



**DGNB**

Deutsche Gesellschaft für Nachhaltiges Bauen  
German Sustainable Building Council

REPORT DECEMBER 2020

# Building for a better world

How buildings contribute to the UN Sustainable Development Goals (SDGs)



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## Foreword

In early 2020 António Guterres, secretary-general of the United Nations, called for a decade of delivery and action, highlighting that there are only ten years left to work together in transforming the world in keeping with the 2030 Agenda or, in the words of Guterres' predecessor Ban Ki-moon, "to save our planet". Only months later, his appeal was amplified as the global coronavirus crisis gathered pace. Guterres called for joint action and even more cohesive implementation of the sustainability goals.<sup>1</sup>

**»We are the first generation that can put an end to poverty and we are the last generation that can put an end to climate change.«**

(Ban Ki-moon, UN secretary-general from 2007 to 2016)

The 2030 Agenda is a kind of global treaty on the future of the world. It was adopted by the United Nations General Assembly in 2015 along with 17 Sustainable Development Goals, or SDGs. It is about nothing less than ending famine and extreme poverty in the world, placing limits on climate change and preserving natural resources. All with the guiding principle of leaving no one behind.

Honourable goals, but without a doubt a mammoth task. The question is: How? Entire nations, communities, organisations, businesses and civil society overall have been and still are called upon to draw up action plans and implement the SDGs. The atmosphere was euphoric. Germany emerged as a pioneer in this area, unveiling its own new sustainability strategy the very same year.

But if you follow UN sustainability summit proceedings and are familiar with the SDG reports, the current outlook does not look good.<sup>2,3</sup> Not a single country is on track to achieving its targets by 2030.<sup>4</sup> A special appeal goes out to the G20 countries, which – given their size and importance to the global economy and trade – should intensify political efforts and measures for achieving the SDGs.<sup>5</sup> In addition, there is still much to be done to raise international awareness of the SDGs.<sup>6</sup>

In conclusion then, much has been said, but not enough has been done.

That's one side of the coin. On the other side, there are numerous local authorities, companies and organisations that are demonstrating what to do about sustainability in concrete terms. They are leveraging the SDGs as signposts and communication tools and demonstrating their own contributions within the global context. In addition, changes within the financial system towards greater sustainability are resulting in a growing number of incentives for others to follow suit.

As Europe's largest network for sustainable building, the German Sustainable Building Council (DGNB) also supports the 2030 Agenda through its activities in the construction industry. It strongly believes that the quality and sustainability of the environment we build around ourselves is an important key to meeting global challenges. As early as 2008, it developed a certification system for verifying the sustainability of buildings and urban districts based on a variety of assessment criteria. This DGNB System is highly consistent with the 2030 Agenda. It is thus an effective instrument for making the SDGs more concrete by enabling building owners and architects to contribute to this important agenda and to show it.



## BY PUBLISHING THIS REPORT, THE DGNB WOULD LIKE TO ...

... raise awareness of the SDGs within the construction industry. It would like building owners, architects, planners and key decision-makers in the construction sector to gain a better understanding of the global challenges we all face – and encourage everyone to delve deeper and think more closely about the impact of the SDGs in areas they can influence.

### ▶ Chapter 1

... show why construction in particular has a considerable influence on sustainable development. To this end, this publication not only outlines why the construction industry has close overlaps with almost all SDGs. It also takes a closer look at the six SDGs that are particularly relevant for building:

- Good health and well-being (SDG 3)
- Affordable and clean energy (SDG 7)
- Sustainable cities and communities (SDG 11)
- Responsible consumption and production (SDG 12)
- Climate action (SDG 13)
- Partnerships for the goals (SDG 17)

### ▶ Chapter 2

... guide others, so that as well as understanding their responsibility, they also do something. The report shows how this is possible with DGNB certification. We then draw on examples covering three tasks of construction to show how you can make a tangible contribution to the SDGs. These are: erecting new buildings, using and operating buildings, and developing districts. Overall, this illustrates how effectively the sustainability criteria covered by the DGNB System contribute to the SDGs and their sub-goals (targets).

### ▶ Chapter 3

... encourage everyone involved in building to embark now on the sustainable development journey and fix their sights on making the world a better place.

### ▶ Chapter 4

## The role of the SDGs as a call to action!

Transforming our world: the 2030 Agenda for Sustainable Development. Adopted in September 2015, this resolution marked the first time that all 193 Member States of the United Nations adopted a concrete action plan for sustainable development. In the preamble, the states laid down five key thrusts as guiding principles for action (see box below).

**»Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.«**

(Brundtland Report 1987)

The document revolves around the 17 Sustainable Development Goals and 169 sub-goals (targets), taking ecological, economic and social factors into account.

All states, stakeholders, communities, companies and organisations were called upon to implement this plan and act in cooperative partnership.

The idea was that the SDGs would make it easier to lodge the principle of sustainable development in the minds of all stakeholders; making the principle more concrete should make things easier to plan and measure. For the first time, people all over the world would be able to use the same 17 topics as points of reference. They would be speaking the same language, so that every individual can use the SDGs in their own communication, simultaneously raising awareness of the global challenges. There are also now annual SDG reports to provide information on where countries stand in terms of achieving their goals (see box on page 7).

### Transforming our world:<sup>7</sup> the 2030 Agenda for Sustainable Development

(Extract from the preamble, General Assembly Resolution 70/1, adopted 25 September 2015)



The goals and targets will stimulate action over the next 15 years in areas of critical importance for humanity and the planet.

**People:** We are determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment.

**Planet:** We are determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.

**Prosperity:** We are determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.

**Peace:** We are determined to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development.

**Partnership:** We are determined to mobilise the means required to implement this Agenda through a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.

## SUSTAINABLE DEVELOPMENT GOALS



### ALL SDGS<sup>8</sup>

**GOAL 1.** End poverty in all its forms everywhere

**GOAL 2.** End hunger, achieve food security and improved nutrition and promote sustainable agriculture

**GOAL 3.** Ensure healthy lives and promote well-being for all at all ages

**GOAL 4.** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

**GOAL 5.** Achieve gender equality and empower all women and girls

**GOAL 6.** Ensure availability and sustainable management of water and sanitation for all

**GOAL 7.** Ensure access to affordable, reliable, sustainable and modern energy for all

**GOAL 8.** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

**GOAL 9.** Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

**GOAL 10.** Reduce inequality within and among countries

**GOAL 11.** Make cities and human settlements inclusive, safe, resilient and sustainable

**GOAL 12.** Ensure sustainable consumption and production patterns

**GOAL 13.** Take urgent action to combat climate change and its impacts\*

**GOAL 14.** Conserve and sustainably use the oceans, seas and marine resources for sustainable development

**GOAL 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

**GOAL 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

**GOAL 17.** Strengthen the means of implementation and revitalise the global partnership for sustainable development

\*Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, inter-governmental forum for negotiating the global response to climate change.

## Every contribution counts!

Everyone is therefore called upon to make their contribution to the 2030 Agenda. But what's the best place to start? Anyone who looks closer at this area soon realises that there are already numerous initiatives and measures aimed at promoting more sustainability. They also make direct references to the SDGs. This is something we can all build on. There's no reason to start from scratch! The aim of the ideas provided on this page is to encourage you to consider options available to you in different areas. Do note that some of the examples chosen here refer to Germany, but there are certainly comparable initiatives, networks, sources and support options in your countries and regions, too.

### AREA OF IMPACT: LIFE

Every human being can take responsibility for sustainable development – in their own individual environment and network. Be it in private, in a voluntary capacity, or in other communities. There are plenty of networks and enough inspiration showing what you can do.

- [www.sdgsinaction.com](http://www.sdgsinaction.com)
- [www.17ziele.de](http://www.17ziele.de) (German)
- [www.nachhaltich-app.de](http://www.nachhaltich-app.de) (German)
- [www.renn-netzwerk.de](http://www.renn-netzwerk.de) (German)

### AREA OF IMPACT: WORK

From companies to chambers of commerce and associations – everyone needs to align their activities sustainably. Larger companies in Europe have been obliged to publish sustainability reports since 2017. Many already do this voluntarily to offer transparency to the general public and investors. The onus is on business leaders and decision-makers to organise their companies accordingly and publish annual sustainability reports. There are numerous examples of guidelines to help with this. Also, there is nothing stopping 'switched-on' employees from driving sustainability at their companies.

- [www.sdgcompass.org](http://www.sdgcompass.org)
- [www.ec.europa.eu/environment/emas/](http://www.ec.europa.eu/environment/emas/)
- [www.unglobalcompact.org](http://www.unglobalcompact.org)
- [www.deutscher-nachhaltigkeitskodex.de](http://www.deutscher-nachhaltigkeitskodex.de) (German)

### AREA OF IMPACT: TOWNS AND CITIES

Urban areas have a central role to play in implementing the SDGs.

#### »Our struggle for global sustainability will be won or lost in cities.«

United Nations High-level Political Forum on Sustainable Development (HLPF)

According to one survey conducted in Germany, there are many examples of guiding principles for sustainable urban development, but concepts place too little emphasis on creating impact.<sup>9</sup> Citizens and municipal representatives can assess the situation in their own areas by referring to sources like the SDG portal: [www.sdg-portal.de](http://www.sdg-portal.de) (German). There are numerous useful instruments for decision-makers in local government when it comes to implementing sustainability goals. The following is just a brief excerpt:

- Agenda 2030 – Sustainable Development at the Local Level: [www.bertelsmann-stiftung.de/de/unsere-projekte/agenda-2030-nachhaltige-entwicklung-vor-ort](http://www.bertelsmann-stiftung.de/de/unsere-projekte/agenda-2030-nachhaltige-entwicklung-vor-ort) (German)
- Global Sustainable Communities (German): [www.engagement-global.de/laender-und-kommunen.html](http://www.engagement-global.de/laender-und-kommunen.html) (German)
- 'Klimapositive Städte und Gemeinden' (German) [www.klimapositivestadt.de](http://www.klimapositivestadt.de) (German), see also page 13
- Planning sustainable urban districts [www.dgnb-system.de/en/districts/urban-districts](http://www.dgnb-system.de/en/districts/urban-districts)

#### Agendas

- New Urban Agenda [www.habitat3.org](http://www.habitat3.org)
- EU Urban Agenda [www.ec.europa.eu/futurium/en/urban-agenda-eu/what-urban-agenda-eu](http://www.ec.europa.eu/futurium/en/urban-agenda-eu/what-urban-agenda-eu)
- The Leipzig Charter [www.eurocities.eu/latest/what-is-the-new-leipzig-charter](http://www.eurocities.eu/latest/what-is-the-new-leipzig-charter)

### AREA OF IMPACT: POLITICS

The governments of all countries are called upon to independently implement the Sustainable Development Goals in all areas of public policy. To implement measures, financial means and resources should be made available. The Federal Government of Germany fundamentally revised its sustainability strategy to coincide with the SDGs coming into force. At the same time, however, it appeals to local authorities, the private sector and civil society to play their part in the 2030 Agenda. What can individuals do to help?

- Pursue international sustainability policy
- Familiarise themselves and actively think about the sustainability strategy of their own country
- Support projects that promote sustainability policies

### AREA OF IMPACT: EDUCATION

Everyone has certain sources of knowledge they can turn to – schools, universities and other educational establishments. It is especially important with sustainability measures not to be misled by sources that only paint half the picture. Reports should be scrutinised and an effort should be made to remain up to speed with developments. Many local educational establishments offer information on sustainability topics. Examples of public sources online include:

- Education on sustainable development [www.bne-portal.de/en/](http://www.bne-portal.de/en/)
- UNESCO [www.unesco.org](http://www.unesco.org)
- 'Wissensstiftung' [www.norocketscience.earth](http://www.norocketscience.earth) (German)



#### DIGGING DEEPER

If you want to delve further into this subject, you have a number of options. The United Nations and other institutions have been publishing annual SDG reports since 2015. Their publications provide an overview of progress in each country and shortcomings in making sustainability a reality in the future.



The United Nations publishes an annual Sustainable Development Goals Report. You find the 2020 version here:

[www.un.org/sustainabledevelopment/](http://www.un.org/sustainabledevelopment/)



The SDG Index overseen by the Bertelsmann Foundation and the Sustainable Development Solutions Network (SDSN) also offers a useful overview of the situation in different countries: [www.sdgindex.org](http://www.sdgindex.org)



Germany was one of the first countries to translate the SDGs into its sustainability strategy. Every two years, the federal government publishes a so-called indicator report:

[www.bundesregierung.de/breg-en/issues/sustainability/](http://www.bundesregierung.de/breg-en/issues/sustainability/)

### AREA OF IMPACT: CONSTRUCTION

One area of impact that also affects everyone is the environment we build around ourselves. Regardless of whether you commission a building or you are an owner, municipal decision-maker, developer, architect, planner or simply a tenant, everyone has a role to play when it comes to the SDGs.

➔ We explain why on the following pages.

# The SDGs and the important role played by construction

Buildings are our living spaces! We reside, live and work in them. The quality and features of a building have a huge influence on our well-being. At the same time, buildings interact with the environment.

Just looking at the facts when it comes to buildings – and the process of building – makes it clear that ‘Transforming our World’ requires urgent action. This is because land and a large number of natural resources are needed to construct buildings. Even producing building materials can consume huge amounts of non-renewable energy and water, also resulting in harmful emissions. Ethical, social and ecological standards are far from being the norm.

Most existing buildings account for high levels of energy consumption and CO<sub>2</sub> emissions. Too often, buildings are simply torn down and the pool of unused man-made resources grows bigger. We all know the consequences: greenhouse gases, raw material shortages, air pollution, soil acidification, disease. Ultimately, we are also affected by this, and the hardest hit are those who have few means to protect themselves and stay safe.

Adopting a sustainable perspective shows that there is an alternative. Not only can we design our built surroundings in such a way that we feel comfortable in them, we can also ensure they do no harm to others or the environment. But to do this, we need to be honest with ourselves, consider the facts and have the courage and the will to transform the construction sector and make sustainability the new normal. Building in the spirit of sustainable development means acknowledging that buildings can place value on people and nature.



»Sustainability in the built environment is a true catalyst for addressing some of the world’s most pressing issues« Cristina Gamboa, CEO WorldGBC

## Projects can address up to 15 of the 17 SDGs!

Given this, it is not surprising that the sustainable construction of buildings and urban districts relates directly to 15 SDGs.

Five topics are particularly pertinent:

- Good health and well-being (SDG 3)
- Affordable and clean energy (SDG 7)
- Sustainable cities and communities (SDG 11)
- Responsible consumption and production (SDG 12)
- Climate action (SDG 13)

We will only succeed in transforming buildings if we act together and join forces.

The last goal is therefore also of overarching importance when it comes to construction:

- Partnerships for the goals (SDG 17)

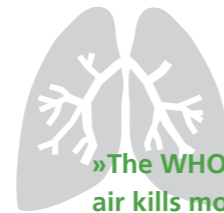
To understand exactly how sustainable construction contributes to these SDGs,

→ see the following pages.

Figure: The contributions that can be made to the SDGs by building sustainably according to the DGNB guidelines.

**3 GOOD HEALTH AND WELL-BEING** Building sustainably creates livable spaces indoors and outdoors, turning the spotlight on people, their health and well-being – from start to finish.

The aim of the third sustainability goal is to ensure all human beings enjoy a healthy life. In an urban and building context, this entails conducting systematic assessments during planning to check for potential negative impacts on the population. After all, planning and constructing the environment we build around ourselves has far too many consequences – urban air pollution, soil and water contamination, all kinds of noise pollution and indoor pollutants. These are all threats that can be avoided by selecting construction methods that put people first. Not only that, but construction offers so many opportunities to actively promote well-being by designing buildings that deal sensitively with the needs of human beings – surprising and delighting us when it comes to peace and quiet, a sense of community, a pleasant indoor atmosphere, light and exercise.


 »The WHO estimates that polluted air kills more people worldwide than polluted water or tropical diseases.«<sup>10</sup>


we spend **90%**  of our time indoors.

**SDG targets relevant to building**  
SDG 3.4 Reduce by one-third premature mortality; promote health and well-being, SDG 3.9 Impacts of chemicals and air, water, and soil pollution

**7 AFFORDABLE AND CLEAN ENERGY** Building sustainably promotes the efficient use and self-production of renewable energy in buildings and urban districts, thus contributing to the transition to green energy.

Goal 7 addresses universal access to affordable and reliable energy through modern systems. Investments should improve energy efficiency and expand the share of renewable energy and infrastructures. There can be no doubt that our built environment can play a crucial role in driving the energy transition by moving us away from fossil fuels towards clean energy sources instead. In essence, this is about seeing new buildings as energy sources, promoting renewable energy in all areas and optimising existing buildings to save resources. When it comes to urban districts, the key lies in exploiting synergies and providing access to smart, connected energy infrastructures. There is, however, an opposing trend in this area known as the rebound effect. Put simply, there may be lower demand for indoor heating per square metre of living area – primarily thanks to improvements in energy efficiency – but the living area per person is rising. Bottom line therefore, energy consumption remains high. This issue is therefore more about making the right choices and asking yourself how much space you really need to live in.

 **40%** of the total energy consumed in Europe is used by the construction industry.<sup>11</sup>

**2/3**  of energy goes into heating private households.<sup>12</sup>

**SDG targets relevant to building**  
SDG 7.1 Universal access to affordable, reliable and modern energy services, SDG 7.2 Increase substantially the share of renewable energy in the global energy mix, SDG 7.3 Energy efficiency: double the global rate of improvement in energy efficiency

**11 SUSTAINABLE CITIES AND COMMUNITIES** Building sustainably creates livable, resilient urban districts that help foster sustainable, inclusive and safe urban development in harmony with the environment.

Towns and cities are places where many people – of different ages, cultures and social backgrounds – come together in relatively confined areas. What they all have in common is that they want to enjoy living there. This overlaps with the aims of SDG 11 – cities around the world should be made sustainable. This includes providing affordable housing, good public transport that is accessible to all and, above all, plenty of choice when it comes to public and green spaces. But sustainable communities also think carefully about how efficiently land is used, preventing pollution and avoiding social and economic crises – aspects that primarily impact the most vulnerable sections of society. Last but not least, this is about preserving our cultural heritage, nature conservation and integrating our cities into the local environment. One important lever in this respect lies in how we plan, build and operate buildings and urban areas. It is important that such issues are already taken into account during planning and that all relevant stakeholders are involved.

**SDG targets relevant to building**  
SDG 11.1 Affordable housing, SDG 11.2 Access to and expansion of affordable public transport, SDG 11.3 Participatory, integrated and sustainable human settlement planning, SDG 11.5 Impact of disasters, SDG 11.6 Reduction of environmental impacts, SDG 11.7 Access to green and public spaces, SDG 11.a Support of links between urban, peri-urban and rural areas, SDG 11.b (Implementation measures) Strategies aimed at adapting to climate change

Urban areas currently account for only **3%** of land on Earth. However, they are responsible for **70%** of all emissions... ..and for **60%** of resource consumption.<sup>13</sup>

**12 RESPONSIBLE CONSUMPTION AND PRODUCTION** Building sustainably supports the principles of eco-sufficiency and the circular economy by choosing appropriate building materials, thus supporting the responsible use of the Earth's finite resources.

Economic growth has come hand in hand with continuous damage to the environment, and profit has been made at the expense of others. The twelfth Sustainable Development Goal therefore calls for a shift towards genuinely sustainable economic activity. The construction industry is one of the largest 'resource consumers' and therefore bears a significant responsibility for overloading our ecosystems. An urgent rethink is required – we should think of buildings as valuable repositories of raw materials. We need companies that not only comply with social and environmental standards at every stage of the value and supply chain, but also make recycling building materials standard practice. This circular economy principle entails taking buildings apart in such a way that their components can be separated by material type and building materials can be reused. Architects and planners should therefore challenge their suppliers – and suppliers should implement their demands.

**SDG targets relevant to building**  
SDG 12.2 Use of natural resources: sustainable management and efficient use of natural resources, SDG 12.4 Environmentally sound management of chemicals, SDG 12.5 Reduction and prevention of waste, SDG 12.6 Sustainability reporting, SDG 12.8 Awareness for sustainable development

At least **1/3** of global resources are consumed by the built environment.<sup>14</sup> The built environment counts for **25-30%** of waste in Europe.<sup>15</sup> Earth Overshoot Day 2020 was **22 August**.\*

\* The day of the year on which we have consumed more ecological resources than can be regenerated.



**Building sustainably is based on the goal of achieving climate-neutral buildings and urban districts, which should also be resilient and resistant, and thus actively contribute to climate protection.**

SDG 13 includes concrete actions and strategies to mitigate climate change. Construction plays a key role in climate protection because the carbon footprints of buildings are far too high. Massive reductions must be made. It is already possible right now to construct climate-neutral buildings, which means that they produce more renewable energy than they consume. This is highlighted by the DGNB 'Climate Positive' award (more: page 19). Making buildings climate-neutral only works if planners and architects adopt a holistic approach to new buildings and write individual roadmaps for existing buildings. In addition to generating energy, there is plenty of potential to reduce the carbon footprint of buildings by minimising energy consumption, using efficient technical systems and planning and executing climate-friendly construction methods. Climate protection also means taking climate change impacts seriously and planning buildings and urban districts with one eye on the horizon to ensure they are resilient and adaptable.

**SDG targets relevant to building**

- SDG 13.1 Resilience and adaptive capacity,
- SDG 13.2 Climate change measures in national policies, strategies and planning,
- SDG 13.3 Awareness for climate protection and climate change mitigation



**Building sustainably leverages the strengths of networks and international partnerships in order to develop shared solutions that result in actual implementation.**

The 2030 Agenda highlights the international community's assertion that in a globalised, tightly interconnected world with a population of 7.6 billion people, joint action is needed to shape sustainable development. The 17th goal of the agenda therefore focuses exclusively on strengthening global partnerships and promoting measures aimed at achieving goals. What will be decisive is our ability to pool energy in such a way that we really do implement measures and people stop trying to reinvent the wheel. The more the different construction stakeholders pull together, share know-how and work out solutions together, the more effectively and quickly we can turn the wheel.



Over **70** organisations worldwide have joined the global network for sustainable building.

**SDG targets relevant to building**

- SDG 17.16 Global partnerships and knowledge sharing to support sustainable development



**The World Green Building Council** is an international umbrella organisation with more than 70 members. Its mission is to act as a catalyst in transforming the building and property industry and make sustainable buildings available to everyone, everywhere. Its central task is to create a common understanding in order to establish uniform definitions and principles for the urgent challenges faced in sustainable construction.  
[www.worldgbc.org](http://www.worldgbc.org)



**The Climate Positive Europe Alliance** advocates for a carbon-neutral Europe by 2050. By joining forces, it aims to promote this goal in the construction and property industry. It functions as a multidisciplinary think tank, offering its built environment expertise to the European Commission and key stakeholders in European politics. Its focus lies in areas such as sustainable finance, climate protection, the circular economy and biodiversity.  
[www.cpea.eu](http://www.cpea.eu)



**The Phase Sustainability initiative** aims to enshrine concrete sustainability goals in planning and construction practice. This initiative is targeted at architects and experts committed to working with building owners early in the planning process in order to tackle key issues affecting sustainability such as the environment, climate and many more. Rather than simply signing a climate manifesto, stakeholders demonstrate their willingness and intent to actually take action.  
[www.phase-sustainability.today](http://www.phase-sustainability.today)



**The 'Klimapositive Städte und Gemeinden' initiative** is aimed at municipal authorities that have recognised their importance as a role model when it comes to climate protection and thus want to act now. By pulling together, they pool resources and translate energy into concrete measures. This is the only way to ensure that climate protection and sustainability reach a broader audience beyond individual flagship projects. [www.klimapositivestadt.de](http://www.klimapositivestadt.de)

**Building Sense Now**

**Building Sense Now** is a broad-based worldwide network of like-minded architects, engineers and designers. All are committed to ensuring that building is based on common sense – for the sake of the climate, the environment and human culture. This is taking a deliberate stance against the trend towards erecting the same kinds of buildings everywhere for technical reasons. The network's initiators and supporters come from Europe, India and the rest of the world.  
[www.buildingsensenow.com](http://www.buildingsensenow.com)

# Implementing the SDGs with the DGNB System



The previous chapter has shown that potentially anyone involved in a building can have a strong influence on the Sustainable Development Goals. But what is the best way to implement the many targets of the SDGs within building projects? And how do you capture this in reports?

In essence, you have two options. One is to do all the background work yourself. This often involves investing a great deal of time and effort matching each SDG target to your building or construction project. The other option is to leverage work carried out by others – the countless hours spent by DGNB experts racking their brains and working out the most efficient and effective way to build sustainably and thus respect SDG targets. By certifying your buildings or urban districts, not only will you have reassurance that you've taken all key SDGs into account, you can provide others with transparent, certified evidence of the sustainability of your project and confirm that you are contributing tangibly to the SDGs.

Interested in finding out more? Then just read on. We would like to briefly explain the key thrusts of the DGNB System and show how it captures the SDGs. We then draw on examples covering three aspects of construction to show how you can make a tangible contribution to the SDGs. These are: erecting new buildings, using and operating buildings, and developing districts.

## The DGNB System

The DGNB certification system is a planning and optimisation tool that enables all stakeholders involved in building to implement projects based on holistic sustainability. Sustainable building becomes implementable in practical terms, measurable and comparable.

In keeping with the concept of sustainable development, the DGNB System is based on three pillars of sustainability, placing equal emphasis on economic, ecological and sociocultural factors. It also covers technical aspects, processes and site quality.

In addition to adopting a holistic approach, it considers two further essential criteria, which form the backbone of the system and distinguish it from all other certification systems on the market. Instead of assessing individual measures, it places emphasis on systematically considering the entire life cycle of a building project and evaluating overall performance.

**»The DGNB System translates the SDGs into building practice and plugs the gap between overarching global goals and real-world implementation.«**

(Dr. Christine Lemaitre, DGNB CEO)

When the DGNB refers to its certification system, it means a whole range of certificates (see diagram) each focusing on different factors. These certificates make clear distinctions in terms of building format (urban districts, buildings, interiors), the kind of building project (new construction, renovations, operation optimisations, deconstruction) and how buildings are used (as apartments, offices, hotels, logistics). The DGNB System also considers different phases within the lifetime of a building and corresponding use.

Certain criteria are used to assess sustainability standards, each tailored to the specific type of building involved. This is because all buildings, interiors or urban districts are subject to different requirements and conditions. Issues also differ if you are dealing with new buildings, renovations, buildings undergoing optimisations in terms of operational parameters, or if buildings are being deconstructed. For example, the criteria catalogue for new buildings contains up to 37 criteria, whereas there are up to 31 for urban district developments and nine for operational optimisations.

## The SDGs and targets within the DGNB System

The assessment criteria used for the DGNB System have strong overlaps with the SDG targets, primarily due to the holistic approach adopted by DGNB certification (SDG targets relevant to building: page 10 onwards). To ensure the added benefits this offers are clear and transparent, the DGNB has carried out a like-for-like comparison between all system criteria and the SDG targets. The illustration below shows this comparison using the DGNB life cycle assessment (LCA) as an example. This LCA judges the carbon footprint and all other environmental impacts – from the moment raw materials needed for a building are produced, to use of the building and even deconstruction after use. Our comparison shows at a glance that the LCA contributes to seven SDGs and 12 SDG targets. This analysis also makes distinctions between significant, moderate and small contributions. For example, minimising harmful emissions contributes to SDG target 3.9, which calls for the avoidance of all pollution in order to promote healthy lives. Incidentally, the DGNB System also takes the goals of the German sustainability strategy into account.

Contribution to overriding sustainability goals			
CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS (SDGs) OF THE UNITED NATIONS (UN)			
Significant	3.9	Effects of chemicals, air, water and soil contamination	7.1.a/b 7.2.a
	7.2	Proportion of renewable energy	12.1.b
	7.3	Energy efficiency	13.1.a
	8.4	Global resource efficiency and decoupling of economic development	
	12.2	Use of natural resources	
Moderate	13.2	Climate protection measures in guidelines, strategies and planning	
	6.3	Improvement of water quality	3.2.a
	14.1	Avoiding marine pollution	14.1.aa/ab
Low	14.3	Avoiding acidification of the seas	
	6.4	Efficient use and sustainable extraction of water	6.1.a
	12.4	Environmentally friendly handling of chemicals and waste	7.2.b
	8.1	Resource conservation	
	15.1	Conservation of land and freshwater ecosystems	15.2

To find out more about these goals, please also refer to our free criteria catalogue, available as a PDF: [www.dgnb-system.de/services](http://www.dgnb-system.de/services)

**Example: Criterion ENV1.1 – Building life cycle assessment under the DGNB System for New Construction of Buildings<sup>17</sup>**



## The DGNB System for New Construction of Buildings

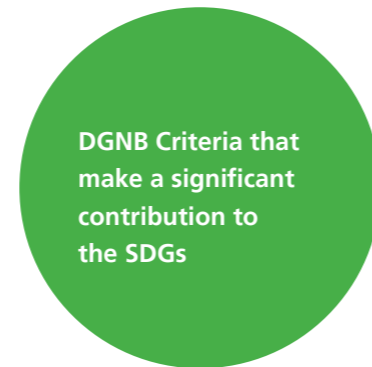
New buildings have an extremely strong influence on the 2030 Agenda. As the illustration on the right shows, the criteria overlap with no less than 14 SDGs. Whether you're a building owner, architect or planner, this highlights why you really should think about the issues raised by the SDGs at the very first stage of a project.

Human health and well-being as described by SDG 3 are central to all holistic planning. In building interiors, the primary issues are indoor air quality and noise protection. Even during the planning stage, you should ensure that low-hazard, low-pollutant building materials are used. Also think about particulates, protecting non-smokers and suitable ventilation. In addition, it's important to measure concentrations of volatile organic compounds after completion. Introduce measures to actively promote well-being relating to acoustic and thermal comfort, and allow for the possibility to adapt rooms if necessary.

When selecting building materials, you can also promote more responsible use of finite resources at every stage of the value and supply chain. Keep construction as simple as possible. Only use materials that will have the lowest possible environmental impact over the entire life cycle of the building and ensure they can be reused when it is deconstructed. Give priority to renewable materials and secondary raw materials, and also pay attention to unmixed material recovery in keeping with circular economy principles. This will also help you reduce emissions!

Every building can and must make an active contribution to climate protection. It is already possible to construct buildings to remain climate-neutral during use or operation (see definition page 9). This is why you should consider appropriate measures as early as the planning stage, identify ways to reduce the energy requirements of a building and look into producing your own renewable energy on site.

\*Actions for operating or constructing a building to be carbon-neutral can be found in the DGNB framework for carbon-neutral buildings and sites [www.dgnb.de/climate-action-framework](http://www.dgnb.de/climate-action-framework) <sup>18</sup>



The table shows the contribution made to the SDGs by each criterion under the DGNB System for New Construction of Buildings.

You should also aim to produce the lowest possible volumes of CO<sub>2</sub> during construction (see paragraph on choosing building materials).\*

Concerning urban districts and the SDGs, here the focus lies in how buildings and their occupants interact with their immediate surroundings. For example, it is beneficial to the occupants or users of a building if there are nearby transport networks (mobility infrastructure) and facilities that answer everyday needs. Barrier-free access for all occupants and users is an absolute must.

In terms of measures introduced to the building itself, you should consider environmental risks posed by its location and any potential climate-related issues that may arise in the future. The quality and future condition of outside walls and the building envelope will play a key role in this respect. Further down the line, this factor will also determine energy efficiency. Incidentally, buildings made 'green' (by growing plants around or on the outside of buildings) have a positive impact on biodiversity, the climate and – ultimately – residents and neighbours.

### DGNB Criteria System New Construction of Buildings

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	
<b>Entire system*</b>		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>Environmental quality</b>																		
ENV 1.1	Building life cycle assessment			●		●		●		●			●	●		●		●
ENV 1.2	Local environmental impact			●									●	●				
ENV 1.3	Sustainable resource extraction									●			●					●
ENV 2.2	Portable water demand and waste water volume							●										
ENV 2.3	Land use											●						●
ENV 2.4	Biodiversity at the site											●		●				●
<b>Economic quality</b>																		
ECO 1.1	Life cycle cost	●						●					●					
ECO 2.1	Flexibility and adaptability									●			●					
ECO 2.2	Commercial viability									●			●					
<b>Sociocultural and functional quality</b>																		
SOC 1.1	Thermal comfort			●														
SOC 1.2	Indoor air quality			●									●					
SOC 1.3	Acoustic comfort			●														
SOC 1.4	Visual comfort							●										
SOC 1.5	User control																	
SOC 1.6	Quality of indoor and outdoor spaces																	
SOC 1.7	Safety and security																	
SOC 2.1	Design for all								●		●	●						
<b>Technical quality</b>																		
TEC 1.1	Fire safety			●														●
TEC 1.2	Sound insulation			●														
TEC 1.3	Quality of the building envelope							●		●				●				
TEC 1.4	Use and integration of building technology							●		●				●				
TEC 1.5	Ease of cleaning building components																	
TEC 1.6	Ease of recovery and recycling									●				●				
TEC 1.7	Immissions control			●														●
TEC 3.1	Mobility infrastructure			●						●		●		●			●	
<b>Process quality</b>																		
PRO 1.1	Comprehensive project brief																	
PRO 1.4	Sustainability aspects in tender phase																	
PRO 1.5	Documentation for sustainable management																	
PRO 1.6	Procedure for urban and design planning																	
PRO 2.1	Construction site / construction process			●		●								●				
PRO 2.2	Quality assurance of the construction																	
PRO 2.3	Systematic commissioning									●				●				
PRO 2.4	User communication													●				
PRO 2.5	FM-compliant planning									●				●				
<b>Site quality</b>																		
SITE 1.1	Local environment			●										●				●
SITE 1.2	Influence on the district									●								
SITE 1.3	Transport access			●										●		●		●
SITE 1.4	Access to amenities													●				

● significant contribution ● moderate contribution ● low contribution

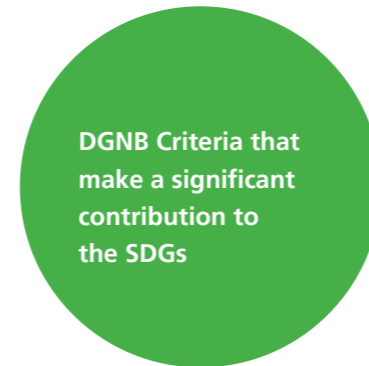
\*Contribution made by the DGNB criteria and the DGNB System in an overarching sense.

## The DGNB System for Buildings in Use

Do you own a building or a portfolio of buildings, or do you operate or use a building? It doesn't matter if buildings have just been completed or have been in use for a longer period of time, you can rest assured: how they were actually constructed is not the only string you have to play on when it comes to meeting the United Nations sustainability goals. You can also optimise how you operate or use buildings.

Before you think about which measures to introduce, one thing will be crucial when it comes to optimising building use: ensure you bring other stakeholders on board so you can work together and share information transparently – not only in terms of the building itself, but also how it is used and key indicators such as energy and resource consumption. Drawing on this foundation of information is certain to unveil potential improvements, including measures that can be introduced without costly conversions. Basically, as building owners or operators you're the ones who should draft strategies and introduce measures – and don't forget to ask the users of a building how they actually feel about it. Ultimately the performance of a building depends on the behaviour of its users.

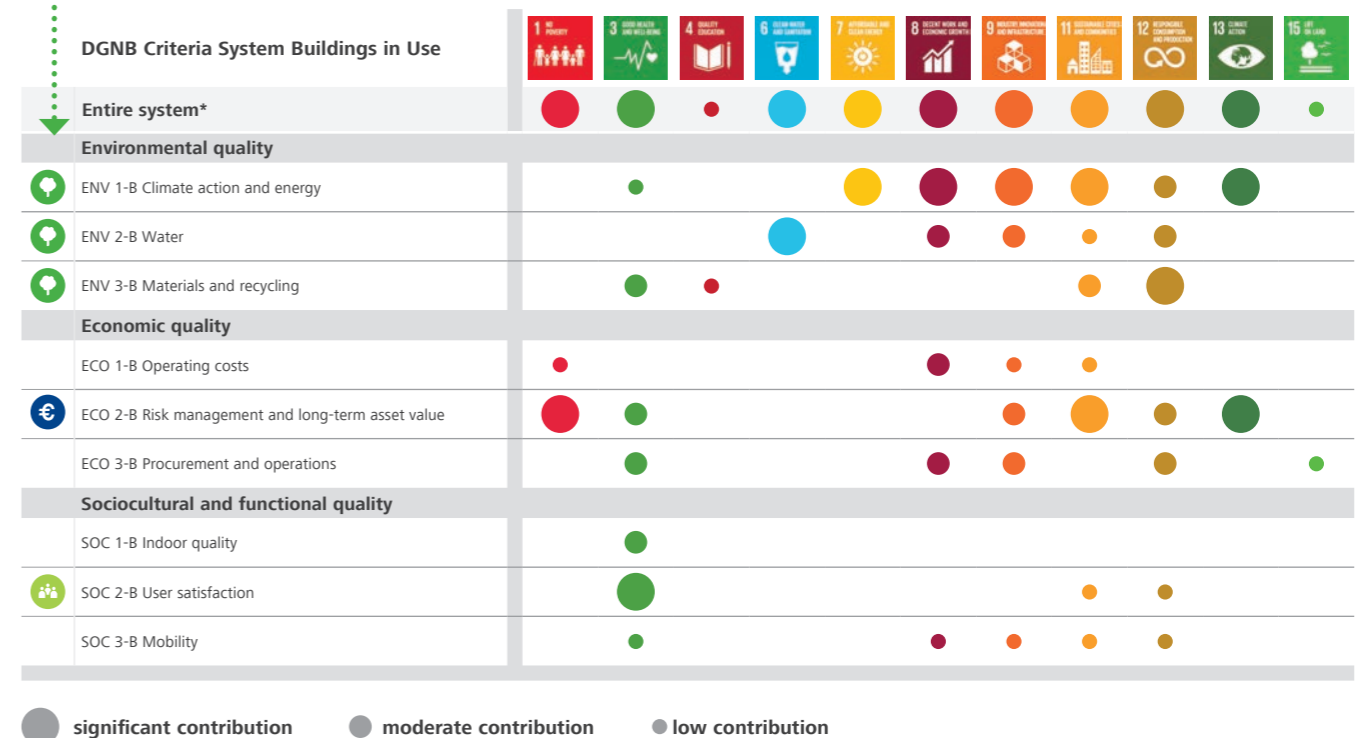
Probably the most important way that you can contribute to the goals of the 2030 Agenda is to make your building climate-neutral (see the [Climate Positive award](#), page 19). It is time to start taking action now, especially given that this will affect all buildings by 2050! Be as ambitious as possible in setting a target year for carbon neutrality, and draft a climate protection roadmap that is tailored to your building and requirements. The underlying aim should be to reduce energy use and ensure you have reliable access to renewable energy produced on site. If you have already optimised a new building to be climate-neutral in use, the next important step will be to evaluate actual consumption and if necessary, introduce further measures.



The table shows the contribution made to the SDGs by each criterion under the DGNB System for Buildings in Use.

In addition, by consciously thinking about sensible ways to operate existing buildings, you can still make valuable contributions to the SDGs by minimising the use of natural resources and water. To do this, you can introduce systems for managing recyclable materials and drinking water to keep recirculating recyclables and use water judiciously.

Companies in particular can make optimisations – in terms of how buildings are operated – as an integral part of their long-term business strategy. An effective strategy secures property value, ensures future measures can be planned in good time and adds certainty when it comes to estimating costs. The contribution this makes to the SDGs can then be integrated into annual sustainability reporting. Naturally, owners of portfolios encompassing more than one property can make particularly valuable contributions in this respect. In urban areas, these measures provide an important basis for municipal authorities to introduce and implement sustainability strategies.



\*Contribution made by the DGNB criteria and the DGNB System in an overarching sense.



### THE DGNB CLIMATE POSITIVE AWARD

If your building is used for a period of one year and remains climate-neutral, you will receive a Climate Positive award from the DGNB. This is because you are confirming that we are already in a position to build the way we will have to anyway by 2050 (at the latest) – and you're contributing positively to climate protection. Your building is considered climate-neutral

if the CO<sub>2</sub> emissions it produces in use are still lower than the volume of emissions you avoid by producing greenhouse emission-free energy yourself and exporting it to other buildings. The more buildings are capable of achieving this, the faster fossil fuels can be replaced for generating electricity. We're not waiting for more wind energy and hydro-power from other sources, we're making the energy transition happen in our buildings now! Incidentally, the DGNB has already bestowed the Climate Positive award on more than 15 projects. Maybe yours is next?

More information on climate-positive buildings can be found here: [www.dgnb-system.de/climate-positive](http://www.dgnb-system.de/climate-positive)

## The DGNB System for Urban Districts

Governments are calling on all decision-makers in local administrations to develop an individual plan for achieving the 2030 Agenda. After all, they have a key role to play, especially in terms of urban district planning, where there are a large number of measures that, introduced together, have a direct impact on 15 SDGs. All stakeholders involved in developing urban districts should start thinking about the SDGs during the planning stage so they can develop strategies and measures together.

Put the well-being of residents first. Make it possible for everyone to inhabit a district, across all generations and social classes. But whether young or old, rich or poor – residents only fare as well as the environment around them. It's therefore of fundamental importance to create green spaces, promote biodiversity, prevent urban overheating and minimise all kinds of emissions and contributions to ambient pollution – not just for the sake of nature conservation but also to promote human health. So look further into factors affecting the urban climate during the planning stage – such as air quality, solar irradiation, and wind conditions – and adapt developments accordingly. Provide plenty of open spaces with grass and parks for people to spend time together, engage in sport, play games or just enjoy themselves. At the same time, this makes it easier for rainwater to drain away and promotes the natural cooling of urban areas.

Make it easy for residents to travel short distances to work, enjoy leisure activities or run errands: provide a mixture of different buildings, social infrastructures and appropriate transport options. Ideally, it will already have been decided to establish a district in a central urban location. This creates the best conditions for car-free zones. Give priority to as many walking and cycling routes as possible, expand local public transport systems and thus actively avoid noise, air pollution and CO<sub>2</sub> emissions.

In addition to focusing on the quality of indoor and outdoor spaces, a key priority with sustainable urban districts is active climate protection. A number of cities are already developing strategies to make existing buildings climate-neutral by the target year of 2050. Your district planning should therefore

look closely at low CO<sub>2</sub> emissions in building products, the construction process and deconstruction, as well as the local transport system and aspects such as climate-neutral logistics. You should also look into smart and future-proof energy sources. Give priority to local district heating from renewable sources. In addition to planning districts to be climate-neutral, you should also make them resilient and adaptable to different conditions in preparation for the potential impact of local climate change.

Another important lever when it comes to the SDGs lies in using resources responsibly and considering their impact on the environment. Base measures on circular economy principles. For example, introduce a system for managing recyclable materials. As well as thinking about raw materials, emphasis should be placed on two other natural resources: water and land. Consider appropriate building density levels and protect natural areas from land cover. Minimise the use of tap water and provide incentives for residents to use more rainwater.

There are also ways to influence the SDGs during construction and after completion of urban districts. Minimise noise pollution and cut emissions and waste on building sites. And even during planning, allow residents to actively participate in preparations and ensure they are in a position to safeguard standards when the district is in use.

DGNB Criteria that make a significant contribution to the SDGs

The table shows the contribution made to the SDGs by each criterion under the DGNB System for Urban Districts.

DGNB Criteria System Urban Districts

	1 PEOPLE	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS	
<b>Entire DGNB System*</b>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
<b>Environmental quality</b>																
ENV 1.1		●		●	●	●				●		●	●			
ENV 1.2		●								●						
ENV 1.5	●	●							●	●		●				
ENV 2.2		●		●		●			●	●						
ENV 2.3						●			●	●			●			
ENV 2.4		●		●					●		●		●			
<b>Economic quality</b>																
ECO 1.1					●				●	●						
ECO 2.1	●						●		●	●		●				
ECO 2.3						●			●	●						
ECO 2.4						●										
ECO 2.5	●					●			●	●		●				
<b>Sociocultural and functional quality</b>																
SOC 1.1	●	●							●	●		●				
SOC 1.6									●	●						
SOC 1.8		●														
SOC 1.9		●							●	●						
SOC 2.1						●			●	●						
SOC 3.1									●	●						
SOC 3.2	●								●	●						
SOC 3.3		●							●	●						
<b>Technical quality</b>																
TEC 2.1					●	●	●	●								
TEC 2.2		●				●			●	●						
TEC 2.4					●											
TEC 3.1		●						●	●	●		●				
TEC 3.2		●						●	●	●		●				
<b>Prozessqualität</b>																
PRO 1.2									●	●						
PRO 1.7									●	●	●			●		
PRO 1.8									●	●				●		
PRO 1.9								●	●	●				●		
PRO 1.10									●	●						
PRO 2.1		●		●					●	●						
PRO 3.5					●					●						

● significant contribution   ● moderate contribution   ● low contribution

\*Contribution made by the DGNB criteria and the DGNB System in an overarching sense.

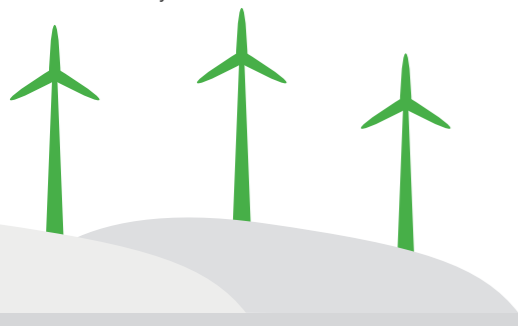
# Start with your own building today!

Whether you're a building owner, architect, or planner – or even the user of a building – we know that these global challenges are daunting and the sustainable development goals involve a huge effort. But only talking about things, and not actually doing anything, is of no use to anyone. So let's take action – especially in the area of construction.

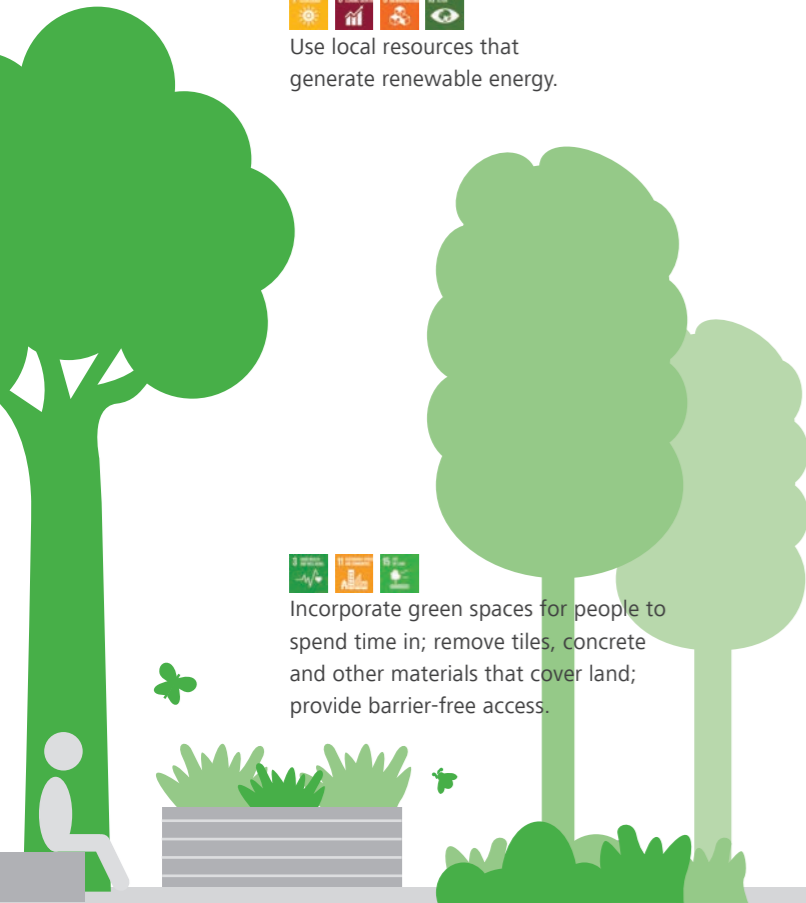
Why this is important and how we can make a difference by taking action has been described on the previous pages. Even if you're not planning to gain certification for the time being, it still pays to look into the DGNB System now. Make use of the treasure trove

of know-how offered by the system – so you don't do all the work again yourself. Our certification system was developed by a variety of leading experts. It has proven its value time and again in practice, offering a holistic approach to building assessment.

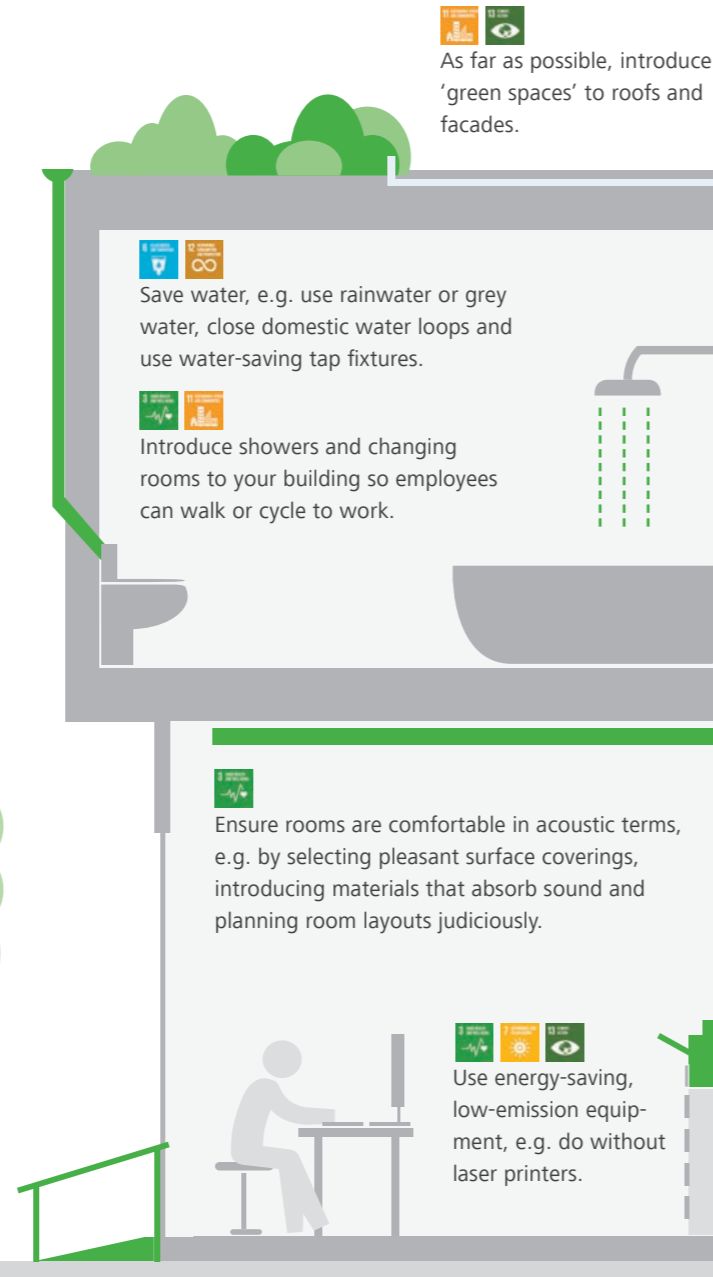
To help you get started, we have pulled together some extremely practical recommendations based on the criteria laid down by the DGNB. You can start applying these criteria to your buildings today – build for a better world.



Use local resources that generate renewable energy.



Incorporate green spaces for people to spend time in; remove tiles, concrete and other materials that cover land; provide barrier-free access.



As far as possible, introduce 'green spaces' to roofs and facades.

Save water, e.g. use rainwater or grey water, close domestic water loops and use water-saving tap fixtures.

Introduce showers and changing rooms to your building so employees can walk or cycle to work.

Ensure rooms are comfortable in acoustic terms, e.g. by selecting pleasant surface coverings, introducing materials that absorb sound and planning room layouts judiciously.

Use energy-saving, low-emission equipment, e.g. do without laser printers.

Produce renewable energy, e.g. by using solar panels; export energy to other properties.

Use energy storage systems to allow you to share power with the electricity grid.

Look for environmentally friendly furniture and products – read the product labels.

Reduce energy consumption, e.g. by using efficient heating and IT systems – or simply turn down thermostats.

Always give priority to natural rather than artificial light.

Ensure rooms are adequately ventilated with fresh air from the outside.

Introduce sharing schemes to your building, such as co-working spaces in offices or mixed-use areas for 24-7 operations.

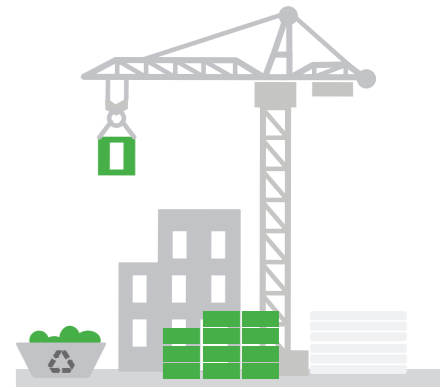
Offer places to retreat in office areas and plenty of space to move around.

Use passive cooling and heating systems, e.g. based on geothermal energy sources.

Place emphasis on building materials that are renewable or recycled and can be separated by type.

Use low-emission, pollution-free building materials and monitor airborne pollutant levels after fitting.

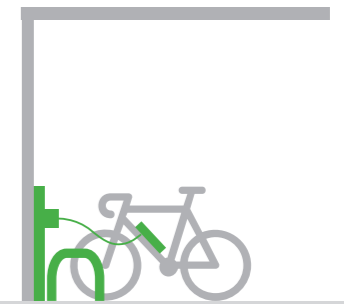
Use building materials with a low carbon footprint.



Promote the use of public transport.

Give priority to bright or green facades that prevent overheating.

Provide incentives to walk or cycle to work. For example, offer e-bike charging stations and storage areas for bicycles, scooters and prams.



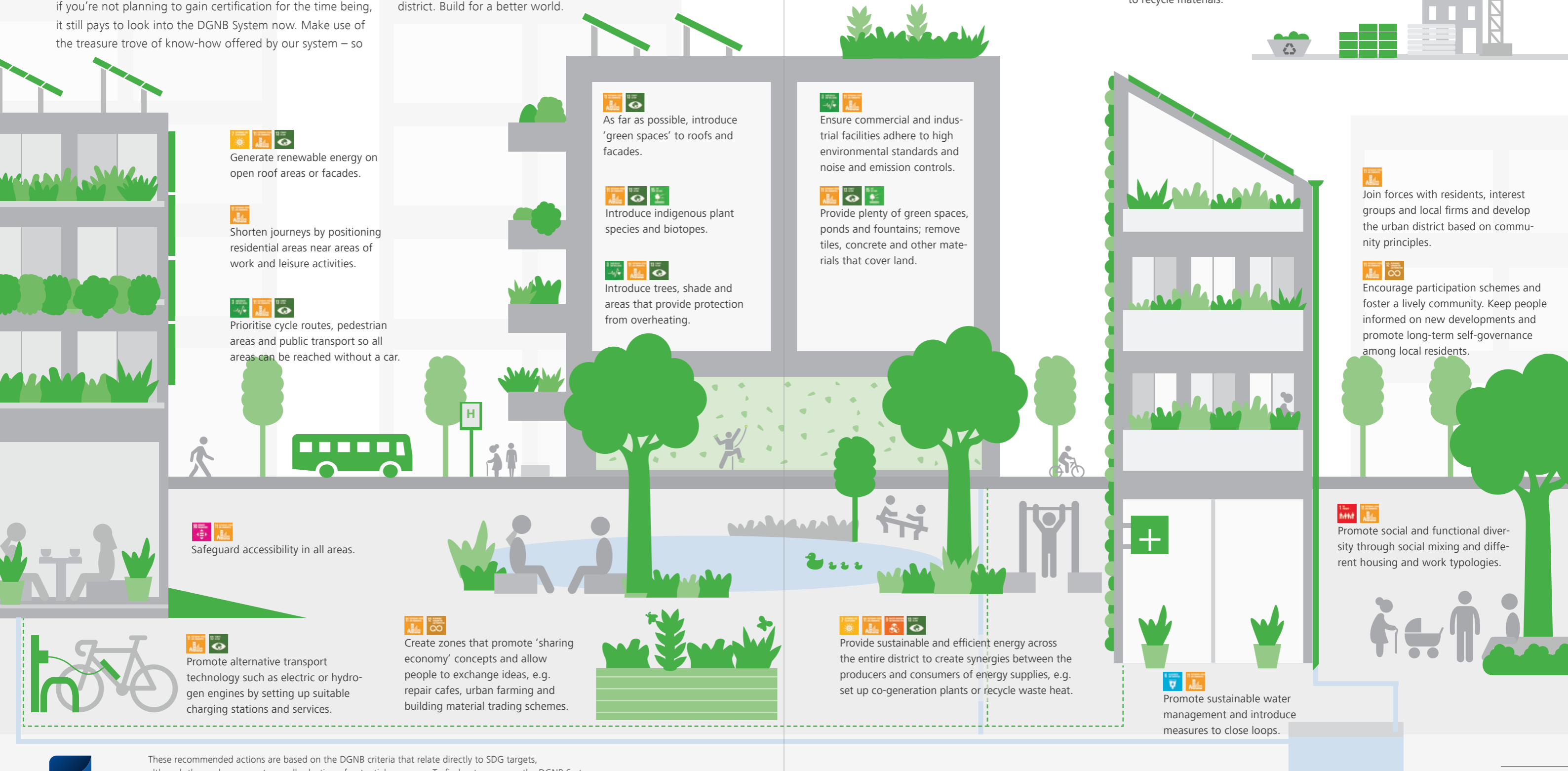
# Start now with your urban district!

If you're a decision-maker for a municipal authority, we know that these global challenges are daunting and the Sustainable Development Goals involve a huge effort. But only talking about things, and not actually doing anything, is of no use to anyone. So let's take action – especially in the area of construction.

Why this is important and how we can make a difference by taking action has been described on the previous pages. Even if you're not planning to gain certification for the time being, it still pays to look into the DGNB System now. Make use of the treasure trove of know-how offered by our system – so

you don't do all the work again yourself. Our certification system was developed by a variety of leading experts. It has proven its value time and again in practice, offering a holistic approach to building assessment.

To help you get started, we have pulled together some extremely practical recommendations based on the criteria laid down by the DGNB. You can start today with an urban district you're working on right now or an existing urban district. Build for a better world.



Generate renewable energy on open roof areas or facades.

Shorten journeys by positioning residential areas near areas of work and leisure activities.

Prioritise cycle routes, pedestrian areas and public transport so all areas can be reached without a car.

Safeguard accessibility in all areas.

Promote alternative transport technology such as electric or hydrogen engines by setting up suitable charging stations and services.

Create zones that promote 'sharing economy' concepts and allow people to exchange ideas, e.g. repair cafes, urban farming and building material trading schemes.

As far as possible, introduce 'green spaces' to roofs and facades.

Introduce indigenous plant species and biotopes.

Introduce trees, shade and areas that provide protection from overheating.

Ensure commercial and industrial facilities adhere to high environmental standards and noise and emission controls.

Provide plenty of green spaces, ponds and fountains; remove tiles, concrete and other materials that cover land.

Provide sustainable and efficient energy across the entire district to create synergies between the producers and consumers of energy supplies, e.g. set up co-generation plants or recycle waste heat.

Use local materials. Ensure there are low emissions to the air, water and soil, as well as low pollution levels.

Ensure as many materials as possible are reused on building sites. For example, set up a register of harmful substances and seek expert advice.

Promote the avoidance of toxic waste and the use of all forms of recyclable materials. To do this, introduce processes that make it possible to recycle materials.

Join forces with residents, interest groups and local firms and develop the urban district based on community principles.

Encourage participation schemes and foster a lively community. Keep people informed on new developments and promote long-term self-governance among local residents.

Promote social and functional diversity through social mixing and different housing and work typologies.

Promote sustainable water management and introduce measures to close loops.

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