example in street lighting and heating systems in the district. Every twinning project involves collaborating with specialist departments and experts in that particular field. Valuable support for development cooperation is provided by the twinning associations with their local knowledge and personal contacts in the partner municipality.

In addition, through its partnership activities in the Global South, the City of Freiburg provides both development cooperation support to help cities deliver essential services to the local population and support for sustainable development in the form of programmes or direct assistance. Action to protect the climate is a priority in many of these projects. By supporting projects in this way, the City Administration makes a tangible contribution to sustainable global development policy. To this end, projects are developed with partners in countries outside the EU and implemented with the help of expertise from Freiburg. This contribution has been strengthened in recent years, and new projects have been initiated, increasingly with civil society involvement. These partnership activities are supported and co-designed by a broad spectrum of local organisations.

One example is the ***town twinning arrangement with the municipality of Wiwilí in northern Nicaragua.*** The Freundeskreis Tonio Pflaum (Tonio Pflaum Circle of Friends) was founded in 1983. This was followed shortly afterwards by the Städtepartnerschaft Wiwilí-Freiburg e.V. (Wiwilí-Freiburg Town Twinning Association), which was set up with the goal of improving the living conditions of the population in Wiwilí. To celebrate the completion of the water supply for Wiwilí - the first joint project with Freiburg City Administration - the two municipalities concluded a friendship agreement in 1988. In 2015, Freiburg City Council decided to transform that friendship into a formal town twinning arrangement. This was officially confirmed in a document signed at Freiburg City Hall in 2018 and countersigned in Wiwilí in 2020. Over the years, various joint sustainability projects have been implemented, focusing in particular on strengthening organic farming and healthcare, on reforestation, and on drinking water and sanitation (more details of the joint project on integrated water resource management and basic sanitation can be found in the section of this report on SDG 6).

In 2019, together with local associations and individuals with a strong interest, the City of Freiburg established a ***climate project partnership with the town of San Jerónimo and the province of La Convención in Peru's Cusco region.*** The organisation Infostelle Peru e.V., together with university representatives and a number of people who are actively involved in the region, approached the City of Freiburg with the idea of a climate partnership. After an initial meeting in Freiburg, which provided an opportunity for the city's representatives and their Peruvian project partners to share information and experience, the participants agreed to jointly tackle the environmental problems in the province of La Convención and in the district of San Jerónimo as a model for other municipalities. The next step was to develop an initial roadmap towards a comprehensive future partnership, with input from all the stakeholders. The declared goal of the participants is to jointly address the most urgent problems and challenges in each area and to mitigate the impacts of climate change on people and nature. There is broad support at all levels thanks to the active involvement of universities, local associations and non-governmental organisations. The first projects have already been implemented, including an emergency aid package funded by the German Government that was successfully delivered together with San Jerónimo in the wake of the Covid 19 pandemic. A similar package was implemented for La Convención. Further projects of varying scope are already planned, including activities in the university and cultural sectors.

Both the sustainable municipal development projects with Wiwilí and Lviv and the climate partnership with Cusco are implemented in collaboration with the Service Agency Communities in One World (SKEW), which is part of Engagement Global. The projects receive significant financial support from the German Federal Ministry for Economic Cooperation and Development (BMZ). In Peru, there are plans over the period up to 2024 to continue work on a wetland (Pata Pata) renaturing project in San Jerónimo, prepare a new project in Cusco province and provide support for the indigenous population. A reforestation project in Wiwilí, designed to protect the town from flooding and landslides in the event of upcoming storms or hurricanes, is at the application stage. A project in Accra (Ghana) is expected to be prepared for implementation in 2023 and 2024.

The City of Freiburg is also involved in other cross-border projects as part of the ***Eurodistrict Region Freiburg - Centre et Sud Alsace.*** The Eurodistrict, combining South Baden and Alsace, was created in 2006 and covers an area of 5,200 square kilometres with over 1.2 million people in 344 municipalities. Eurodistricts are intended to facilitate cross-border cooperation and usually form a metropolitan region whose cities and municipalities are located in two or more countries. The Eurodistrict Region Freiburg - Centre et Sud Alsace was officially approved in 2020 as a new European Grouping of Territorial Cooperation (EGTC). This European legal status means that the Eurodistrict, which previously existed only as a collaborative arrangement, can be restructured and

equipped with financial and human resources. The overall aim is to create a cross-border region with a common spatial identity and to encourage greater interaction between citizens. The list of projects covers areas such as mobility, the labour market, building links between students and citizens, sport and culture, healthcare, energy and tourism. Cross-border school projects and vocational and environmental education are just some examples. This should lead overall to stronger Franco-German cooperation between residents, associations and institutions.

The City of Freiburg has particularly close links with ***Mulhouse,*** which is also part of the Eurodistrict Region Freiburg - Centre et Sud Alsace, especially on a range of sustainable development issues. The two cities work together closely at the political, council and administrative levels on joint themes and initiatives, for example in the areas of culture, mobility, climate and smart urban development.

The City of Freiburg also plays an active role in various networks and alliances that focus on the sustainable development of municipalities (e.g. Sustainable City Dialogue, Sustainability Action Days, German Sustainability Code for Municipalities, SDG Indicators for Municipalities). As a member of ***ICLEI - Local Governments for Sustainability***, the City of Freiburg is involved in various projects. ICLEI is the world's leading network for sustainable development at the municipal level. Founded in 1990, its members now include over 1,500 cities and regions worldwide. The European Secretariat is based in Freiburg. ICLEI strengthens the capacity of municipalities in the field of sustainable development through information, advice, training, facilitated workshops, conferences, guides and handbooks. As well as coordinating and supporting projects set up to develop innovative solutions together with groups of cities that face the same problems, it represents municipalities in European and international policy processes on sustainable development issues. ICLEI covers a wide range of issues, such as biodiversity and ecosystem services; climate change mitigation and adaptation; mobility; procurement and sustainable business manage-

ment; waste; water; and smart and green infrastructure solutions. The Mayor of the City of Freiburg is the European President of ICLEI. Since 2007, the City of Freiburg has also been a co-organiser of the Local Renewables Freiburg conference series.

Another network in which the City of Freiburg benefits from intensive cross-border cooperation is the information and advice centre ***INFOBEST Vogelgrun/ Breisach.*** INFOBEST is a network consisting of four advice centres distributed across the Upper Rhine region. The centres were established to advise citizens, associations, companies, administrations and political actors from the entire Upper Rhine region on every aspect of cross-border cooperation between Germany, France and Switzerland. As public institutions and contact points, the INFOBESTs aims to promote conditions that make it easier for people to live and work together along the German-French-Swiss Upper Rhine. The INFOBEST network also promotes dialogue and acts as a hinge between the various administrations in the three countries.

In a further initiative aimed at children who have fled to Germany from other countries, the city's Education Department has established a programme of ***educational mentorships*** in collaboration with Freiburg schools. Coordination offices have been set up to bring together young and older children with a refugee background and those who wish to support them. The educational mentorships involve an adult guiding and supporting a single pupil or student at a time - helping the child to learn the language and to deal with the challenges of integrating successfully on arrival and starting at a new school. The support ideally lasts for one school year. The programme of voluntary educational mentorships has been in place for several years in Freiburg and has proven very worthwhile.

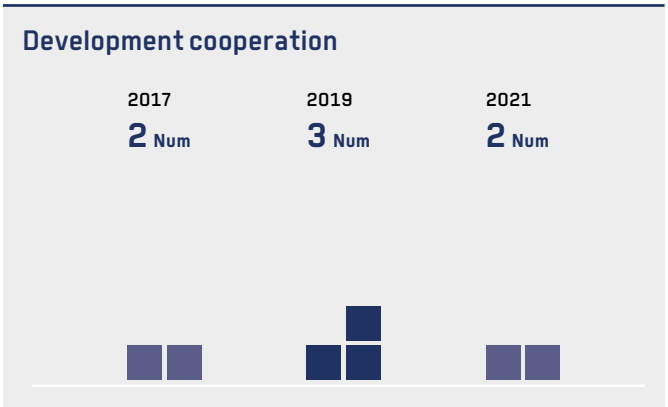
Photo 29: The members of the REXCom in front of the Old Town Hall, among them the Mayor of Freiburg Martin Horn (3rd from right). © Stadt Freiburg

3.5.4 Indicators

Development cooperation

Number of projects supported in the field of development cooperation
(Source: Municipal Sustainability Report)

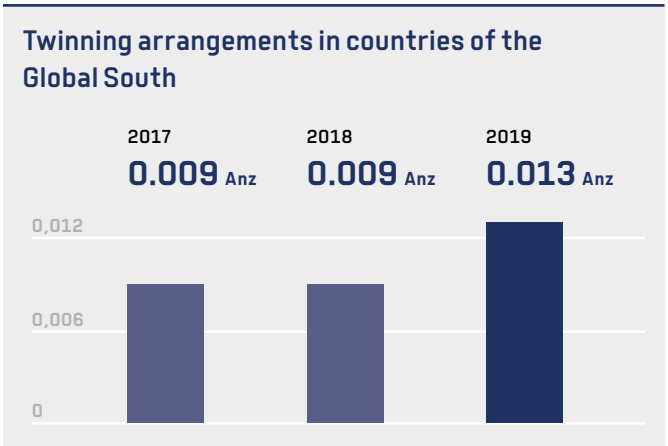
The role of development cooperation is to give all people the freedom to shape their own lives, by making their own decisions and taking responsibility for them, without suffering material hardship. It can help to bring about a continuous improvement in the global economic, social, environmental and political situation. In this context, municipal development cooperation projects play a particularly important role. Transfers of knowledge and intermunicipal links facilitate intercultural exchanges and help to drive forward joint approaches to ecological, economic and social sustainability. Through its support for development cooperation projects, the City Administration makes a tangible contribution to sustainable global development policy. This contribution has been strengthened in the City of Freiburg, and new projects have been initiated. The indicator provides information on the number of projects that received support in the field of development cooperation (two projects in 2021). The German Sustainable Development Strategy also addresses development cooperation in Goal 17.1 'Increase official development assistance as a proportion of gross national income'.



Twinning arrangements in countries of the Global South

Number of twinning arrangements unlimited in time or purpose with partners in DAC countries per 1,000 inhabitants (Source: SDG Portal)

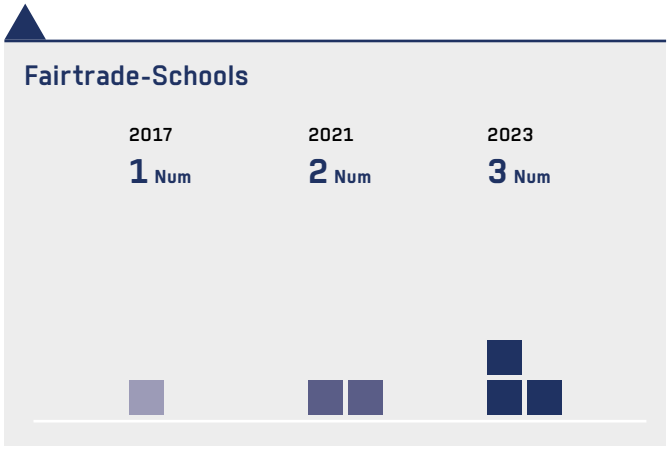
Shaping global challenges together with countries of the Global South and creating local solutions is one goal of town twinning. Twinning arrangements may address issues such as protecting the climate, water and waste management, neighbourhood development and education for sustainable development. The indicator provides information on the number of twinning arrangements unlimited in time or purpose with partners in so-called DAC countries. The Development Assistance Committee (DAC) is part of the Organisation for Economic Co-operation and Development (OECD). At irregular intervals, it publishes a list (known as the 'DAC list') showing which individual countries are designated as developing countries or emerging economies based on their level of development and economic strength. In 2019, the City of Freiburg had 0.013 twinning arrangements per 1,000 inhabitants with DAC-listed countries of the Global South. It is not possible to compare this figure with the national or state level due to a lack of data. The German Sustainable Development Strategy includes the goal of increasing 'official development assistance as a proportion of gross national income'.



Fairtrade-Schools

Number of schools designated as Fairtrade Schools (Source: www.fairtrade-schools.de)

Fairtrade School accreditation is awarded by Fairtrade Deutschland e.V. in recognition of a school's commitment to fairly traded products (at fair minimum prices for the producer). It can be obtained by any type of school in Germany that meets the criteria of establishing a school team, creating a Fairtrade Compass, offering fair trade products, incorporating fair trade as a permanent component of the curriculum, holding fair trade events and conducting PR work on the topic of fair trade. Schools have to apply for recertification every two years. The indicator provides information on the number of certified Fairtrade Schools. In 2021, there were two certified Fairtrade Schools in the City of Freiburg. The Federal Government's Sustainable Development Strategy does not include any specific targets in relation to Fairtrade Schools.



Sustainability groups

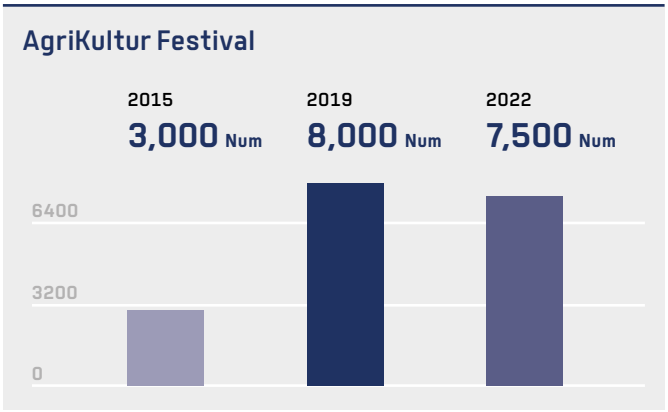
Number of group meetings with a focus on sustainable development (Source: City of Freiburg: Personal Department of the Mayor/ Sustainability Management; see Municipal Sustainability)

Various groups have been set up in the City of Freiburg to address the issue of sustainability. These include the Sustainability Council (formed in 2011, now with a Working Group on Social Sustainability created in 2017), the City Administration's own Sustainability Working Group (2011), the Fair Trade Steering Group (2019), the German Sustainability Code Discussion Group (2020), the Working Group on Education for Sustainable Development (2020) and the Freiburg 2030 Project Group (2021). Essentially, the aim is to strengthen links between relevant actors and to coordinate the sustainability process across municipal offices and departments in order to guide and drive efforts to implement the sustainability goals. The indicator provides information on the number of meetings held with a focus on sustainable development. In 2021, the total was 34 meetings. The Federal Government's Sustainable Development Strategy does not contain any specific targets in relation to sustainability groups.

AgriKultur Festival

Number of visitors to the AgriKultur Festival (Source: City of Freiburg: PRO/ Sustainability management, Research organisation "Die Argonauten e.V."; cf. urban sustainability)

The AgriKultur Festival was first held in 2012 and is rapidly becoming a platform that brings together actors from the region's organic farming sector, processing and marketing firms, consumers, researchers and public bodies. Awareness-raising is a crucial factor in the environmental and social transformation of agriculture and food. The AgriKultur concept sets agriculture and food within a cultural framework. After a break in 2020 and 2021 due to the Covid-19 pandemic, the festival was relaunched in 2022. With 7,500 visitors, the number of festival-goers almost matched the figure of 8,000 recorded in 2019. The Federal Government's Sustainable Development Strategy does not contain any specific targets in this area.



04

4 Outlook

This Voluntary Local Review (VLR) takes a comprehensive look at the implementation status of the Sustainable Development Goals (SDGs) in the City of Freiburg, in both qualitative terms (setting out activities to foster sustainability) and in quantitative terms (analysing indicators). The presentation of the individual SDG-related activities and indicators demonstrates the important contribution Freiburg is making to realising the 2030 Agenda at local level. While local reporting on sustainability in Germany has often focused more on quantitative indicators to date, the VLR aims to take a holistic approach to presenting local sustainability. It thus illustrates how the global framework of reference provided by the 2030 Agenda can be localised in both qualitative and quantitative terms to help achieve the SDGs.

This first VLR submitted by the City of Freiburg builds on the city's first sustainability report, published in 2022, which in turn was based on the reporting framework for sustainable municipalities. Taken together, the two reports provide a starting point for developing Freiburg's sustainability and VLR reporting in the years to come, and putting these on a more permanent footing. Reporting is thus seen as an on-

going process, in which results to date are taken as the basis for future reports. In addition to activities relating specifically to the selected SDGs 6, 7, 9, 11 and 17, the City of Freiburg is undertaking various other activities that contribute to the remaining SDGs. Using this as a foundation, the VLR can be expanded in future to cover all 17 of the Sustainability Development Goals and thus present the efforts of the City of Freiburg in full.

Essentially this international sustainability report has three distinct purposes. Firstly it allows us to reflect on progress made towards achieving sustainable development. Central activities (strategies and concepts to guide actions, measures, projects, political decisions, specific objectives, cooperation arrangements and networks, and organisational structures) can be presented together, developments rendered tangible with the help of indicators, and action required identified. Secondly, reporting helps communicate information about the sustainability status quo at local level to policy-makers and interested parties, establishing transparency and generating more attention. Finally, reporting is a central steering element in the ongoing cycle of local sustainability management and for the future alignment of local planning. The degree of objectives achievement can be considered, mechanisms set in course where objectives were not attained, and new priorities set in the interests of continually improving action.

This VLR is part of the ever-growing, worldwide VLR reporting movement, and indicates that municipalities can play a key part in realising the 2030 Agenda. Local contributions were found to all SDGs addressed. The contributions presented here cover several of the 169 targets. In this regard the VLR supports the assumption found in much literature that at least 65 per cent of the SDG targets will only be achieved if municipalities are consistently involved in implementation and monitoring (see Introduction). The VLR report offers huge potential to supplement national and regional reporting to the UN High-Level Political Forum for Sustainable Development, by adding the dimension of local practical experience. For the successful implementation of the 2030 Agenda, it is crucially important that the various levels (international, national, regional, local) be dovetailed. This VLR has been drawn up with five others under the auspices of a Germany-wide process. This fosters inter-municipal exchange in Germany, and worldwide, on various aspects of reporting (e.g. regarding procedures and structures) as well as encouraging mutual learning through innovative beacon projects.

Against this background, we hope that this VLR will encourage other municipalities to report on their own activities to realise the SDGs. The most recent United Nations programme reports on achieving the Sustainable Development Goals indicate a need for urgent action if the 17 SDGs are to be achieved by 2030 (half the time available since the 2030 Agenda was adopted in 2015 has already elapsed). Local realisation gives municipalities a special responsibility to drive forward sustainable development within the UN's Decade of Action (2020-2030).

The City of Freiburg plans to systematically maintain this wide range of activities promoting sustainability over the coming years. Implementing the Sustainability Goals (see above under the heading 'Strategic and organisational mainstreaming of sustainability') will be at the heart of the city's endeavours. The following list outlines some of the key steps that the City of Freiburg plans to implement in the near future in order to promote sustainable development across the municipality.

- The City of Freiburg will maintain a programme of targeted communications and sustainability reporting in the form of separate sustainability reports for decision-makers and citizens, each to be published every two years.
- Plans are under consideration to publish future sustainability reports in an optimised and digital form.
- The city wishes to update the current monitoring system based on the Freiburg Sustainability Goals, for example by developing new indicators

and key figures and highlighting links between the goals and the municipal budget.

- As well as continuing to develop the monitoring system, the City of Freiburg plans to update the Sustainability Goals and make them more concrete. Conflicting goals will be examined at an overarching strategic and conceptual level.
- With a view to updating the Sustainability Goals, there are plans to link up with the parallel Freiburg 2030 project being run by the Mayor's Office. The focus of this project is on coordination, ensuring that the forward-looking actions taken by the City of Freiburg are transparent, comprehensible and visible across the board. To this end, all strategies, concepts, measures and projects within each department or office will be assigned to the 12 action areas identified in the Freiburg Sustainability Goals.
- In terms of sustainable municipal development, the City of Freiburg's key thematic goals will be to achieve climate-neutrality in 2035 (the City Administration itself is expected to achieve this in 2030), to implement the Climate Mobility Plan and to develop the Land-Use Plan 2040 (for details of each please refer to the section on SDG 11).

05

5 Annex

5.1 Summary of the 169 SDG targets (adapted)

SDG 1 - End poverty in all its forms everywhere

1.1 Eradicate extreme poverty
1.2 Reduce relative poverty
1.3 Implement social protection systems and measures, achieve substantial coverage of the poor and vulnerable
1.4 Equal rights to economic and other resources (access to basic services)
1.5 Build resilience of poor people (to environmental, economic and social shocks/disasters)
1.a Ensure mobilisation of resources for developing countries to implement programmes /policies to end poverty
1.b Create policy frameworks at regional, national and international levels to eradicate poverty.

SDG 2 - End hunger, achieve food security and improved nutrition and promote sustainable agriculture

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 sustainable food production and implementation of resilient agricultural practices
2.5 Maintain the genetic diversity of seeds, cultivated plants, and farmed and domesticated animals (and their related wild species)
2.a Investment to enhance agricultural productive capacity in developing countries
2.b Correct and prevent trade restrictions and distortions in world agricultural markets
2.c Adopt measures to ensure the proper functioning of food commodity markets and facilitate access to market information

SDG 3 - Ensure healthy lives and promote well-being for all at all ages

3.1 Reduce maternal mortality
3.2 Reduce neonatal and infant mortality
3.3 Combat communicable diseases
3.4 Reduce premature mortality from non-communicable diseases, promote mental health and well-being
3.5 Strengthen prevention and treatment of substance abuse
3.6 Halve the number of global deaths and injuries from road traffic accidents
3.7 Ensure access to sexual/reproductive health care (family planning, information and education)

- 3.8 Achieve universal health coverage / access to health-care 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 (developing countries)
- 3.c Increase health financing / education and training of the health workforces in developing countries
- 3.d Strengthen early warning, risk reduction and management of national and global health risks

SDG 4 - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

- 4.1 Ensure completion of free and quality education for all children
- 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 jobs and entrepreneurship
- 4.5 Ensure equal opportunities and equal access to all levels of education and training
- 4.6 Minimise the number of illiterates
- 4.7 Improve knowledge and skills to promote sustainable development (learners - ESD)
- 4.a Build and upgrade safe, inclusive and effective education facilities that are child-, disability- and gender-sensitive
- 4.b b Increase the number of scholarships available to developing countries for enrolment in higher education
- 4.c Increase the supply of qualified teachers in developing countries

SDG 5 - Achieve gender equality and empower all women and girls

- 5.1 End discrimination against women/girls
- 5.2 Eliminate violence against women/girls
- 5.3 Eliminate child, early and forced marriage, and female genital mutilation
- 5.4 Recognise and value unpaid care and domestic work (promote shared responsibility within the household and family)
- 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 rights
- 5.a Undertake reforms to give women equal rights to economic and other resources
- 5.b Enhance the use of enabling technologies to promote the empowerment of women
- 5.c Strengthen sound policies/legislation for gender equality and the empowerment of women

SDG 6 - Ensure availability and sustainable management of water and sanitation for all

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 water use efficiency, reduce water scarcity
6.5 Implement integrated water resources management
6.6 Protect and restore water-related ecosystems (mountains, forests, wetlands, rivers, aquifers and lakes)
6.a Expand international cooperation and support for developing countries in the area of water and sanitation
6.b b Strengthen the participation of local communities in sustainable water management and sanitation

SDG 7 - Ensure access to affordable, reliable, sustainable and modern energy for all

7.1 Ensure access to affordable, reliable and modern energy services
7.2 Increase the share of renewable energy
7.3 Increase energy efficiency
7.a Enhance international cooperation to facilitate access to clean energy research and technology
7.b Expand infrastructure/upgrade technology in developing countries for supplying sustainable energy services

SDG 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.1 Sustain per capita economic growth (GDP)
8.2 Achieve higher levels of economic productivity through diversification, modernisation and innovation
8.3 Promote development-oriented policies that support / create decent jobs, entrepreneurship and innovation (small businesses)
8.4 Improve resource efficiency in consumption & production, endeavour to decouple economic growth from environmental degradation
8.5 Achieve full and productive employment and decent work for all (including women and men with disabilities) as well as equal pay for work of equal value
8.6 Reduce the proportion of youth not in employment, education or training
8.7 Take measures to eradicate forced and child labour, slavery and human trafficking
8.8 Protect labour rights and promote safe working environments
8.9 Devise and implement policies to promote sustainable tourism
8.10 Strengthen the capacity of domestic financial institutions to expand access to financial/ insurance services
8.a Increase Aid for Trade support for developing countries
8.b Develop a global strategy for youth employment and implement the Global Jobs Pact

SDG 9 - Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

- 9.1 Develop resilient and sustainable infrastructure to support economic development and human well-being
- 9.2 Promote sustainable industrialisation and increase industry's share of employment and GDP
- 9.3 Increase the access of small-scale industrial and other enterprises to financial services
- 9.4 Upgrade infrastructure and retrofit industries to make them sustainable
- 9.5 Enhance research and upgrade the technological capability of industrial sectors
- 9.a Facilitate sustainable infrastructure development in developing countries
- 9.b Support domestic technology development, research and innovation in developing countries
- 9.c Increase access to information and communications technology and provide access to the Internet

SDG 10 - Reduce inequality within and among countries

- 10.1 Achieve income growth among the poorest
- 10.2 Empower and promote the inclusion of all
- 10.3 Ensure equal opportunity and reduce inequalities
- 10.4 Adopt policies for greater equality (wage policy, social protection)
- 10.5 Improve regulation and monitoring of global financial markets and institutions
- 10.6 Strengthen the voice of developing countries in decision-making in global economic and financial institutions
- 10.7 Facilitate orderly and safe migration and mobility, implement well-managed migration policies
- 10.a Implement the principle of special and differential treatment for developing countries (in accordance with WHO agreements)
- 10.b Encourage official development assistance and financial flows to developing countries
- 10.c Reduce transaction costs for migrant remittances

SDG 11 - Make cities and human settlements inclusive, safe, resilient and sustainable

- 11.1 Ensure access for all to affordable, safe and adequate housing and basic services
- 11.2 Provide access to sustainable transport systems for all, improve road safety
- 11.3 Enhance sustainable urbanisation, implement participatory, integrated sustainable settlement planning and management
- 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage
- 11.5 Improve disaster risk management
- 11.6 Reduce the environmental impact of cities (air quality, waste)
- 11.7 Provide universal access to green and public spaces
- 11.a Support economic, social and environmental links between cities and rural communities by strengthening national and regional development

11.b Adopt and implement integrated policies and plans for sustainable urban development (inclusion, resource efficiency, climate change mitigation, adaptation and holistic disaster risk management)
11.c Support developing countries in building sustainable and resilient buildings

SDG 12 - Ensure sustainable consumption and production patterns

12.1 Implement 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 Achieve the environmentally sound management of waste and chemicals
12.5 Reduce waste generation
12.6 Encourage companies to adopt sustainable practices and reporting
12.7 Promote sustainable public procurement
12.8 Ensure that people everywhere have the relevant information and awareness for sustainable development
12.a Support developing countries in moving towards sustainable patterns of consumption and production
12.b Develop and implement tools to monitor the impacts of sustainable tourism
12.c Reduce fossil fuel subsidies, taking into account the specific needs of developing countries

SDG 13 - Take urgent action to combat climate change and its impacts

13.1 Strengthen resilience and adaptive capacity to climate change
13.2 Integrate climate measures into national policies
13.3 Improve education and human and institutional capacity on climate change mitigation and adaptation
13.a Provide financial support for climate action in developing countries
13.b Raise capacity for climate change-related planning and management in developing countries

SDG 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development

- 14.1 Reduce marine pollution
- 14.2 Sustainably manage and protect marine and coastal ecosystems
- 14.3 Reduce ocean acidification and address the impacts
- 14.4 Implement sustainable fishing mechanisms
- 14.5 Contribute to the conservation of coastal and marine areas
- 14.6 Prohibit forms of fisheries subsidies that lead to overcapacity and illegal fishing
- 14.7 Increase economic benefits for developing countries through the sustainable use of marine resources
- 14.a Increase scientific knowledge in order to improve ocean health and enhance biodiversity
- 14.b Provide access for small-scale fishers to marine resources and markets
- 14.c Enhance the conservation and sustainable use of the oceans and their resources

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

- 15.1 Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems
- 15.2 Promote the sustainable management of all types of forests
- 15.3 Combat desertification and neutralise land degradation
- 15.4 Conserve mountain ecosystems
- 15.5 Reduce the degradation of natural habitats, halt the loss of biodiversity
- 15.6 Promote fair and equitable sharing and appropriate access to genetic resources
- 15.7 End poaching and trafficking of protected species of flora and fauna
- 15.8 Prevent the introduction of invasive alien species
- 15.9 Integrate ecosystem and biodiversity values into local planning/policies
- 15.a Increase financial resources to conserve biodiversity and ecosystems
- 15.b Increase financial resources for sustainable forest management and provide incentives for developing countries to adopt such management
- 15.c Combat poaching and trafficking of protected species

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

16.1 Reduce violence and related death rates
16.2 End violence against children
16.3 Ensure equal access to justice
16.4 Combat organised crime, reduce illicit financial and arms flows
16.5 Reduce corruption
16.6 Develop effective, accountable and transparent institutions
16.7 Ensure participatory decision-making at all levels
16.8 Strengthen the participation of developing countries in the institutions of global governance
16.9 Provide legal identity for all
16.10 Ensure access to information and protect fundamental freedoms
16.a International cooperation: prevent violence and combat terrorism and crime
16.b Promote and enforce non-discriminatory laws and policies

SDG 17 - Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development

Finance

17.1 Strengthen domestic resource mobilisation to improve domestic tax collection capacity in developing countries
17.2 Fulfil ODA commitments
17.3 Mobilise additional financial resources for developing countries
17.4 Assist developing countries in managing debt
17.5 Implement investment promotion regimes for developing countries

Technology

17.6 Enhance cooperation for knowledge transfer (North-South) in the field of science, technology and innovation
17.7 Promote the development, transfer and dissemination of sustainable technologies in developing countries
17.8 Establish systematic cooperation for science, technology and innovation; introduce global technology capacity-building mechanism

Capacity development

17.9 Enhance international support for capacity building in developing countries

Trade

17.10 Promote an open, equitable and rules-based world trading system
17.11 Increase the exports of developing countries
17.12 Implement duty/quota-free market access for developing countries

Systemic issues

17.13 Enhance global macroeconomic stability
17.14 Enhance policy coherence for sustainable development
17.15 Respect each country's sovereignty in the implementation of policies for sustainability
17.16 Expand global (multi-actor) partnerships for sustainable development
17.17 Encourage and promote the formation of public, public-private and civil society partnerships
17.18 Enhance capacity-building support for developing countries to increase data availability
17.19 Develop measurements of progress on sustainable development, and support statistical capacity-building in developing countries

5.2 Bibliography

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, ICLEI European Secretariat, Council of European Municipalities and Regions / German Section (2022). SDG Indicators for Municipalities - Indicators for mapping United Nations Sustainable Development Goals in German municipalities. 3rd edition, Gütersloh 2022.

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.

Deutsche Bundesregierung (Eds.) (2021). Bericht über die Umsetzung der Agenda 2030 für nachhaltige Entwicklung. Freiwilliger Staatenbericht Deutschlands zum HLPF 2021. Die Bundesregierung: Berlin, 2021.

Deutsche Bundesregierung (Eds.) (2020). Deutsche Nachhaltigkeitsstrategie - Weiterentwicklung 2021. Die Bundesregierung: Berlin, 2020.

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

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 Planning - Enabling 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.

United Cities and Local Governments (UCLG) (2021). Towards the Localization of the SDGs. Sustainable and Resilient Recovery Driven by Cities and Territories. Local and Regional Governments' Report to the HLPF. 5th Report. Global Taskforce of Local and Regional Governments. United Cities and Local Governments: Barcelona, 2021.

United Cities and Local Governments (UCLG), UN-Habitat (2020). Guidelines for Voluntary Local Reviews. Volume 1. A Comparative Analysis of Existing VLRs. VLR Series. Barcelona: United Cities and Local Governments, 2020.

UN-Habitat (United Nations Human Settlements Programme), United Cities and Local Governments (UCLG) (2021). Guidelines for Voluntary Local Reviews. Volume 2. Towards a New Generation of VLRs: Exploring the local-national link. Nairobi: UN-Habitat.

United Nations (UN) (2015). Transforming Our World: The 2030 Agenda for Sustainable Development. New York: United Nations. A/RES/70/1.

United Nations (UN) (2019). Global Sustainable Development Report 2019: The Future is Now - Science for Achieving Sustainable Development. New York: United Nations, 2019.

United Nations Department of Economic and Social Affairs (UNDESA) (2020). Global Guiding Elements for Voluntary Local Reviews (VLRs) of SDG implementation. New York: UNDESA, 2020.

United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) (2020). Asia-Pacific Regional Guidelines on Voluntary Local Reviews. Reviewing local progress to accelerate action for the Sustainable Development Goals. Bangkok: UN-ESCAP, 2020.

5.3 Table of figures

Freiburg
IM BREISGAU