City of Amsterdam
Voluntary Local
Review 2022
Memoriam
Gerard den Boer (1965 - 2022)

This VLR is dedicated to the memory of Gerard den Boer, who initiated the process of constructing this review.

With the passing of Gerard, we lose a special colleague with an unprecedented drive and zest for life. We will greatly miss his energy, vision, humour and sharp discussions.
Uncertainty is all around us. The human mind often attends to short-term or urgent matters to deal with the uncertainties, such as the pandemic, political upheavals, economic instability or conflict. We find it harder to hold our attention to important challenges that are further into the future; our collective attention is key in order to deal with long-term uncertainties and to prevent inequality in society from increasing.

A current uncertainty connecting the short- and long-term is the rising energy prices. In 2019, around 50,000 residents of Amsterdam lived in energy poverty. Energy poverty occurs when a household has an energy bill that is too high for their income. The rise in gas prices makes the situation even more precarious. We try to tackle this with the ‘Amsterdam Agenda for Poverty and Debt’. Poverty alleviation and debt counselling are used to increase opportunities for all residents. Preventing poverty and reducing poverty leads to prospects for work, training and social participation. One of the aspects which the agenda focusses on is energy poverty. This ‘good practice’ works towards three SDGs: SDG 1 ‘No poverty’, SDG 7 ‘Affordable and clean energy’, and SDG 13 ‘Climate action’.

Cities play a vital role in localising the Sustainable Development Goals (SDGs). A total of 68% of the world’s population is projected to live in urban areas by 2050, according to the UN. All the complexities collide in cities, which is a great challenge but also an immense opportunity. For example, we love to bike, with the result that there are more bicycles than people in Amsterdam. Using a bicycle instead of other means of transport has several benefits. People are healthier due to the daily physical exercise that comes with using the bicycle. Less CO₂ is emitted in the city than other cities dominated by motorised vehicles. Bicycles take up less public space than cars, therefore leaving more room for green in the city. Our bicycles have become a metaphor for how different aspects concerning mobility in our city can complement each other through the act of cycling. Our bicycles can also be seen as a metaphor for the SDGs, as it allows us to believe that complex societal issues can be solved in a concise way. Just like the impact of bicycles, all SDGs have an effect on each other.
The SDGs are a blueprint that reminds the world of the big transitions that humanity is facing. Amsterdam has been proactively building ways to think and work through these big transitions. We are proud of all the projects, policies, and initiatives mentioned in this report, but we are also aware of the many challenges we still face ahead. We hope residents, businesses and other actors keep on working together for a better future for our city, and for everybody and everything living on the planet. Most of all, we hope that the report will convince global policy makers of the need to engage all levels of government in drafting new global goals. The local level is indispensable in realising whatever goals are set. Amsterdam is willing and capable to engage.

Femke Halsema
Mayor of Amsterdam
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The SDGs are seen as a blueprint for a sustainable future. To achieve these goals, their effects must be assessed on a local scale. As mentioned in the Foreword, a striking 68% of the world population is projected to live in urban areas by 2050, and for Europe the percentage is even higher (83.7%). Apart from population growth, cities are estimated to generate 80% of all global economic growth. Amsterdam alone will develop between 5000 and 7500 homes in the next four years. The well-being of humans, their economic activity and the environment is evidently driven by the cities.

Local and regional governments are increasingly engaged in sub-national assessments of SDG implementation through the Voluntary Local Review (VLR). Partner cities like Stockholm, Gent, Helsinki and Barcelona preceded us. Now also Amsterdam, being an international city, wants to take responsibility and contribute to the localisation of the SDGs. This VLR is the first attempt to actively localise the SDGs that are set for 2030, bringing them closer to the people and the local context in which they serve. The VLRs can provide policy coherence in relation to the Voluntary National Reviews of countries by mapping out what is being done in the city, using the SDGs as a common language. The VLR provides an overview of the local implementation of the goals, highlights where there is room for improvement, and also brings good practices to the fore. Localising the SDGs ultimately allows us to join our visions in a way that meets the needs of all people within a living planet’s means. To put this into perspective, we will first discuss the city visions and policies.

**From visions and policies to an integral compass**

After every municipal election, a coalition agreement is adopted in which the mayor and vice-mayors describe their goals for the city for the next four years. Ideally, this agreement includes a strategy with goals that go beyond their term of office, as well as capturing a vision for a sustainable future for the city.

On the basis of the coalition agreement, policy programmes and implementation agendas are developed with concrete measures to achieve the goals. Subsequently, monitoring progress in implementation of the goals is rather complex.
Economic growth is in some instances necessary, but also keep the environmental and social boundaries in mind. If we unroll the Doughnut, we can create a space for exploring the possible futures we want, through four lenses. In Figure 2, you can see how the Doughnut turns into a compass of the blueprint provided by the SDGs. Getting to the ‘sweet spot’ of the Doughnut requires action on many different levels. These levels do not operate in isolation from each other. The social foundation and the ecological ceiling apply not only to what happens in Amsterdam, but also to the effects the city has elsewhere. This produces four ‘lenses’ through which we can look at the city: local-social, local-ecological, global-ecological, and global-social, as displayed in Figure 3. Each lens draws on the available targets for defining the Doughnut’s social foundation and ecological

Doughnut Economics: a compass to localise the SDGs

When bridging the global goals with the local visions, policies and goals, monitoring is key. There is a lot of monitoring undertaken, and monitoring instruments developed, by the municipality and its research partners. An inventory in 2021 yielded approximately 40 monitors that (aim to) map the sustainable future of the city. Some of these monitors focus on a particular subject, while others look at wider trends, and almost always the monitors entail multiple indicators. Therefore, the main challenge for the city is not monitoring but linking the monitoring to one cohesive and collective story of a sustainable future for Amsterdam.

The City Doughnut has allowed the city to formulate its cohesive and collective story. Raworth’s model can be summarised in one image (the Doughnut) and seven economic principles. Looking at Figure 1: the inner ring stands for the social foundation, the outer for the ecological limits of the planet. The inner ring comprises 12 social foundations, derived from the SDGs, needed for a society to thrive. The outer ring represents the nine aspects to the ecological ceiling of our planet—or as Rockström and colleagues in 2009 coined, our planetary boundaries.

The space between the inner and outer circle is what Raworth calls ‘the safe and just space for humanity’ the ‘sweet spot’: an economy that provides for the basic needs of everyone, without damaging the earth beyond its ecological limits. Furthermore, the Doughnut Economy shows the importance of holding our attention to all the five Ps: People, Planet, Prosperity, Peace and Partnership.

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4 Amsterdam klimaatneutraal.
5 Brede welvaart Metropoolregio Amsterdam.
6 Rockström et al. (2009).

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The municipality has adopted various visions for a sustainable future for Amsterdam. There are thematic strategies, such as on mobility, circular economy or greening, as well as strategies that integrate different themes, such as the Environmental Vision 2050 (Omgevingsvisie 2050) or the Climate Neutral Roadmap. In addition, policy documents have been developed in which prosperity and well-being of the Amsterdam residents are taken into account, i.e., the City Doughnut based on Kate Raworth’s Doughnut Economics and the Broad Prosperity Index (Brede Welvaart) based on national policy. Because of their global as well as local focus, the City Doughnut and the Broad Prosperity come closest to the SDGs, like the SDGs they form bridges between challenges that are global, national, regional and local.

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Fig. 1 Doughnut economic model

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Fig. 3 The four central questions asked within the lenses of the City Portrait

How can our city be a home to thriving people in a thriving place, while respecting the wellbeing of all people and the health of the whole planet?

1. What would it mean for the people of Amsterdam to thrive?
2. What would it mean for Amsterdam to thrive within its natural habitat?
3. What would it mean for Amsterdam to respect the health of the whole planet?
4. What would it mean for Amsterdam to respect the wellbeing of people worldwide?

Fig. 2 Unrolling the doughnut and connecting it to the SDGs


Fig. 4 Design principle

<table>
<thead>
<tr>
<th>Design principle</th>
<th>Departure</th>
<th>Visual representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Change the goal of the economy</td>
<td>From GDP to meeting the needs of all people within the means of a living planet.</td>
<td><img src="image1" alt="Design principle" /></td>
</tr>
<tr>
<td>2. Look at the bigger picture</td>
<td>Economy is derived from oikos (house, home) and nomos (management). Recognise and value all parts of the economy (ecosystem services, households, the commons, the market and the state).</td>
<td><img src="image2" alt="Design principle" /></td>
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<tr>
<td>3. Stimulate human nature</td>
<td>Instead of homo economicus, persuade humans to be socially adaptable.</td>
<td><img src="image3" alt="Design principle" /></td>
</tr>
<tr>
<td>4. Understand the system</td>
<td>Instead of mechanical systems, approach a context as a complex organic system.</td>
<td><img src="image4" alt="Design principle" /></td>
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<tr>
<td>5. Design for distribution</td>
<td>Instead of using economic growth as a way to reduce poverty, develop distributive models that widen the circulation of economic value and wealth.</td>
<td><img src="image5" alt="Design principle" /></td>
</tr>
<tr>
<td>6. Create to regenerate</td>
<td>Instead of applying economic efficiency (i.e., speed) as a way to reduce waste in every form, design regenerative ways that unthink the modern concept of waste altogether.</td>
<td><img src="image6" alt="Design principle" /></td>
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<tr>
<td>7. Growth agnostic</td>
<td>Move from indefinite growth towards a form of growth that meets the needs of all people in the means of a living planet. Nothing in nature or around us grows forever.</td>
<td><img src="image7" alt="Design principle" /></td>
</tr>
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Last, Doughnut Economics is not just a monitoring tool for the municipality; it also provides seven design principles for navigating the city towards its sustainable future (Figure 4). These seven principles offer us ways to reflect on the work do while we stay attentive to both global and local dynamics.

In short, this VLR celebrates our strengths, brings to the forefront our weaknesses and helps the city map the blind spots as we navigate towards a sustainable future. By sharing our progress through this report we hope to contribute to the realisation of the SDGs worldwide. We also aim to join future discussions with different places and institutions all around the world to continue...
to improve the implementation of the SDGs. Some goals, such as SDG 2 Zero Hunger, cannot be realised within city limits. Other SDGs challenge the integrity of the economic system (SDGs 11 and 12). This emphasises the importance of SDG 17 Partnerships for the goals. To achieve all goals that are set internationally, we must collaborate intergovernmentally.

**Structure of the report**
We recognise that all SDGs are equally important. However, many of the SDG targets are not directly appropriate for the local level in general and/or the city of Amsterdam in particular. For this reason, we decided on a two-step approach. For the city of Amsterdam, the SDG workgroup defined the following interlinked goals as the main focus for this report: SDG 1, 8, 10, 11, 12 & 13. These goals are closely linked to the goals of our city council, and for that reason we will discuss these SDGs in more detail. Apart from that, we give a short overview of progress towards all the SDGs, using a limited number of indicators. In the next chapter, we briefly explain the process of constructing this Voluntary Local Review.

**About the notes**
In the online version of this document, the notes contain clickable links to the data sources. When there is no author mentioned in the notes, it refers to a document from the city of Amsterdam.
A detailed explanation of the different phases in constructing the VLR can be found in Appendix 1.

**Players**

- **1 Design**
  - Research team AUAS: research approach and methods
  - City core team: comments
  - City working group: choosing 6 SDGs for detailed reporting
  - AMS reviewers: comments
  - Designers: choosing 6 SDGs for detailed reporting

- **2 Focus**
  - Research team AUAS: choosing 6 SDGs for detailed reporting
  - City core team: comments
  - City working group: choosing 6 SDGs for detailed reporting
  - AMS reviewers: comments
  - Designers: choosing 6 SDGs for detailed reporting

- **3 Selection and collection**
  - Research team AUAS: selection of indicators and collection of data
  - City core team: providing relevant data and policy documents
  - City working group: choosing 6 SDGs for detailed reporting
  - AMS reviewers: comments
  - Designers: choosing 6 SDGs for detailed reporting

- **4 Writing**
  - Research team AUAS: preparation of draft texts
  - City core team: comments
  - City working group: comments
  - AMS reviewers: comments
  - Designers: choosing 6 SDGs for detailed reporting

- **5 Feedback**
  - Research team AUAS: comments
  - City core team: comments
  - City working group: comments
  - AMS reviewers: comments
  - Designers: choosing 6 SDGs for detailed reporting

- **6 Rewriting and visualizing**
  - Research team AUAS: finalizing texts and creating visualizations
  - City core team: finalizing texts
  - City working group: creating visualizations and graphic design
  - AMS reviewers: comments
  - Designers: choosing 6 SDGs for detailed reporting

**Inputs**

- UN indicators
- CBS indicators
- VNG indicators
- European Handbook
- Other VLRs

**Data**

- Statistics Netherlands (CBS) [opendata.cbs.nl]
- Municipalities database (WSJG) [waarstaatjegemeente.nl]
- Research & Statistics Amsterdam (O&S) [onderzoek.amsterdam.nl]
- Input & feedback departments City

**Previous phases**

- **2018**
  - A pre-analysis on the Sustainable Development Goals within the municipality by a trainee.

- **2019**
  - Consultancy firm PwC conducted a research on classifying the SDGs in the Implementation Agenda (Figure 6) of the municipality.
  - Kate Raworth gave a presentation to the steering committee International about the similarities between the SDGs and the Amsterdam City strategy: The Doughnut Economy.

- **2021**
  - Governmental assignment given by the Alderpersons of Sustainability and Economy to write the first VLR of Amsterdam.

The reasons we chose to write a VLR:

- use the framework of the SDGs to realise the city agenda
- increasingly, more governments and organisations make SDGs a prerequisite for cooperation
- use the common language of the SDGs to encourage citizens and organisations to transition towards a more social and sustainable environment
Constructing the Voluntary Local Review

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<tr>
<th>Equal opportunities</th>
<th>Open and tolerant city</th>
<th>Nice neighbourhood and liveable city</th>
<th>Freedom and security</th>
<th>Healthy and sustainable city</th>
<th>Participatory and digital</th>
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SDGs in brief
In this chapter, we provide a brief overview of all SDGs, from SDG1 to SDG17. We either report in short on a number of important indicators, or we indicate that a detailed analysis is provided in one of the next chapters.

The inclusion of indicators in the short report is mainly based on a new policy document by the Association of Netherlands Municipalities (Vereniging van Nederlandse Gemeenten, VNG), which represents all municipalities in the Netherlands. They have developed a guideline for municipalities to prepare Voluntary Local Reviews; showing both main indicators and (possible) locations of data from national sources. This has served as the main source for selecting indicators. As the number of indicators in VNG’s new policy document still exceeds the space available here, the choices for the inclusion of data were made on the basis of both availability and relevance for the specific context of Amsterdam. In some cases, additional data from local sources were used, most notably reports from the City Office of Research, Information and Statistics (OIS).

In the following presentation, not all SDGs are treated equally. In general, this is because some SDGs include many subgoals and indicators, while others include only a few. In particular, the aim of this voluntary local review is to report on local indicators and relate to local policy. The local link is less obvious for a number of goals, subgoals and indicators. This is also recognised in the VNG document as well as in other (international) VLRs. This issue of limited local links concerns mostly SDGs 2, 6, 14 and 15.

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8 A draft version was kindly provided to the authors by VNG. The final version of the SDG indicator set was published in May 2022 at www.waarstaatje-gemeente.nl.
Zero hunger
End hunger, achieve food security and improved nutrition and promote sustainable agriculture

This goal is related to different aspects of food production and food security. The Amsterdam region is an important area for food production. However, most of the products are consumed elsewhere. The Netherlands rank as the second largest exporter of agro-food products worldwide.

Regarding hunger and food security, information on people receiving assistance from a ‘food bank’ can be found in the chapter on SDG 1.

Agriculture and food production
European and national policies strongly influence the city’s achievements in relation to agriculture and food production.

Within the city of Amsterdam, there is relatively little ‘green food’ agriculture. In late 2020, the city council supported a proposal for ‘Amsterdam Food Capital’, an initiative by the local associations of small businesses and the hospitality business to turn Amsterdam into the ‘World Food Capital’ for the year of the city’s celebration of its 750-year existence in 2025. An important focus point of this initiative is sustainability in the food sector.

Food consumption in the city significantly affects use of the earth’s resources elsewhere. In the Amsterdam City Doughnut, specific attention is paid to this ecological and social impact beyond the city’s borders.

This has, for example, led to awareness of the fact that malnutrition is often prevalent amongst factory workers who produce goods that are used in Amsterdam, due to low wages and excessive hours of work.

Another example is the fact that the amount of land required worldwide for Dutch consumption in 2013 was around two and a half times the area of the Netherlands itself.

Sustainable agriculture
There are no specific data on the amount of biological farming within the city’s boundaries. However, Amsterdam has a rich, innovative ecosystem that promotes the development of sustainable agricultural practices. For example, Impact Hub Amsterdam runs a number of programmes on sustainable food entrepreneurship in the startup and scale-up phases.

In 2022-2023, this included the Village Food Pioneers Programme, which offers a number of free workplaces for impactful food entrepreneurs, and the Food Chain Accelerator, offering support to innovative startups or SMEs working on making the food chain more sustainable.

Policy
In 2019, the city of Amsterdam adopted a ‘Food strategy’ with six lines of action:

1. Food as a ‘social connector’
2. Food waste
3. Healthy food environment
4. Regional production and distribution
5. Entrepreneurship
6. Animal welfare, protein transition and circular agriculture

In late 2021, the city council was informed on progress regarding these lines of action.

The average age of the Amsterdam population was 38.7 in 2021, compared to 42.3 for the Netherlands on average (CBS, vol. 19, p. 16).

Sustainable agriculture

End poverty, in all its forms everywhere

Due to the early start of the SDG implementation process in the美洲, the city of Amsterdam has been successful in implementing several of the targets for hunger and food security.

Regarding hunger and food security, the city has been able to achieve many of its goals.

European and national policies

Agriculture and food production

In the chapter on SDG 1, information on people receiving assistance from a ‘food bank’ can be found.

End poverty, in all its forms everywhere

Good health and well-being
Ensure healthy lives and promote well-being for all at all ages

Good health is vital for people. SDG 3 includes a number of subgoals and indicators focused on specific contributions to good health. The importance of this SDG has been demonstrated in full force during the COVID-19 pandemic. Although Amsterdam generally offers high-quality essential healthcare services, these have been under enormous pressure since the start of the pandemic.

Healthy lifestyle

Amsterdam shows signs of a slightly healthier lifestyle compared to the Netherlands as a whole (Figure 7). Almost four out of five Amsterdam residents perceived their own health as good or very good in 2020. The amount of people with one or more long-term illnesses is slightly lower than in the Netherlands as a whole. This might be because Amsterdam has a relatively young population.

The number of people who are overweight has slightly decreased in the period 2016-2020 and is just under 40%. This is considerably less than the Netherlands as a whole, where the percentage slightly increased during the same period and is now almost 50%. The city has launched different policy initiatives to address the issue of obesity, especially in young people. The city has committed itself to the goal to have all Amsterdam children at a healthy weight by 2035.

The COVID-19 pandemic and access to health care

Beginning in March 2020, Amsterdam was hit by COVID-19. This has led to serious health problems, as well as problems in health care provision. The impact of the pandemic is still difficult to quantify. However, 2020 figures show that the COVID-19 crisis has negatively affected mental and social well-being, especially among young adults. Around 7% of Amsterdam residents indicate that they or someone in their household have not received necessary medical and/or dental treatment in the past year. The main reason treatment did not take place was the COVID-19 crisis. The lack of coverage from the health insurance and the deductible or personal contribution were other important reasons.

Smoking, alcohol and drug use

Amsterdam shows relatively high levels of smoking and alcohol and drug use. About 3% of Amsterdam adults are smokers, half of them smoke daily. Smoking is more common in Amsterdam than elsewhere in the Netherlands and in the other major cities. The trend is downward: in 2016, 27% of Amsterdam adults were smokers.

Only four out of ten adult Amsterdam residents (40%) meet the standard for responsible alcohol use (one glass or less per day on average). This is lower than the national average of 45.4%. Of adults, 14% can be counted as heavy and/or excessive drinkers.

Regarding drug use, 22.5% of adults in the Amsterdam region indicated having used drugs in the last year compared to 9.3% for the Netherlands as a whole.

With regard to policy on smoking, alcohol and drugs, the following goals are set for 2020:

Less than 5% of Amsterdam residents smoke
Less than 5% of Amsterdam residents have heavy or excessive alcohol consumption
Drug use has declined

Fig. 7 Health indicators the Netherlands and Amsterdam, 2020 (in % adult population)

<table>
<thead>
<tr>
<th></th>
<th>Netherlands</th>
<th>Amsterdam</th>
</tr>
</thead>
<tbody>
<tr>
<td>perceived health (good/very good)</td>
<td>79.3</td>
<td>84.0</td>
</tr>
<tr>
<td>one or more long-term illnesses</td>
<td>28.1</td>
<td>22.7</td>
</tr>
<tr>
<td>Body Mass Index (BMI &gt; 25)</td>
<td>39.3</td>
<td>33.6</td>
</tr>
</tbody>
</table>


2. CBS, 2020, Gezondheidsmonitor, p. 17.
6. Defined as percentage of people over 19 years with a Body Mass Index (BMI) of 25.0 kg/m² or more.
23. CBS, 2020, Gezondheidsmonitor, p. 17.
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

SDG 4 aims to ensure inclusive, equal and good quality education for all. Starting from early childhood, it includes lifelong learning. Education is vital to creating equal opportunities and reducing social exclusion. In the Netherlands, education is financed mainly by the national government and is based on the principle of free school choice for parents. Public schools and special schools based on religion or educational philosophy are all financed by the government. The curriculum is not set in detail at the national level, although there are national standards and exams. The local government’s role in the organisation of education is relatively limited, and there is no role in setting the curriculum.

Early childhood and primary education

Participation in pre-primary education is an important factor in creating equal opportunities, especially for children who do not use Dutch as their first language at home. Use of early childhood or pre-school education is slightly higher than average in Amsterdam, compared to the Netherlands as a whole (Figure 8). Statistics Netherlands (CBS) has developed an indicator showing risk of educational disadvantage in pre-school24 and primary education. One condition is that four children in Amsterdam (25%) is considered at risk, compared to 32% for the Netherlands as a whole.8 The numbers are available at the neighbourhood level, which means that a ‘heatmap’ can be created showing the neighbourhoods with the highest concentration of children at risk (Figure 9).44 The more red shown, the higher the risk. This shows that risk is highest in specific parts of the city, most notably Noord, Nieuw-West, Zuidoost and parts of Amsterdam-Oost.

Segregation

Segregation according to socio-economic and migration background is an issue in Amsterdam schools. Amsterdam is a superdiverse city, where 65% of primary school pupils have a migration background.8 Segregation in Amsterdam is relatively high, even though it is lowest of the four largest Dutch cities.8 This is mostly the case for segregation between children with low-income and high-income parents. The segregation of ‘rich’ and ‘poor’ is much higher than on the basis of ethnicity. In both cases, the segregation level has slightly decreased over recent years.44 On the one hand, this segregation is related to residential segregation, but on the other hand parents’ choice of school also plays a role.44

Labour market entry

At the end of initial education, a Dutch student is considered to have a ‘starting qualification’ for the labour market if (s)he acquires a diploma at EQF level 2 as a minimum.44 If not, (s)he is considered an early school leaver. The number of early school leavers is relatively low in Amsterdam compared to the Netherlands as a whole: 7.8% of persons between 18-30 years old lack a starting qualification, compared to 11.7% nationally.

Another indicator of educational success is the percentage of young people not in education, employment or training (NEET). The relative number of NEET youth is consistently lower in Amsterdam compared to the Netherlands as a whole.44 For more details on youth in education and employment, see SDG 8.

Specific problems

One particular problem in education in Amsterdam is the shortage of teachers. This is a national problem, but in Amsterdam it is felt more severely than on average. This problem is particularly urgent, as the outflow (including retirement) of teachers in primary education in Amsterdam is expected to be much greater than the influx over the coming years. Therefore, the city initiated an emergency plan to remedy this problem. Despite a lot of efforts, the shortage increased over the last few years, and in October 2021 it stood at 15.3% (measured in full-time equivalents); compared to 8.3% for the Netherlands as a whole.44

SDG 4 aims to ensure inclusive, equal and good quality education for all. Starting from early childhood, it includes lifelong learning. Education is vital to creating equal opportunities and reducing social exclusion. In the Netherlands, education is financed mainly by the national government and is based on the principle of free school choice for parents. Public schools and special schools based on religion or educational philosophy are all financed by the government. The curriculum is not set in detail at the national level, although there are national standards and exams. The local government’s role in the organisation of education is relatively limited, and there is no role in setting the curriculum. Education in Amsterdam is relatively high, even though it is lowest of the four largest Dutch cities. Statistics Netherlands (CBS) has developed an indicator showing risk of educational disadvantage in pre-school and primary education. One condition is that four children in Amsterdam (25%) is considered at risk, compared to 32% for the Netherlands as a whole. The numbers are available at the neighbourhood level, which means that a ‘heatmap’ can be created showing the neighbourhoods with the highest concentration of children at risk. The more red shown, the higher the risk. This shows that risk is highest in specific parts of the city, most notably Noord, Nieuw-West, Zuidoost and parts of Amsterdam-Oost. Segregation according to socio-economic and migration background is an issue in Amsterdam schools. Amsterdam is a superdiverse city, where 65% of primary school pupils have a migration background. Segregation in Amsterdam is relatively high, even though it is lowest of the four largest Dutch cities. This is mostly the case for segregation between children with low-income and high-income parents. The segregation of ‘rich’ and ‘poor’ is much higher than on the basis of ethnicity. In both cases, the segregation level has slightly decreased over recent years. On the one hand, this segregation is related to residential segregation, but on the other hand parents’ choice of school also plays a role.

Labour market entry

At the end of initial education, a Dutch student is considered to have a ‘starting qualification’ for the labour market if (s)he acquires a diploma at EQF level 2 as a minimum. If not, (s)he is considered an early school leaver. The number of early school leavers is relatively low in Amsterdam compared to the Netherlands as a whole: 7.8% of persons between 18-30 years old lack a starting qualification, compared to 11.7% nationally. Another indicator of educational success is the percentage of young people not in education, employment or training (NEET). The relative number of NEET youth is consistently lower in Amsterdam compared to the Netherlands as a whole. For more details on youth in education and employment, see SDG 8.

Specific problems

One particular problem in education in Amsterdam is the shortage of teachers. This is a national problem, but in Amsterdam it is felt more severely than on average. This problem is particularly urgent, as the outflow (including retirement) of teachers in primary education in Amsterdam is expected to be much greater than the influx over the coming years. Therefore, the city initiated an emergency plan to remedy this problem. Despite a lot of efforts, the shortage increased over the last few years, and in October 2021 it stood at 15.3% (measured in full-time equivalents); compared to 8.3% for the Netherlands as a whole.
Gender equality

Achieve gender equality and empower all women and girls

SDG 5 is about achieving a fair distribution of power, influence and resources between women and men. In the Netherlands, there are strong issues regarding gender equality in the economy and labour market.

**Economy**

Important indicators of gender equality in relation to the economy are the employment rate and income levels of women. In 2021, men are more likely to work than women in Amsterdam (56 versus 43%). In addition, women earned 20% less than men on average. The difference is greatest among older age groups and among people with a higher education level. More details on gender equality in the economy can be found in the discussion of SDG 8.4.

The City of Amsterdam

What is the city’s own position on gender equality? Amsterdam has had a female mayor since 2018. Femke Halsema is the first woman to hold this position in the city’s history. Apart from the mayor, Amsterdam was governed by eight alderpersons at the time of writing (April 2022), four of which are female. The 45-member city council is elected by representatives of the people of Amsterdam. At the March 2022 local elections, just over 50% of elected council members were female.

In the city’s organisation, just over half (52%) of all employees were women in 2021.37 In the top of the organisation, 27 out of 55 officials (51%) were women and a similar percentage is seen in the ‘sub-top’.38 A target of 45% women at the top was set for 2021, and this target was achieved. No new target has been set.

Diversity

Diversity is an important topic in the city’s policy. The city departs from an ‘intersectional’ approach, which implies that people are always more than just their gender, their background or their sexual orientation: “Think of all aspects that determine our living situation, possibilities and needs, for example, education, socioeconomic status, philosophy, origin and health. Everyone’s mix is different.”39

In 2019, Amsterdam formulated a ‘Rainbow policy’, as a follow-up to the city’s ‘Pink agenda’. The goal is the acceptance and emancipation of all Amsterdam LGBTQ+: people (lesbian, gay, bisexual, transgender, intersex, queer and others). In the policy, extra attention is given to improve the position of transgender people and bi-cultural LGBTQ+ young people.40 Amsterdam participates in the international Rainbow City Network. One well-known event with an international appeal is the Amsterdam Pride Festival, held annually in July.

Clean water and sanitation

Ensure availability and sustainable management of water and sanitation for all

SDG 6 is about achieving stable public access to high-quality drinking water, sanitation and hygiene. In the Netherlands, water quality is mainly governed by the water authority or waterschap. The city of Amsterdam is part of Waterschap Amstel, Gooi and Vecht, which covers an area with about 1.3 million residents, which is mostly below sea level. The organisation Waternet works for both the water authority and the city, among other things in maintaining dykes, ensuring supply of safe and clean tap water, maintaining the sewage system and ensuring that the ground water level is correct. Specific local indicators for this SDG are still in development.41

**Water quality**

The water authority monitors 644 locations in its area and has found medicine residues (5 locations), drug(s) (1 location) and PFOS (6 locations).42 Indicators regarding water quality compared to the Netherlands as a whole can be found in Figure 10. This shows that the quality of the water flora is a concern for the regional water authority, but in all other aspects the quality of the water is similar to the average of all water authorities.

An indicator of the affordability of clean water and sanitation is the amount of ‘sewage charges’, changed by the city (Figure 11). The changes in Amsterdam are substantially lower than the national average, although the increase in Amsterdam from 2017–2021 has been greater than the national average.43 Apart from this fixed amount, large users of drinking water (mainly industry and other companies) pay an extra charge.

In addition to the sewage charges, the water authority also charges a tax which includes three components: a water system charge, a water treatment charge and a pollution charge. Amounts depend on a lot of factors, including home ownership and household composition, but are typically between € 180 and € 350 per year.44

![Fig. 10 Elements of water quality 2019 (in % of water bodies that comply with norm)](image)

![Fig. 11 Annual sewage charge in euros per household](image)
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

SDG 8 is focused on energy security, sustainability and energy efficiency. The reliability of energy supply in the Netherlands is high, but attention is needed for energy poverty in some households. Data on sustainable energy can be found in the chapter on SDG 13.

Energy affordability
Two indicators for energy affordability are the energy poverty indicator and the energy ratio. The energy poverty indicator is the percentage of households that combine to be in the bottom 25% of income and in the top 50% of energy use. In 2018, 8% of Amsterdam households belonged to this category, which was around the national average. The city also collects its own data on energy costs. In 2019, Amsterdam households spent an average of €110 per month on their energy bill, which is on average 5% of the household income (the energy ratio). With an energy ratio of 10% or higher, the energy costs are regarded as too heavy on the income. The city defines this as ‘energy poverty’. About 11% of Amsterdam households fell into this category in 2019.47 From mid-2021, energy costs for most households have risen dramatically. The possible effects on energy poverty are discussed in more detail under SDG 1 - Resilience.

Decent work and economic growth
Ensure access to affordable, reliable, sustainable and modern energy for all

SDG 7 is focused on energy security, sustainability and energy efficiency. The reliability of energy supply in the Netherlands is high, but attention is needed for energy poverty in some households. Data on sustainable energy can be found in the chapter on SDG 13.

Energy affordability
Two indicators for energy affordability are the energy poverty indicator and the energy ratio. The energy poverty indicator is the percentage of households that combine to be in the bottom 25% of income and in the top 50% of energy use. In 2018, 8% of Amsterdam households belonged to this category, which was around the national average. The city also collects its own data on energy costs. In 2019, Amsterdam households spent an average of €110 per month on their energy bill, which is on average 5% of the household income (the energy ratio). With an energy ratio of 10% or higher, the energy costs are regarded as too heavy on the income. The city defines this as ‘energy poverty’. About 11% of Amsterdam households fell into this category in 2019.47 From mid-2021, energy costs for most households have risen dramatically. The possible effects on energy poverty are discussed in more detail under SDG 1 - Resilience.

SDG 7 encompasses multiple subjects: industry, innovation and infrastructure. Some of the UN-defined goals for this target are specifically relevant for developing countries. This SDG has significant overlap with other SDGs that are developed in more detail, notably SDGs 8 (indicators related to sustainable economic growth) and 13 (related to CO2 emissions). Here, we focus on innovation.

Innovative startups focused on sustainability can find relatively affordable office space and networking facilities in incubator and accelerator programmes and spaces in the city. One example is Impact Hub Amsterdam, which has around 400 members and is part of a global chain of ‘hubs’. The city also sponsors Startup in Residence, an incubation programme that connects entrepreneurs with key social and urban challenges in Amsterdam to stimulate innovation. For these startups, the city functions as a potential launching customer.

Further data on infrastructure can be found in the chapter on SDG 12; further data on jobs can be found in the chapter on SDG 8.

Reduce inequality
Reduce inequality within and among countries

See next chapter for detailed analysis

Sustainable cities and communities
Make cities and human settlements inclusive, safe, resilient and sustainable

See next chapter for detailed analysis

Responsible consumption and production
Ensure sustainable consumption and production patterns

See next chapter for detailed analysis
Climate action
Take urgent action to combat climate change and its impacts
See next chapter for detailed analysis

Life below water
Conserve and sustainably use the oceans, seas and marine resources for sustainable development

SDG 14 mainly refers to the ocean and marine resources. It is particularly difficult to find relevant indicators related to this goal at the local (city) level. Access to the sea from the Port of Amsterdam is through the North Sea Channel. At the end of this channel, a new sea lock called Zeelusluis IJmuiden was installed and officially opened in January 2022, aiming to ensure access to the sea for the long term. It is the largest sea lock in the world.

More info on sustainability and the Port of Amsterdam can be found in the chapter on SDG 13.

Life on land
Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

SDG 15 concerns the protection, restoration and sustainable management of all forms of life on land. At the local level, the share of ‘nature’ and forest in the total area is relevant. The Netherlands has a low percentage of forest within its territory (just over 11%), compared to other countries. The city of Amsterdam only has 193 hectares that qualify as forest. It is important to note that a large part of Amsterdam’s main forest area, called Amsterdam Forest (Amsterdamse Bos), is just outside the city borders. However, it is managed by the city. The Amsterdam Forest covers an area of around 1,000 hectares.

Taking a somewhat broader approach to nature areas, Amsterdam city still scores low in comparison to the Netherlands (Figure 12). More data on the amount of ‘green’ in the city can be found in the chapter on SDG 15.

In 2016, the city published an extensive study in which ‘nature value’ was mapped, on the basis of species number, naturalness, substitutability and the role of the area in the ecological structure. The main conclusion was that the value of nature in Amsterdam increased compared to previous reports. Specific sub-studies into the distribution of house sparrows, butterflies, wild bees and wall plants supported this conclusion.

The urban fringes form the most valuable areas from the point of view of urban nature and offer the most favourable conditions for biodiversity. In the coming years, a new report on ‘nature value’ is planned.

Peace, justice and strong institutions
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

SDG 16 focuses on promoting a peaceful and secure society with effective and reliable institutions. Special attention is paid to reducing all forms of violence and the resulting deaths and fighting organised crime.

A set of indicators for the amount of violence is formed by the occurrence of different forms of impairment of the physical integrity of persons, as shown in Figure 13a. It is clear that Amsterdam does not score well compared to the Netherlands as a whole; reported occurrences are roughly almost double for each category. The good news is that all these numbers show an obvious downward trend over the last decade. This downward trend is particularly strong in Amsterdam.

Organised crime is also more prevalent in Amsterdam than in the Netherlands. This is shown by the indicators in Figure 13b. For these indicators, the general trend is also
The final SDG is focused on building (global) partnerships to achieve the other 16 goals. Partnerships are also relevant for achieving goals at the local level. The city of Amsterdam has a strong focus on building partnerships, both locally, regionally nationally and internationally. Within Amsterdam, there are different structures in which organisations explicitly work together to achieve the SDGs. The national movement ‘SDG Nederland’, which connects over 1,000 organisations and is structured by a foundation, is based in Amsterdam. A more locally-focused example is formed by 60+ organisations collaborating in the ‘SDG House’, which is both a physical space and a virtual network. Since 2021, the SDG House has offered a 15-week SDG traineeship programme, in which young people can develop themselves to become an ‘SDG professional’.

At the regional level, Amsterdam closely works with surrounding municipalities in the Metropolitan Region Amsterdam (MRA). This consists of 32 municipalities, two provinces (North Holland and Flevoland) and the Transport Authority Amsterdam and basically spans the ‘daily urban system’ of Amsterdam. In October 2021, a top-level policy meeting focused on sustainability was held, and this is planned to be followed in September 2022 by a similar meeting on ‘The State of Sustainability’. The MRA participates in a number of ‘Green Deals’ which focus on sustainability in specific sectors. One example is the ‘Green Deal Wood’, in which the MRA commits itself to use at least 20% wood or biobased materials in all its new building projects from 2025.

How do Amsterdam’s sustainability efforts compare at the Dutch national level? An overall score is shown in the ‘Municipal Sustainability Index’ (GDI in Dutch), which compares all Dutch municipalities and gives them a score between 0 and 10. Here, Amsterdam scores 5.7, compared to a Dutch average of 5.9. Amsterdam scores well above average on the economic dimension of this index, while it scores below average on human development and societal indicators.

At the international level, Amsterdam aims to be a responsible capital and invests in various forms of cooperation, both in networks and in bilateral cooperation relationships. C40 is a global city network focused on the exchange of knowledge in the field of climate. The network ensures that partners are less dependent on political changes in the cities. Knowledge sharing is paramount. Amsterdam has said goodbye to city twinning in general. Instead, it mainly builds relationships around specific subjects. A notable exception is the recently renewed cooperation with Suriname (a former colony of the Netherlands, which became independent in 1975). This collaboration has great symbolic significance, because of Amsterdam’s role in the slave trade and because of the large Surinamese diaspora in the city. It gains meaning as knowledge is exchanged on topics such as water management, health care and culture. Being a reliable partner in the present makes it easier to address the black pages of the past.

Another component of this SDG is the experience that citizens have with their institutions; are they satisfied with the public services provided by the city? In 2019, Amsterdam citizens gave an average score of 7.1 on a scale of 1 to 10. There is almost no difference in how service is valued between groups. However, citizens with a non-Western migration background do give a slightly higher score (7.3) than those without a migration background (6.9).
SDG 1, 8, 10, 11, 12, 13 in detailed analysis
SDG 1 is aimed at reducing poverty in all its forms. This concerns both financial aspects and the impact of poverty on people’s lives.
The SDG agenda calls for special attention for social protection, equal economic rights and resilience of poor and vulnerable groups. The poverty problem in the Netherlands is of a different order compared to the poorest countries, but here, too, people are at risk of (relative) poverty. Since the decentralisation in the social domain of 2015, municipalities have played a key role in caring for the most vulnerable groups. Themes that also require attention in the Netherlands are problematic debts and child poverty. The COVID-19 crisis has exacerbated existing vulnerabilities worldwide.

**Highlights**

● People with a low income suffer more often from long-term illness or other physical ailments/handicaps and feel less energised. The difference has become smaller mainly due to a drop in score among people with a high income.

● Low income and problematic debts are often related. Problematic debts are also more prevalent among residents with basic and intermediate education levels.

● In 2020, due to the COVID-19 crisis, a sharp increase was seen in households receiving a weekly food package.

● The main policy goals are to develop a just city with equal opportunities for all citizens and to provide residents in minimum-households a better livelihood by limiting poverty and debts. The city of Amsterdam is focusing on the prevention of problematic debts. This approach seems to be successful in reaching residents in an early stage and help them through counselling to prevent increase in debts.

**Reducing poverty**

*Subgoal SDG 1.2*

By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.

**Households with minimum incomes**

The city of Amsterdam differentiates between households with low incomes (an income less than 120% of the Statutory Minimum Wage) and households with minimum incomes, which refers to households with both income and capital below the social assistance standard.

The persons living in these ’minimal’ households formed 14% of all households in 2018, compared to 14.5% in 2017.

Differentiated between age groups, we see that in 2018:

- 22.4% of the persons in ’minimal’ households are between 0 and 17 years old (compared to 21% in 2017)
- 55.5% of the persons in ’minimal’ households are between 18 and 65 years (compared to 55.7% in 2017)
- 18.3% of persons in ’minimal’ households are 65 years and older (compared to 17.7% in 2017)

Of all children in Amsterdam (0-18 years old), 12% lived in households dependent upon social assistance (bijstandsuitkering) in 2020, compared to 6% in the Netherlands as a whole.

People with a low income: suffer more often from long-term illness or other physical ailments/handicaps (45%) than people with a medium income (39%) or a high income (39%) (Figure 14). In addition, 38% of people with a low income report feeling less energised versus 35% of people with a high income. The difference is smaller than in 2018; mainly due to a drop in score among people with a high income (from 72% in 2018 to 69% in 2020).20

**Households with registered debts**

In total, 10.6% of all households had registered debts in 2020 (compared to 11.2% in 2019). This was higher than 12% of all households in the Netherlands as a whole.

In 2020, due to the COVID-19 crisis, a sharp increase was seen in households receiving a weekly food package.

In 2020, 18.1% of persons in ’minimal’ households are 65 years and older (compared to 17.3% in 2017). Among all persons living in households (instead of household members), this is more in line with the definition of poverty in all its dimensions according to national definitions.

People with a low income: suffer more often from long-term illness or other physical ailments/handicaps (45%) than people with a medium income (39%) or a high income (39%) (Figure 14). In addition, 38% of people with a low income report feeling less energised versus 35% of people with a high income. The difference is smaller than in 2018; mainly due to a drop in score among people with a high income (from 72% in 2018 to 69% in 2020).

Households with registered debts

In total, 10.6% of all households had registered debts in 2020 (compared to 11.2% in 2019).21 This was lower than 12% of all households in the Netherlands as a whole.

15.**Fig. 14  People suffering from a long-term illness, condition or disability according to educational level, income, age, 2018-2020**

16. This is defined annually by the national government. For 2020 it was set at € 739 per month gross income, excluding holiday wages.

17. In Dutch: beoordinondergrens. The lower limit is set on age and is a check for receiving (the last) child benefit (subject or non-person).

18. In line with the indicator suggested by VNG, we look at persons within households (instead of household members) because this is more in line with the subgoal of reducing poverty among all persons living in poverty. Households are also not as stable as they are not as stable as persons, and households often include a different number (smaller).


20. % data only until October

Looking at household income and problematic debts are related. Residents with a very low income often have problematic debts. Residents who say they have difficulty making ends meet relatively often have problematic debts (12%).

Problems with poverty are mostly concentrated in the so-called development neighbourhoods in the districts Noord, Nieuw-West and Zuidoost, where an accumulation of problems occur. In these areas, there is also the highest proportion of households that receive social assistance benefit60 as main source of income.61 Residents of district Zuid are the least likely to experience problematic debts, while those in West, Noord and Zuidoost experience the most problematic debts.62

Social protection systems for the poor and the vulnerable

Social protection systems and measures for all, including floors, and the vulnerable should rise from 28% to 70%. However, it is not known how many households have long-term energy poverty increasing from 9% to 81% on average for the city. Low-income groups are mostly affected by rising prices. The percentage of a household income spent on energy in vulnerable situations and reduce their exposure to climate-related extreme events and other economic, social and environmental shocks and disasters.

Resilience

An important element linked to resilience is energy poverty. Rising energy prices are a major issue in Amsterdam, as they do throughout the Netherlands and beyond. In 2020, the city published a report on energy poverty, in which an analysis was made of households vulnerable to rising energy prices.63 Energy poverty is defined by the energy ratio: the percentage of a household income spent on energy. With an energy ratio of 10% or higher, the energy costs are regarded as too heavy on the income.

In an as-yet unpublished document by the city’s Research and Statistics Office, a preliminary analysis was made of the consequences of rising energy prices since mid-2021. On average, energy prices increased by 24% between May 2021 and February 2022. This would result in the number of households in energy poverty increasing from 8% to 27% on average for the city. Low-income groups are mostly affected by rising prices. The percentage of low-income households64 in energy poverty would rise from 28% to 70%. However, it is not known how many households have long-term energy poverty.
The city of Amsterdam is strongly committed to preventing and solving problematic debts. For residents with problematic debts, there is a specific policy plan with several measures, Schuldhulpverlening 2021-2025. Residents with problematic debts can get help from debt counselling that is carried out by social service providers (MaDi). The most important intervention aimed at preventing problematic debts is ‘Vroeg Erop Af’, by trying to detect problems in an early stage. The ‘Vroeg Erop Af’ approach is based on agreements with housing corporations, energy companies, health insurance companies, the Employee Insurance Agency (UWV), the Amsterdam Tax Office, Waterwerk, CAK and Social Insurance Bank (SVB). The agreement involves notifying the MaDi when a person is a three months or longer in arrears with the relevant institution. By tackling problems early, the aim is to prevent bigger problems, such as a house eviction or a hold on the energy supply. In 2020, the number of notifications from ‘Vroeg Erop Af’ was 20,453. This is an increase of 6% compared to 2019. In 2020, there were 6,000 MaDi complaints from individuals with problematic debts who have been reached, meaning that a plan of action for the payment arrears has been made or other actions have been taken, such as a referral, support and/or monitoring. At the end of 2020, approximately 6,600 Amsterdam residents had completed a regular debt counselling process, of which 4,611 were started in 2020. Of the processes completed in 2020, 61% were successful. In 2019, 8,200 residents were in debt counselling, with a success rate of 65%. This decrease in the number of successful treatments in 2020 may be related, among other things, to the limited possibilities for physical personal contact because of the COVID-19 crisis at the start of the first lockdown.

The city’s goal is to reduce the number of low-in- come residents with problematic debts and or struggle to find enough money to meet their needs, which is why the city is committed to implementing local poverty policies within the framework of the law. The Amsterdam Agenda for Poverty and Debt describes the approach. In addition, there is a separate policy plan for reducing and preventing problematic debts (‘Schuldhulpverlening’ 2021-2025). For both policies a monitor has been developed to follow the different resident groups who live in poverty and to identify which ones have debt problems (‘Amsterda- me Armoedemonitor’ and ‘The Schuldenmonitor’). The main goals are to develop a city with equal opportunities for all citizens and to provide residents in minima-households a better livelihood by limiting poverty and debts. Poverty alleviation through different schemes that these schemes can apply for (under the name ‘Take your chance’). The city of Amsterdam is trying to help people of all ages to find work, even in old age as well as in young age and people with disabilities. There are also different schemes to create more equal opportunities and a higher level of participation. The aim of the approach is to increase people’s self-efficacy by providing tailored in- come support for minima-households and invest in skills for (digital) literacy and health. Addition- ally, residents can apply for long-term budget and financial coaching in their local neighbourhoods. To support children who live in poverty, financial support is made available in different schemes in education, sports and culture.

The city of Amsterdam is strongly committed to preventing and solving problematic debts. For residents with problematic debts, there is...
SDG 8 is aimed at promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
The debate on economic growth has intensified since the SDGs were adopted in 2015. Striving towards economic growth at any price is no longer deemed acceptable. The city’s use of the framework of Doughnut Economics indicates that there is a broader view toward the economy, in which the goal is to move to a place where in which ‘it is possible to meet the needs of all people within the means of the living planet – an ecologically safe and socially just space in which humanity can thrive’.90

The aim is thus ‘to thrive rather than to grow. Don’t let growth become a goal in itself’. This corresponds to broader sets of indicators for the state of the economy developed at the international and national levels. For example, Statistics Netherlands publishes an annual Monitor of Well-being and the SDGs.92

However, economic growth in terms of gross regional product is one relevant indicator for this SDG, as we will see below.

**Economic growth and decline**

- Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7% gross domestic product growth per annum in the least developed countries.

The economy of Amsterdam and its metropolitan region (MRA) has experienced rapid growth from 2014 to 2019 (Figure 18). The growth rate of the MRA was driven by the growth rate of the Amsterdam economy: more than half of the gross regional product of the MRA is produced in Amsterdam.91 In 2019, the growth rates of the Amsterdam economy (2.8%) and the MRA (2.7%) were approximately one percentage point above the national average (1.7%).

In 2020, the measures taken by government to control the COVID-19 pandemic put various economic activities to halt, including hospitality, travel services, tourism and recreation. These sectors are important for employment in Amsterdam.93

Amsterdam has a diversified economy, with a lot of knowledge-intensive companies. More than one in four offices and almost one in five jobs in Amsterdam are in the sector consultancy and research, which includes law and accountancy firms, architecture, advertising and marketing agencies (Figures 19 and 20). This sector grew rapidly between 2010 and 2021. Another example of a sizeable and rapidly growing sector is information and communication, which includes companies in software development and other ICT services. In addition, the sectors culture, sport and recreation, health and welfare care and retail are important for employment in Amsterdam.

The Metropolitan Region Amsterdam (MRA) as a whole is specialised in sectors in which employment is increasing faster than the Dutch average, on top of a faster increase in employment that the MRA already knows within sectors. Due to its pattern of specialisation, the MRA has benefited...
from above-average employment growth in commercial services, including specialist business services and information and communications.98 The COVID-19 pandemic affected companies in different sectors in different ways. The greatest job loss between 2020 and 2021 took place in the hospitality industry, although the number of companies in this industry actually increased. The largest absolute decrease in number of companies can be seen in consultancy and research, followed at a distance by wholesale. The number of companies started, 14% less than in 2020. In addition, 9,221 companies have closed, 34% less than in 2020.99

**Impact entrepreneurship**

In addition, the city of Amsterdam aims to strengthen the ecosystem for impact entrepreneurship through a dedicated programme called Amsterdam Impact.100 The goal is to tackle societal challenges through entrepreneurship and build a strong ecosystem that promotes and encourages business that never loses sight of people and the environment. The Amsterdam Impact programme for 2019-2022 has a broader focus than an earlier action plan for the period 2015-2018, which was focused on developing and positioning Amsterdam as the place for social entrepreneurship.100 Impact entrepreneurship includes social enterprises in which making a positive impact is the main goal of the company, well as socially responsible businesses, which are based on a traditional profit-driven business model but increasingly focus on creating long-term shared value.100 The exact number of social or impact enterprises in Amsterdam is unknown, as a formal definition and legal form are lacking, but impact entrepreneurship is clearly on the rise.100 The programme has a total budget of 2.5 million euros.

**Energy transition jobs**

The city of Amsterdam aims to reduce the use of fossil fuels and switch to fully sustainable energy sources, such as solar and wind energy. This transition has consequences for employment, especially in the technical sectors, including the installation and construction sector. Between 2010 and 2021, the number of jobs related to the energy transition increased by 30.5% (from 12,800 to 16,700).100 The number of companies that are active in the energy transition increased even more in the same period, by 49.6%. Nevertheless, energy transition businesses still partake a small share in the total number of businesses in Amsterdam; 2.5% in 2010 and 2% in 2021.

The city of Amsterdam pledged to invest 78 million euros in a package of measures that contribute to sustainable development, involving the renovation and insulation of buildings, the acceleration of natural gas-free homes and investments in solar panels on the roofs of housing association homes.100 According to estimates, investments up to 2025 would generate approximately 3,800 additional full-time jobs.

**Circular economy jobs**

Another major transition with consequences for the use of natural resources is the transition towards the circular economy. Figure 21 shows that the number of circular jobs has increased over the past ten years from around 39,000 in 2010 to approximately 46,400 in 2021.100 The share of circular jobs in relation to total employment in Amsterdam has slightly increased and is now around 6%. A further increase in circular jobs is expected, since 10% of all online vacancies in Amsterdam in the first nine months of 2021 were for circular positions.

**Equal employment**

By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.

**Employment**

Amsterdam’s labour force (15 to 74 years old) increased by 14% from 2010 to 2020, to 686,000 people.100 In 2020, 68% of the potential labour force was employed, 4% was unemployed and looking for a job, and 28% was neither employed nor looking for work. Men are more likely to work than women (Figure 22). Furthermore, highly educated residents (64%) are more likely to work than groups with intermediate (48%) and basic (40%) education levels.100 Residents without a migration background (72%) are more likely to work than residents with a migration background (66%). Due to all these differences, the participation figures also differ per neighbourhood. Taken in total, however, the net employment rate (68%) in Amsterdam was similar to the average in the Netherlands. The difference in net participation between women and men is lower than in the Netherlands as a whole (Figure 22).100 Overall economic participation and particularly the participation of women in Amsterdam has steadily increased since 2003 (Figure 23). Although the ‘gap’ between the participation of women and men has decreased, it remains substantial.

Due to the COVID-19 crisis, unemployment increased steeply in 2020, up to 6.3% in the last quarter of the year. The first quarter of 2021 showed a decline to 5.6%. The increased unemployment rate did not affect Amsterdam’s residents equally. Groups that were already more often unemployed were more likely to lose their jobs. Women, single parents, residents with a basic education level (11.0% unemployed), young people (9.9% unemployed) and residents with a migration background (8%) were highly affected by the crisis. The unemployment rate among residents with a higher education level (4.1%) was relatively stable.
Economic participation of women and men, Amsterdam and The Netherlands, 2020

- **Net Participation Rate (npr)**: share of the employed labour force in total population 15-75 years.

**Fig. 22**

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Participation Rate</th>
<th>Amsterdam</th>
<th>The Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>65.0%</td>
<td>71.8%</td>
<td>72.5%</td>
</tr>
<tr>
<td>2010</td>
<td>62.3%</td>
<td>70.4%</td>
<td>71.8%</td>
</tr>
<tr>
<td>2020</td>
<td>60.8%</td>
<td>69.3%</td>
<td>70.5%</td>
</tr>
</tbody>
</table>

*Fig. 23*

- **Source**: CBS, Arbeidsdeelname; regionale tabellen 2020.

**Fig. 24**

- **Difference in hourly wage (%) between men and women according to age group and education level, 2020**
- **Source**: Staat van de Stad 2021, p. 135.
- **Note**: mbo niveau 2.

**Economic Independence**

Economic independence means that someone can provide for their own livelihood. In 2019, the minimum for economic independence was defined at an income of €930 net per month; 66% of Amsterdam women were economically independent, about as often as the average among women in the Netherlands (65%).

**Persons with disabilities**

- **Number of NEET youth** is consistently lower in Amsterdam compared to the Netherlands as a whole: 14% of persons between 18-30 years old lack a starting qualification, compared to 17% nationally.

**Youth in employment, education and training**

- **Subgoal link**: 8.6.

National legislation requires youth up to the age of 18 to attend school until they have a ‘starting qualification’ for the labour market - a diploma at EQF level 2 as a minimum. If not, it is considered an early school leaver. The number of school leavers is relatively low in Amsterdam compared to the Netherlands as a whole: 7% of persons between 18-30 years old lack a starting qualification, compared to 17% nationally. Vast differences can be seen between groups with different migration backgrounds (Figure 23). Another indicator of educational success is the percentage of young people not in education, employment or training (NEET). The relative number of NEET youth is consistently lower in Amsterdam compared to the Netherlands as a whole: 4% of persons between 18-30 years old lack a starting qualification, compared to 7% nationally.

Employment opportunities for young people decreased relatively strongly during the COVID-19 crisis in 2020. Of the total increase in unemployment (2000 people) in 2020, two-thirds (1400) were residents between 15 and 26 years old. Youth unemployment rose from 6.5% in 2019 to 9.9% in 2020. Young people are more likely to lose their jobs because they often have a temporary contract or work a flexible number of hours. Additionally, the hospitality industry and retail sectors, in which many young people work, were badly hit by the COVID-19 crisis. This is reflected in the high unemployment rate among young people between 15 and 22 years old, who are often still going to school and also have a part-time job. The unemployment rate in this age group increased from 8.5% to 14.3%. Amsterdam’s youth unemployment increased more sharply than nationally. Across the Netherlands, unemployment among young people rose from 6.1% in 2019 to 8.3% in 2020. As in recent years, young people with basic background (6.6% employed). Although there is currently a big demand for new employees in various sectors, there is a mismatch between the demand of employers and the supply of job seekers. For many people who are unemployed for a longer period of time, the step to technical jobs is a big one. Income gap between men and women

On average, men earn 16% more per hour than women in Amsterdam: €26.80 versus €23.16. This percentage is comparable to the average payment difference in the Netherlands in 2019, men in the Netherlands earned on average 17% more per hour than women. The difference in hourly wages between men and women in paid employment in Amsterdam increases with age. The wage difference is especially large among the highly educated: highly educated men older than 45 earn on average 20% more per hour than highly educated women older than 45 (Figure 24). Economic independence

Economic independence means that someone can provide for their own livelihood. In 2019, the minimum for economic independence was defined at an income of €930 net per month; 66% of Amsterdam women were economically independent, about as often as the average among women in the Netherlands (65%).

- **Economic independence**
  - **Net Participation Rate (npr)**: share of the employed labour force in total population 15-75 years.
  - **Gender equality**
  - **Quality education**
  - **Youth in employment, education and training**
  - **Persons with disabilities**
  - **Services**
  - **Employment opportunities**

**Gender equality**

As described above, women in Amsterdam are more likely to be unemployed and earn less than men. They are less likely to be economically independent and more often experience discrimination on the labour market. The city of Amsterdam is investigating to what extent gender pay differences exist within the municipal organisation, and which structural factors explain that women are less likely to be economically independent. Measures will be taken on the basis of the results. In addition, a number of (women) civil society organisations formed an alliance (Samen Sterk in Werk) in 2021 to help women towards economic independence. Furthermore, the very first women’s law shop was opened in Amsterdam in 2021, which provides women with free access to legal advice and guidance.

**Services**

- **Legal advice and guidance**
  - **Waar staat je gemeente.**
  - **Kennisplatform Inclusief wijkmonitor Onderwijs.**
  - **Samenleven (2021), KIS-gendergelijkheid 2019 – Representatie. Nota (n.d.)**
  - **Arbeidsmarktdiscriminatie.**
  - **Arbeidsmarktdiscriminatie (numbers up to 2017)**

**Employment opportunities**

- **Youth unemployment** rose from 6.5% in 2019 to 9.9% in 2020. Young people are more likely to lose their jobs because they often have a temporary contract or work a flexible number of hours. Additionally, the hospitality industry and retail sectors, in which many young people work, were badly hit by the COVID-19 crisis. This is reflected in the high unemployment rate among young people between 15 and 22 years old, who are often still going to school and also have a part-time job. The unemployment rate in this age group increased from 8.5% to 14.3%. Amsterdam’s youth unemployment increased more sharply than nationally. Across the Netherlands, unemployment among young people rose from 6.1% in 2019 to 8.3% in 2020. As in recent years, young people with basic education level (intermediate education level, advanced education level) basic education level (intermediate education level, advanced education level)
**Sustainable tourism**

→ Subgoal link: 8.9

By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products. This also relates to SDG 12.

Sustainable tourism is an important topic for Amsterdam. Before the COVID-19 pandemic hit, the visitor economy was seen as unbalanced. A 2020 advice report sets the goal to create a visitor economy that adds value and does not cause disturbance or disruption by 2025. In relation to the goal, it is important that this process is actively monitored. However, the huge impact of the COVID-19 pandemic and uncertainties about the future make it difficult to assess progress related to this goal at the time of writing.

**Fig. 26** Youth not in education, employment or training (NEET) per 10,000 inhabitants 15-27 years, 2013-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Amsterdam</th>
<th>The Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>200</td>
<td>140</td>
</tr>
<tr>
<td>2014</td>
<td>180</td>
<td>120</td>
</tr>
<tr>
<td>2015</td>
<td>160</td>
<td>100</td>
</tr>
<tr>
<td>2016</td>
<td>140</td>
<td>80</td>
</tr>
<tr>
<td>2017</td>
<td>120</td>
<td>60</td>
</tr>
</tbody>
</table>

* NEET: young people not in education, employment or training

Source: WSJG – CBS Onderwijskansen

**Fig. 25** Percentage of persons 18-30 years old without starting qualification by migration background

1. No migration background
2. Central and Eastern European
3. Southern European
4. Other EU
5. Other western
6. Turkish
7. Moroccan
8. Surinam
9. Dutch Antilles
10. Refugee countries
11. Other non-western

* The migration background of a person with a first-generation migration background is defined as his or her country of birth. The migration background of a person with a second-generation migration background is defined as his or her mother’s country of birth, unless the mother’s country of birth is the Netherlands. In that case, the migration background is defined as the father’s country of birth (source: CBS). Migration background in this figure is being defined as a first- or second-generation migration background. Among young people without a migration background, 4% lost their job between February and June 2020, while this was 9% for young people with a non-Western or Western migration background.

In response to the growing youth unemployment, Amsterdam is reinforcing its programmes to help young people with finding work or going back to school. Among other things, youth have more access to individual guidance, job hunters are deployed to actively approach employers, and the municipality works together with vocational schools (MBOs) to enable young people to study longer.

**Education level** are more often unemployed (14%) than those with intermediate (12%) and high (5%) levels. Unemployment among young people with intermediate education rose quickly in 2020 (from 7% to 12%). The higher educated were less affected. Among young people without a migration background, 4% lost their job between February and June 2020, while this was 9% for young people with a non-Western or Western migration background.

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Giving young school dropouts a chance

→ SDG link: 8.6 Youth in employment, education and training

DropOuts is an advertising agency founded in 2014. As a social enterprise, the agency employs only young people between the ages of 18 and 30 who have difficulty entering the labour market due to dropping out from school or physical disability. DropOuts aims to employ them for a maximum of three years, after which the company helps them move on to another employer. Often this is a client, as they know what the employees are capable of. New employees are often recruited through cooperation with the city of Amsterdam. DropOuts is often hired by companies that need to meet the social return requirement (5% of revenue) that the city of Amsterdam sets in procurement processes.128

Reorganising the labour market

→ SDG link: 8.5 Full employment

House of Skills is a public-private partnership in the Amsterdam Metropolitan Area that connects a wide range of business, employer and employee organizations, knowledge and education institutions and administrations. The goal of House of Skills is to refocus the labour market towards skills (rather than degrees). Due to developments such as automation, the labour market is expected to change in the coming years. By gearing the labour market more towards skills, the skills of job seekers become visible to a broader range of sectors. As such, a more appropriate match between supply and demand in the labour market is expected to be made. House of Skills develops products and services for employers, workers and job seekers in the Amsterdam Metropolitan Area that stimulate a skills orientation, such as a skills passport and a skills check for sectors such as Care and Engineering/Construction.129

128 www.dropoutsamsterdam.nl

129 www.houseofskillsregioamsterdam.nl
SDG 10 concerns the reduction of inequality within and between countries and is therefore directly in line with the *Leave No-one Behind* principle, which runs right through the 2030 SDG agenda.
The increasing growth of cities has generated prosperity in recent decades, but unfortunately also has a downside. Just like in other cities around the world, the G4 cities in the Netherlands see that this growth has increased the differences in opportunities between its residents.\(^\text{130}\) The current COVID-19 crisis has reinforced this inequality of opportunity; often residents with a lower level of education/income and/or non-western migration background have fewer opportunities in society, suffer more from discrimination, have less social security and are more affected by crisis in their livelihood, and health.\(^\text{131}\) Because many of these issues are related to and affect each other, the city focuses on an integrated approach to improve social equality in the city, by connecting different programmes and goals for inequality in income and work, housing, education, health, and well-being. The basic principle here is to invest more in groups that have unequal opportunities.\(^\text{132}\)

### Income and wealth inequality

\(\rightarrow\) SDG link: 10.1

By 2030, progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average \(\rightarrow\) 10.4

Adopt policies, especially fiscal, wage and social protection policies and progressively achieve greater equality.

#### Income distribution

Between 2014 and 2019, the standardised income\(^\text{133}\) steadily increased in Amsterdam. Since 2015, the standardised income in Amsterdam is higher than the national average, and since 2018 it is the highest among the four largest cities in the Netherlands (Figure 27).\(^\text{134}\)

There are significant differences in the average disposable income (not the standardised income) when looking at the composition of households (Figure 28). In 2019, couples with children had an annual average of 74,600 euros to spend. This is more than average in Amsterdam. For single-person households, the average disposable income is the lowest (21,000 euros) followed by single-parent families (25,100 euros).\(^\text{135}\)

By comparing the standardised income of households with the Amsterdam average, it is possible to gain insight into the spatial distribution of the incomes in the city. Households in the neighbourhoods Amstel III/Bullewijk, Bijlmer Centrum and Zuidoost (Zuidoost district) have the lowest income (Figure 29).\(^\text{136}\)

In the larger cities, the distribution of household

### Highlights

- Inequality is increasing in various domains (e.g., housing, health, education).
- The city of Amsterdam has an integrated perspective on social inequality, connecting different programmes in different sectors since they all affect each other.
- Wealth inequality is high, mainly due to homeownership and rising property prices in the city.
- Residents with lower income and education levels experience significantly lower levels of well-being than groups with higher income and education levels.
- National policies play a central role in targeting income and wealth inequality, for instance by increasing the minimum wage. The city of Amsterdam works together with Rotterdam, The Hague and Utrecht to propose structural changes at national level to improve equality.
- There is a large group of undocumented migrants in Amsterdam. The city of Amsterdam offers various services to support this group.

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\(^\text{130}\) G4 (2020), Propositie Kansenongelijkheid, p. 2

\(^\text{131}\) G4 (2020), Propositie Kansenongelijkheid, p. 12

\(^\text{132}\) Raadsinformatiebrief Voortgang Tegengaan Weer-Weerzin, Amsterdam (June 2020)

\(^\text{133}\) The standardized income is the disposable income adjusted for differences in household size and composition. Amsterdam consists of relatively more one-person households and with the standardised income, income differences between households are comparable. Using the disposable household income will demonstrate a different development: in 2019, household in Amsterdam had an annual income average of €54,690 euros. This is 2000 euros less than the national average and lower than the other three large cities in the Netherlands (Rotterdam and The Hague). Source: Staat van de Stad 2021, p.133.

\(^\text{134}\) Staat van de Stad, p. 132.

\(^\text{135}\) Staat van de Stad, p. 133.

\(^\text{136}\) Staat van de Stad, p. 133.
incomes is more polarised than in the Netherlands as whole. There are relatively many city residents with a very low or a very high income and relatively few residents with a medium income level. In 2019, Amsterdam, Rotterdam and The Hague had the highest share of households with a very low income (the lowest 10% in the Netherlands). In Amsterdam this share is 17%. The share of households with a very high income (the highest tenth in the Netherlands) is the highest in Amsterdam (44%). Between 2015 and 2019, the share of very low-income households has decreased slightly from 18 to 17% and the share of very high-income households has increased slightly from 13 to 14% in 2019.137

Looking at different types of households, we see differences in terms of the economic independence of residents (Figure 30). Economic independence means that a person can provide for their own livelihood through income from employment. In 2019, the minimum for economic independence was defined at an income of €990 per month.138

In Amsterdam, 75% of employed residents within the age group 25-34 years, the share of economically self-employed decreases with increasing age. This decrease is stronger among women than among men. Furthermore, women and men with a basic level of education are less likely to be economically independent than those with an intermediate and advanced level of education. Furthermore, women and men with a migration background are less likely to be economically independent than women and men without a migration background. Differences in economic independence according to migration background are often strongly related to education level: the share of economically self-employed increases as the education level rises.139 The income gap between men and women is discussed under SDG 8.

The proportion of residents with an income from (national) social assistance, such as unemployment benefits or disability benefits, is 87.4 per 1000 residents, compared to the national average of 91.7 per 1000 residents. Compared to other cities in the Netherlands, this number is relatively low (Figure 31).140

In 2020, young people and groups with a basic-to-intermediate education level (up to finished secondary education) were more often unemployed. In July 2020, the number of unemployed residents within the age group 18-26 was four times higher than in January that year.

In the following months, the number of young people on unemployment benefits fell relatively quickly. This might be because unemployment benefit rights are built up over time (the longer you have worked, the longer you are entitled to benefits), and probably many young people had only built up limited rights on unemployment benefits and therefore were no longer receiving these. A large proportion of residents with unemployment benefits are highly educated, in January 2020 this was 44%. During the COVID-19 crisis, the number of people on unemployment benefits has increased relatively the most under groups with basic to intermediate education (Figure 32).141 The number of residents on disability benefits has been declining in recent years. In 2007, the city had 39,000 residents with a disability benefit; at the end of 2020, there were 34,000. National laws on disability benefits have changed in recent years. Currently, residents who receive a ‘WiA’ benefit, a benefit under the Work and Income (Capacity for Work) Act are the largest group with 42%.142

Income inequality Compared to other EU-countries, income

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137 Staat van de Stad, p. 134.
138 This has been operationalised as an income of at least 70% of the statutory minimum wage, or the net social assistance benefit of a single person. In 2019, the limit for economic independence was €990 net per month. Source: Staat van de Stad, p. 134.
139 Staat van de Stad, p. 136.
140 Staat van de Stad, p. 129.
141 Source: Drechtsteden Research Center (no date), Municipal Sustainability Index.
142 Source: Staat van de Stad 2021, p. 133.
Inequality in the Netherlands is small.\textsuperscript{144} Income inequality is expressed through the Gini-coefficient, in a value ranging between 0 (income equality) and 1 (income inequality). Compared to the national average (0.29), the income inequality in the larger city is much higher, 0.37 in Amsterdam alone. This is explained by the fact that there are relatively more households with a very low income (3% of the population) and a very high income (14%). Since 2017, income inequality has not changed for both Amsterdam and the Netherlands.

\textbf{Wealth inequality}

Wealth inequality is also expressed using the Gini-coefficient. Wealth inequality is much greater than income inequality. In the Netherlands as a whole, the Gini-coefficient is 0.79, but in the larger cities, the wealth inequality is even higher. In Amsterdam, the Gini-coefficient is 0.87, in The Hague 0.84, and in The Hague 0.85. This can be explained by the presence of relatively many young people, benefit recipients and persons with a non-western migrant background with very low levels of wealth living in cities, while on the other hand there is also a group with high levels of wealth.\textsuperscript{145}

The average level of wealth per household in Amsterdam increased from 126,400 euros (2016) to 187,700 euros (2019). Since the average wealth is determined by the major differences with both negative and positive extremes, the median\textsuperscript{146} is used instead of the average. Households in Amsterdam had a median wealth of 8,400 euros in 2019. Compared to 2018, this number has doubled (4,200 euros). In the Netherlands, the median wealth has also risen significantly over the years (from 22,000 euros in 2016 to 49,900 euros in 2019). The median wealth is thus much lower than in the Netherlands.\textsuperscript{147}

Wealth inequality is also expressed using the Weerstand Index. Since 2017, income inequality has not changed for Amsterdam. This is explained by the fact that there are relatively more households with a very low income (3% of the population) and a very high income (14%). Since 2017, income inequality has not changed for both Amsterdam and the Netherlands.

In the discussion of this target, we focus on social inclusion (well-being and social relations). Political inclusion (see SDG 15) and economic inclusion (SDG 8) are addressed elsewhere in this report. The ‘Living Situation Index’ is developed by the Netherlands Institute for Social Research (SCP) to give a summarised understanding of the level of well-being.\textsuperscript{148} It is based on indicators in eight domains: income, education, age, sex, disability, race, ethnicity, origin, religion or economic and political inclusion of all, irrespective of economic or other status.\textsuperscript{149}

In addition to education and income, age, migration background and health are important factors for well-being. Residents over the age of 55 experience lower than average levels of well-being.\textsuperscript{150} In general, the older one gets, the lower one’s level of well-being. In addition, on average, residents with a migration background have a lower Life Situation Index than those without a migration background (97 vs. 106). Residents with a Moroccan migration background have the lowest Life Situation Index (89).\textsuperscript{151} The average level of well-being is still higher than the index base year 2004, but the upward trend that was visible since then has halted. In particular, the domains of leisure activities, holidays and social participation show a decrease in 2020, which can be explained as a result of the measures to control the COVID-19 pandemic. It is unclear whether the same development took place nationwide, as there are no recent figures available for the national Living Situation Index. Well-being is strongly related to the level of education and income. In 2020, residents without education or with only primary education on average had a lower Life Situation Index than residents with a higher education level.\textsuperscript{152}

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feel, the higher their level of well-being. For example, respondents who rate their own health as ‘very good’ have an average score on the Living Situation Index of 109 and those who rate it as ‘(very) bad’ have a score of 83. Well-being is also related to one’s social relations. Residents who are often in contact with friends or close acquaintances experience a higher level of well-being than those who have these contacts less often. The Life Situation Index varies from 105 among those who have at least weekly contact, to 84 among those who rarely or never have contact. Residents who experience strong social isolation, who do not have supportive relationships, have a lower level of well-being than those who are not socially isolated at all (92 versus 110). In 2020, 14% of residents in Amsterdam felt strongly socially isolated, a figure which is rather stable throughout the years. Feelings of social isolation are more common among residents with poor health (39%) and with disability benefits (37%). On average, the well-being of women in Amsterdam does not differ from that of men.

Discrimination

SDG link: 10.3. Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard. This also relates to 8.5.

The proportion of residents who at times feel discriminated has been at or around 13% for years. This percentage is highest among residents with a Moroccan migration background (25%), gay/bisexual residents (22%) and residents with a Surinamese or Turkish migration background (20% and 19%) (Figure 35). Of all adult residents who have felt discriminated against in the past 12 months, 44% indicate that this has to do with their race or skin colour, 34% with their nationality and 17% because of their gender. In almost half of the cases (49%), the incident took place on the street. One in ten cases was at work and a smaller part in a shop (8%) or during a job application (4%). 8% of those who have experienced discrimination in the past 12 months say they have reported it. The Reporting Point for Discrimination in the Amsterdam Region (MDRA) recorded 1,309 reports in 2020; more than twice as many as the year before. The increase in the number of reports was closely related to the COVID-19 pandemic. For example, the number of reports of discriminatory remarks against people of an Asian background increased, sick people who cannot...
wear face masks were unjustly not allowed everywhere, and same-sex couples were not always recognised as part of the same household. Only a fragment of the discriminatory actions is reported to the police. In 2021, the number of discrimination crimes registered by the police in Amsterdam was 10. This is significantly more than in previous years (Figure 36).

In 2020, the anti-discrimination policy of the city of Amsterdam was reviewed in response to the major impact of the Black Lives Matter movement and because of the discrepancy between the number of reports to the MRA and the perceived discrimination. In its approach to discrimination, the city opts for a combination of a repressive and a preventive approach, for example by organising anti-discrimination campaigns and providing a toolkit to social organisations to fight discriminatory practices. More information on discrimination in the labour market and related policies can be found in the discussion of SDG 8.5.

Migration

SDG link: 10.7

Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies.

This also relates to: SDG 8.5

Amsterdam has been a migration city for many years. Migration plays an important role in the growth of the city population. Between 2013 and 2017, the number of recent foreign migrants (max. 10 years) increased by 47% in the Amsterdam Metropolitan Area (MRA), while the total population (10 years) increased by 47% in the Amsterdam Metropolitan Area (MRA), while the total population increased by 47% (2017).

Asylum seekers who have received a residence permit are called ‘status holders’ in the Netherlands. The national government determines every six months how many status holders are to be given a place to live by each municipality. Larger municipalities must offer housing to more status holders than smaller municipalities. On 1 January 2020, 7,299 status holders were living in Amsterdam.163

In addition to providing housing, the municipality of Amsterdam aims to help migrants with a residence permit integrate into society as soon as possible. For this end, status holders are expected to follow language courses and all status holders from the age of eighteen are supervised by counsellors, who provide guidance towards work and training during their first three years in Amsterdam.164 If needed, status holders are connected to health care organisations for support.

The share of Amsterdam status holders who have paid work has increased in recent years.165 In 2020, 75% of the status holders were employed. There are, however, major differences between men and women: men are much more likely to do paid work than women (45% versus 19%) (Figure 38). The longer status holders have been in the Netherlands, the higher the proportion with paid work. Some workers also have a dual citizenship.166

In total, the COA provided 39,000 shelter places nationally in April 2022.167 The law prescribes that the national Immigration and Naturalisation Service (IND) decides whether asylum seekers receive a residence permit.168 The law prescribes that the IND must make a decision within 6 months, which can be extended to 15 months in some situations. For asylum seekers who have a good chance of being admitted to the Netherlands, there is a short procedure of only 6 or 9 days. In practice, the application procedure takes between 10 and 47 weeks in February 2022, depending on the application track.169

During the application process, the person concerned lives in an asylum seekers centre. The Central Agency for the Shelter of Asylum Seekers (COA) collaborates with municipalities throughout the country to provide shelter and guidance to asylum seekers. In March 2022, Amsterdam has one ‘permanent’ shelter and three temporary shelters, which together provide place for about 1,900 people.170 In addition, a new location with 300 places is being built and is expected to be ready in 2023.171 In total, the COA provided 39,000 shelter places nationally in April 2022.

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The share of Amsterdam status holders who have paid work has increased in recent years.175 In 2020, 75% of the status holders were employed. There are, however, major differences between men and women: men are much more likely to do paid work than women (45% versus 19%) (Figure 38). The longer status holders have been in the Netherlands, the higher the proportion with paid work. Some workers also have a dual citizenship.176

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During the application process, the person concerned lives in an asylum seekers centre. The Central Agency for the Shelter of Asylum Seekers (COA) collaborates with municipalities throughout the country to provide shelter and guidance to asylum seekers. In March 2022, Amsterdam has one ‘permanent’ shelter and three temporary shelters, which together provide place for about 1,900 people.180 In addition, a new location with 300 places is being built and is expected to be ready in 2023.181 In total, the COA provided 39,000 shelter places nationally in April 2022.

Asylum seekers who have received a residence permit are called ‘status holders’ in the Netherlands. The national government determines every six months how many status holders are to be given a place to live by each municipality. Larger municipalities must offer housing to more status holders than smaller municipalities. On 1 January 2020, 7,299 status holders were living in Amsterdam.182

In addition to providing housing, the municipality of Amsterdam aims to help migrants with a residence permit integrate into society as soon as possible. For this end, status holders are expected to follow language courses and all status holders from the age of eighteen are supervised by counsellors, who provide guidance towards work and training during their first three years in Amsterdam.183 If needed, status holders are connected to health care organisations for support.

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The Knowledge Centre for Inequality (“Kenniscentrum Ongelijkheid”) is a joint initiative of the Municipality of Amsterdam and four knowledge institutions in the city: University of Amsterdam, Free University, Amsterdam University of Applied Sciences and Inholland University of Applied Sciences. The aim of the Centre is to describe and explain new, persistent or growing forms of inequality in the Amsterdam Metropolitan Area — and in particular the accumulation of inequality within and across life domains and life stages — and to contribute with research to the (further) development of practices that can prevent or combat inequality.

The Knowledge Centre for Inequality was launched in 2021. Since then, various research projects have been initiated. Among other things, a project examines to what extent differences between groups of self-employed people have increased since the COVID-19 pandemic, and to what extent work and income policies exacerbate or mitigate these inequalities. Another project will study inequalities among young people during the transition from education to work. The first results are expected in the fall of 2022.
SDG 11 is aimed at actions to make cities and human settlements inclusive, safe, resilient and sustainable.
In most segments of the housing stock, including social housing, medium-priced private rent and owner-occupied housing, the demand is many times greater than the supply. The average waiting period for a social rental home is 10 years. Specific offers apply to students and vulnerable groups, who therefore have access to social housing more quickly. Social housing can be considered relatively affordable. In 2021, the average rent of social housing was € 458 per month. National legislation prescribes that social housing is only accessible to households with an income below € 49,024 per year.

Free market rent and owner-occupied housing are significantly less affordable, and prices have increased to a great extent in recent years. The average price of an owner-occupied house in Amsterdam has reached € 605,486 in the last quarter of 2021, a doubling in five and a half years. Due to a lack of affordable owner-occupied housing, home seekers with sufficient income divert to the free market rental sector, with relatively high rents: a minimum of € 772, but an average of € 1,306 in 2021.

Due to long waiting periods in the social rental sector, high rents in the free market and expensive owner-occupied homes, living in Amsterdam is becoming less and less accessible to low- and medium-income households. Remarkably, those who were able to buy a home spend a much smaller share of their income on housing costs than tenants. In 2021, buyers spent an average of 48.6% of their income on mortgage payments (after deduction of mortgage interest from tax payment), while tenants spent on average 29.9% of their income on rent.146 Households that have bought a house in the past two years spend a larger part of their income on their mortgage, namely 22.6%. The same applies to tenants: those who have recently started renting a house in Amsterdam spend on average 34% of their income on rent.

Despite issues with affordability and availability of housing, citizens are generally satisfied with their house (average score given is 7.7 out of 10).147 Those who live in owner-occupied housing are generally more satisfied (8.3) than those who live in social housing (7.0) or free market rent (7.5).

Access to housing and services

By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

In the discussion of this subgoal, we mainly look at the accessibility and affordability of the housing market. The housing stock in Amsterdam is divided into three main types: social rent (48%), free market rent (29%) and owner-occupied housing (29%).148 Although social rent covers half of the housing stock, only 34% of all houses that recently became available (dwellings receiving a new household in the last two and a half years) belonged to that sector. Free market rent is relatively often recently available (45%), and is therefore the most accessible category.

Affordability

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Homelessness

According to the Public Health Service of Amsterdam, the lack of affordable housing does not lead to an increase in homelessness (as in 2000) but does make it more difficult for those who are homeless to find a home.148 This applies in particular to the ‘less vulnerable’ homeless people (without psychiatric and addiction problems) who do not have access to most shelters and housing facilities. In 2020 there was an estimated amount of 36,000 homeless people in the Netherlands – indicating a stabilisation after a years-long increase.149 Specific data for Amsterdam are lacking. There is growing attention for the ‘economically homeless’: people who have a job but no housing. It is estimated that there were 2,000 economically homeless people in Amsterdam in 2020.150

Housing policies

The municipality of Amsterdam aims to support the development of sufficient, affordable and qualitative good housing with the Housing Agenda 2025.151 The policy programme includes goals such as having at least 1500 medium-priced rental homes built every year and setting a standard for new housing developments of 15% regulated rent, 40% medium-priced rent and owner-occupied housing and 45% expensive rent and owner-occupied housing. In addition, measures will be taken to make sure that affordable housing is available to those who need it (including low-income households, vulnerable groups, youth and students), while medium income households have access to medium-priced apartments. To improve the quality of housing, among other things additional sustainability requirements are set to both newly built and existing housing stock.

Moda of traffic

In 2020, residents in Amsterdam made an average of 2.5 trips per day by foot, bike, scooter, car or public transport.152 In 2005 the average was still 3.1 trips per day. Digitisation seems to be an important explanation for the decrease: people are working from home more often, online shopping is increasing, and citizens are less likely to leave their home for services, such as arranging banking affairs or contact with the government. It is likely that the COVID-19 measures have led to a further decrease in the average number of trips a day in 2020 and 2021. On a national level, the number of kilometres travelled decreased by almost a third in 2020.153

When differentiating between types of transport, there was little difference in 2019 in the share of trips by car (29%), by bicycle (28%) and by public transport (21%) (Figure 40). Of modus of transport, bicycle use increased most strongly since the beginning of the century and remained fairly con-
In Amsterdam, the Dutch Cycling Union gave Amsterdam a relatively low score as a cycling city in 2020 (2.9 out of 5) compared to the national average (3.4 out of 5).192 Amsterdam’s own a car (0.52 cars per household in 2018/2019 versus 1.02 nationally).192

Traffic safety and victims
Road users rate the safety of traffic in Amsterdam as moderately positive. In 2019, pedestrians were most positive about road safety (6.7), while moped riders experienced a decrease in safety (from 6.4 to 5.70 in 2019). This can be explained by new traffic rules that prescribe mopeds need to drive in the car lane (with helmet) instead of the bike lane. At the same time, sense of safety has increased for cyclists (from 6.0 in 2017 to 6.2 in 2019).195

The number of road deaths in the city decreased sharply between 1970 and 2000.200 Over the past 10 years, the number of road deaths has remained fairly stable at an average of 15 per year. The number of seriously injured traffic victims fluctuates sharply between 1970 and 2000.200 Over the past 10 years the number of seriously injured traffic victims in 2019. Amsterdam aims to improve road safety among a number of target groups that are more vulnerable and/or are overrepresented in accident statistics, including cyclists, moped riders, motorists, children, young drivers, the elderly, pedestrians (with a disability), and tourists.198 The goal is to decrease the number of seriously injured traffic victims and deaths by 25%. In 2022, the strategies will be evaluated and the plan will be updated.

Inclusive and sustainable urbanisation
Subgoal Link: 11.3
By 2030, enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.

Several goals with regard to improving process- es of democratisation were formulated in the Coalition Agreement of 2019. This led to the democratisation programme and is also reflected in the Comprehensive Vision Amsterdam 2050: a humane metropolis (‘Omgevingsvisie’).203 The main aim is to improve and strengthen citizen engagement and control, for which several instruments have been developed. These instruments range from financial support for citizens initiatives, more flexible rules and regulations, a platform for knowledge sharing and giving citizens more control in the planning and execution of their initiatives. Some of the goals and instruments of the democratisation programme will be highlighted here. To improve citizen participation in city plans and policies, a Participation Policy Framework was adopted in October 2021. This framework contains a policy framework for inclusive mobility, which focuses on stimulating access to public transport for people with disabilities (physical or psychological).204 Measures include improving accessibility of public transport stops for travellers with a physical and/or visual impairment, making travel information more comprehensible, and introducing public transport coaches that help people with disabilities to take the bus, tram or train.

Cultural and natural heritage
Subgoal Link: 11.4
Strengthen efforts to protect and safeguard the world’s cultural and natural heritage.

Amsterdam has over 9,000 listed national and municipal monuments, and the number continues to grow. There are six nationally protected...
Amsterdam residents are generally satisfied with their living environment, giving it an average score of 7.5 in 2019.212

Furthermore, only 3.1% of the total land surface contains nature and forest areas in Amsterdam, compared to 14.8% nationally (more details in Chapter SNG 12).213

Regarding air quality, the concentration of particulate matter (PM10 and PM2.5) in Amsterdam has been decreasing in recent years and is currently below the European maximum values (Figure 43).214 The annual average nitrogen dioxide concentration in Amsterdam has also decreased since 2008 and was 37 micrograms per m³ in 2019.215

In 2025, road traffic within the A10 ring road should be emission-free, except for passenger cars and motorcycles. By 2030, all traffic in the city should be emission-free. In the immediate vicinity of almost all major roads in Amsterdam, noise levels are between 65 and 70 dB and sometimes exceed 70 dB (Figure 43) (data from 2018).217 This means that the limit value that Amsterdam has set for urban road traffic, 68 dB, is surpassed on a regular basis.218 Exposure to noise above 55 dB (and even below) can cause serious nuisances. Therefore, the city plans to take measures to decrease noise caused by road traffic, among other things by reducing speed, stimulating slow forms of traffic, promoting electric powered transport and insulating facades.

Regional development planning

The Amsterdam Metropolitan Area (MRA) is a partnership of the provinces of North Holland and Flevoland, 32 municipalities and the Amsterdam Transport Region. The MRA Agenda is the substantive basis of the MRA collaboration. With this agenda, the collaboration parties are working to strengthen the Amsterdam Metropolitan Area as an international economic top region with high quality of life by investing in a future-proof and balanced metropolis. The collaboration aims to promote coherence between developments in the field of housing, work, mobility and landscape.219 However, despite good intentions, urban infrastructure and urban planning in the MRA is still at a large extent fragmented.220 Members participate on a voluntary basis in the end, the municipalities decide what to do. As a result, there is still unnecessary competition between municipalities in attracting companies and developing industrial estates.

Amsterdam

To better integrate cultural heritage in spatial planning, a new policy brief was adopted in 2020, called ‘Heritage in a dynamic city’. The goal of the policy brief is to ensure that considerations of different interests are made in a timely, transparent, and explicit manner.202 In addition, monumental values will be inventoried for more areas in the period 1965-1986, industrial areas, and historic heritage sites, and this is not always the case. Research has shown that the sense of unsafeness is often related to the appearance of nuisances by young people. In addition, relatively many residents feel unsafe in neighbourhoods that are less lively. And vice versa, many of the reported crime incidents are related to going out and moving around, while this does not significantly affect the quality of life of local residents in the relevant lively neighbourhoods.

The number of reported crimes in Amsterdam is about twice as high as the average in the Netherlands (4a versus 27 per 1000 inhabitants). Of all Amsterdam residents aged 15 and over, 7% often feel unsafe in their neighbourhood. Again, there are clear differences between districts: residents in Nieuw-West most often feel unsafe (8%), while residents in Zuid least often feel unsafe (2%). Crime can lead to a sense of unsafeness, but this is not always the case. Research has shown that the sense of unsafeness is often related to the appearance of nuisances by young people. In addition, relatively many residents feel unsafe in neighbourhoods that are less lively. And vice versa, many of the reported crime incidents are related to going out and moving around, while this does not significantly affect the quality of life of local residents in the relevant lively neighbourhoods.

Accessibility

Amsterdam has an extensive spatial quality policy that includes heritage values, but is also a planning policy, as it is indicated by means of maps and descriptions which objects are valuable. Before any building activity can take place, building permits are needed, and these are assessed in terms of the imperational performance of built heritage (‘lokset Verduurzamen Erfgoed’), which is important in achieving the city’s sustainability goals.203

The distance to public green spaces is 0.4 kilometres in comparison to 0.5 nationally. The amount of green natural areas is rather low in Amsterdam. For every 1000 inhabitants, there is one hectare of nature and forest areas, in comparison to thirty hectares nationally.

Amsterdam residents are generally satisfied with their living environment, giving it an average score of 7.5 in 2019.206 People are generally content with their living environment, giving it an average score of 7.5 in 2019.208 People are generally content with the availability of various sorts of neighbourhood amenities. Citizens are satisfied with the accessibility of shops for daily groceries, public transport and insulating facades, while they see room for improvement for schools, while they see room for improvement for sports and play (Figure 41).

While residents in Zuid are relatively most satisfied with their neighbourhood (average score 8.6), 24% of all residents experienced that their living environment is ‘moving forward’, while 18% feel that it is not.210

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Regional development planning

Subgoal link: 11a

Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.

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Amsterdam
In 2008, a group of Amsterdam residents came up with a plan to build a floating neighbourhood, in an ecologically and socially sustainable way. In 2022, this has become a reality in a canal in the Noord district of Amsterdam. 46 households live on 30 arks in the project Schoon Schip (literally: clean ship).\textsuperscript{221} On the ecological side, the floating neighbourhood consists of well-isolated houses which are not connected to the gas system and are heated with heat pumps. Electricity is generated with solar panels, arks have their own battery, and a ‘smart grid’ is formed allowing energy exchange between households.

On the social side of things, the Schoon Schip neighbourhood has a shared space and the households form an owners association. In addition, a foundation is formed in which workgroups of residents take care of issues like smart grid & energy, sanitation, shared mobility, ecology, water quality and communication.

The process of building the floating neighbourhood was not easy. After the first ideas were formed in 2008, a foundation was formed that filed an official application to build the neighbourhood in 2013. After a long period of preparation and building, the first residents arrived early 2019. Schoon Schip is committed to share its ideas and results to inspire others and therefore publishes its ‘greenprint’ including lessons learned online.\textsuperscript{222} The floating neighbourhood has attracted a lot of attention from national and international media.\textsuperscript{223}

\textsuperscript{221} https://schoonschipamsterdam.org/en/.

\textsuperscript{222} https://greenprint.schoonschipamsterdam.org/.

\textsuperscript{223} This includes an article in The Washington Post (Rubin, 17 December 2021).
This SDG aims to take actions toward sustainable consumption and production patterns, mainly through efficient use of natural resources and reduction of food waste.
The main goals for the city in this policy document are the following:

- Circular Strategy. This consists of the following main elements:
  - Food and organic waste
  - Consumption goods
  - Built environment

- Action: Implementation plan and monitoring. In the innovation and implementation programme Amsterdam Circular 2020-2030, over 100 projects are described that are implementable by the city, often with partner organisations. In 2020, a first version of a monitor of results was published, developed with Technical University of Delft and TNO. A thoroughly updated and interactive version of this monitor was published in February 2022.

- Data on the division between use of primary materials (natural resources) and secondary materials (recycled) are not yet available, new measurement tools are in development.

- In 2030, we want 50% less new natural resources (compared to 2019).

- In 2050, we want our city to be 100% circular.

### Highlights

- The first edition of the Amsterdam Monitor Circular Economy showed that the city’s economy is still based on intensive primary material consumption. If the city is to meet its targets, consumption of primary, abiotic material would have to decrease annually by 2.3 billion kilograms starting in 2020. Much work is needed to reduce this material footprint to the target for 2030.

- The estimated minimum amount of food waste per capita showed that 1,216 kton of resources and materials (natural resources) and secondary materials (recycled) were used by the city in 2018. This amounted to around 14.4 tonnes per capita. The city then pledged to improve its measurement tools to make them more complete. In the 2022 update based on new data from Statistics Netherlands (CBS), it was found that '73.4 billion kilograms was needed for the entire Amsterdam economy in 2019. For consumption within Amsterdam, 18.5 billion kilograms of material was required. In other words, depending on whether we focus on local consumption or look at the entire economy, material use in Amsterdam is 15 or even 61 times higher than was previously thought.' The city concluded that ‘despite many initiatives, the bulk of Amsterdam’s economy is still based on intensive primary material consumption. If the city is to meet its targets, consumption of primary, abiotic material would have to decrease annually by 2.3 billion kilograms starting in 2019. Much work is needed to reduce this material footprint to the target for 2030’ (Figure 4).

- The preliminary numbers for 2020 indicate that the city has met the reduction goals successfully, with a reduction of approximately 2.5% in primary abiotic material. This also means that the trend – the average change from 2015 – has changed from ‘rising’ to ‘stable’.

- The decrease can be broken down into 24 different commodity groups that together represent all the material in the city. Of these goods groups, 12 are increasing and 12 groups show a decrease. The obvious explanations for this decrease are social developments related to the COVID-19 pandemic and related material supply problems and raw material shortages. However, to say with certainty per commodity group what effect the above factors had in 2020, more research is required.

- Nevertheless, there are specific events that can be linked to declines in the use of materials in Amsterdam. For example, approximately half of the decrease in coal use can be attributed to the closure of the Hemweg coal plant in December 2019. A decrease in natural gas consumption (possibly due to COVID-19 or a mild winter) and a decrease in European – and in particular German – coal demand explains the rest of the decline. The reduction in material use in this commodity group represents approximately half of the total decrease in material use in 2020. This commodity group has been showing a decline since 2015.

- At the city level, data are not yet available on the proportion of renewable-source energy consumption. In the Netherlands as a whole, this was 9% in 2019. Nationally, however, coal use will most likely increase again in 2021 and 2022 due to the high gas price and the war between Russia and Ukraine.

Neither the old nor the new Amsterdam numbers can be compared to the old national numbers of 9.5 tonnes per capita Domestic Material Consumption (DMC) or 154 kg per European Green Deal. Material Footprint (MF) data are not yet available on the division between primary materials (natural resources) and secondary materials (recycled).

New measurement tools are in development.

### Action Plan

- Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.

- At the local level, this subgoal relates to action plans promoting sustainability. Over the last few years, the city of Amsterdam has built a comprehensive programme of circular policy and actions. This consists of the following main elements:

#### Foamarkam City Doughnut

This is a city portrait that presents city life and its impacts through four lenses – social, ecological, local and global. It aims to create a vibrant city that is socially just and ecologically safe.

- Strategy: Amsterdam Circular 2020-2050. In this policy document, three focus areas are named:
  - Food and organic waste
  - Consumption goods
  - Built environment

- Action: Implementation plan and monitoring. In the innovation and implementation programme Amsterdam Circular 2020-2030, over 100 projects are described that are implementable by the city, often with partner organisations. In 2020, a first version of a monitor of results was published, developed with Technical University of Delft and TNO. A thoroughly updated and interactive version of this monitor was published in February 2022.

- In addition, (the process leading up to) this Voluntary Local Review could be considered a next step in putting action plans in practice. It aims to further raise awareness of Amsterdam’s efforts and challenges in reaching the SDGs among both residents and other stakeholders.

- Resource use

  **Subgoal link:** 12.3

  By 2030, achieve the sustainable management and efficient use of natural resources.

- The use of resources is very much a global topic. In the Amsterdam City Doughnut, reference is made to ‘the effects of Amsterdam’s resource use in the manufacture of products that are imported into the city, such as fertiliser, water, land and fossil fuels that are used worldwide to produce food and clothing in sale in the city’.

- Focusing on the local level, an important indicator related to this subgoal is the material footprint of the city. How many resources and materials does the city use in a year?

- The first edition of the Amsterdam Circular Monitor showed that 1,216 kton of resources and materials were used by the city in 2018. This amounted to around 14.4 tonnes per capita. The city then pledged to improve its measurement tools to make them more complete. In the 2022 update based on new data from Statistics Netherlands (CBS), it was found that ‘73.4 billion kilograms was needed for the entire Amsterdam economy in 2019. For consumption within Amsterdam, 18.5 billion kilograms of material was required. In other words, depending on whether we focus on local consumption or look at the entire economy, material use in Amsterdam is 15 or even 61 times higher than was previously thought.' The city concluded that ‘despite many initiatives, the bulk of Amsterdam’s economy is still based on intensive primary material consumption. If the city is to meet its targets, consumption of primary, abiotic material would have to decrease annually by 2.3 billion kilograms starting in 2019. Much work is needed to reduce this material footprint to the target for 2030’ (Figure 4).

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- Nevertheless, there are specific events that can be linked to declines in the use of materials in Amsterdam. For example, approximately half of the decrease in coal use can be attributed to the closure of the Hemweg coal plant in December 2019. A decrease in natural gas consumption (possibly due to COVID-19 or a mild winter) and a decrease in European – and in particular German – coal demand explains the rest of the decline. The reduction in material use in this commodity group represents approximately half of the total decrease in material use in 2020. This commodity group has been showing a decline since 2015.

- At the city level, data are not yet available on the proportion of renewable-source energy consumption. In the Netherlands as a whole, this was 9% in 2019. Nationally, however, coal use will most likely increase again in 2021 and 2022 due to the high gas price and the war between Russia and Ukraine.

- Neither the old nor the new Amsterdam numbers can be compared to the old national numbers of 9.5 tonnes per capita Domestic Material Consumption (DMC) or 154 kg per European Green Deal. Material Footprint (MF) data are not yet available on the division between primary materials (natural resources) and secondary materials (recycled).

- New measurement tools are in development.

- **Food waste**

  **Subgoal link:** 12.3

  By 2030, halve per capita global food waste at the consumer and business levels and reduce food losses along production and supply chains, including post-harvest losses.

- Food waste is defined as ‘food intended for human consumption but not used for this purpose: losses during storage, and losses during transport, in retail, cafés, restaurants, etc. For the Netherlands as a whole, food waste per capita was between 96 and 149 kilograms in 2018. Exact figures are not known, but assumptions were made about the minimum and maximum amount of food per waste stream. The trend seems to be slightly downwards.’

- Solid food waste in households is estimated to be 34.3 kilograms per person per year in 2019. This amounts to 27-30% of total waste in the food chain. Consumers appear to have the largest share
of waste in the chain. Among consumers, food waste has been declining for a number of years. Using 2010 as a baseline, the decrease was 29% in 2019 (from 48.0 kg to 34.3 kg).238

Figures on food waste in retail were published for the first time in 2020. On average, 98.9% of the food offered in supermarkets240 in the Netherlands is sold. The remaining 1.1% does not reach the consumer. Retail contributes 10% to the total food waste in the Netherlands.240

Policy

Following the SDGs, the aim is to reduce food loss per capita as part of a sustainable pattern of food consumption and production. Initiatives will be supported against food waste and for more efficient food production. The city supports initiatives that fight against food waste and for a more sustainable, healthier diet—e.g., by offering solutions in logistics, data, value retention, accessibility or engagement and community involvement, but also in the field of food technology that can provide tasty sustainable alternatives.245 Policies will be created aimed at specific sectors and specific groups of residents through the Amsterdam Food Strategy and the Amsterdam Circular Strategy. The Amsterdam Food Strategy outlines six main actions. The goals are to make residents more aware of the importance of food, less waste, eating less meat and processed food, producing less waste and shorter food chains. The action against food waste relates mainly to prevention, reduction, recycling and reuse.

By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. This also refers to goal 8.4

Waste recycling

Subgoals link: 12.2

By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. This also refers to goal 8.4

These subgoals relate to different forms of waste, including household and industrial waste. Between 2016 and 2019, the total amount of waste dropped by around 14% (Figure 43).242 This relates to both ‘city waste’ (from households and companies) and ‘construction and demolition waste’. Regarding waste recycling, the trend is positive (Figure 46). Since 2016, the amount of waste that is recycled has remained relatively stable in absolute terms (around 900 kilotons). In 2019, 945 kilotons of waste were recycled. However, considering the declining trend in total waste production, this means that the share of recycled waste is gradually increasing (from 43% in 2016 to 54% in 2019).

Household waste recycling

Looking specifically at household waste, the Figure 47 shows that the amount of waste per inhabitant is decreasing in the four largest cities in the Netherlands and that Amsterdam produces the smallest amount of waste per inhabitant in 2019, 377 kg.243

Figure 48 demonstrates the various ways in which inhabitants of Amsterdam separate their waste.246 Of all the waste produced: 16% ends up as residual waste 18% is separated at source 14% is further separated (including metals from bottom ash) 8% is ‘bulk waste’ that is not separated

Organic waste is one of the types of waste that often ends up unseparated in the residual waste, because there are no collection facilities in Amsterdam, except for a number of neighbourhoods. Glass is well separated; only 5% of the glass waste is returned to the residual waste. Of the bulky (‘grof’) household waste, only 24% is collected separately, 4% is post-separated and 53% remains unseparated.246

Industrial waste recycling

Looking at the collection of waste in Amsterdam, in total, 13,600 million kilos of industrial waste (waste from companies) was collected in 2019. Most waste is generated in the construction industry (48%). Consumption goods amount to about 13%, while the non-specific category generates 17% of the total. This includes among others metals and silt from municipal waste. The unclassified category accounts for 9% of the total waste, which includes asphalt residues, cleaning agents or waste from roofing materials.247

Figure 49 demonstrates the amount of waste that is recycled. Although the construction industry generates most waste, a large proportion (two-thirds) is recycled. Plastics and synthetic materials generate the lowest amount of waste (in kilograms), while only 14% is recycled and 86% is lost.247

Policy

To improve waste management in the city, several goals were formulated in the 2018 Coalition Agreement: to improve separate waste collection and to develop a targeted approach for company waste.248 Concrete goals to improve waste recycling are formulated in the Uitvoeringsprogramma afval en grondstoffen 2020-2025. The strategy is aimed at 1) improving facilities for waste recycling, 2) encour-
In 2021, the implementation of this policy was independently evaluated and, in general, the conclusion was that the measures are appropriate for the goal. However, the city was told it could improve on its public reporting of results.

For organic waste streams, the city of Amsterdam will launch a programme before 2023 to improve the collection and processing from Amsterdam’s residents, visitors, businesses and institutions. EU policy states that kitchen and garden waste must be collected and processed separately by the end of 2023. The aim is to have a separate collection of kitchen and garden waste in place for 71% of Amsterdam’s households by 2030.252

Furthermore, the goal is to develop a targeted approach to more collectively collect ‘company waste’. The desired outcome is a 50% reduction of the total amount of kilometres driven in the transport of waste collection, using one waste collector. Furthermore, the amount of waste not presented properly by companies must be reduced. To this end, extra capacity has been made available for enforcement and cleaning of the public space in the new cluster Stadsbehoud, as outlined in the Masterplan handling on ringing (January 2020). To facilitate enforcement, rules will be made more uniform and more clear. Additionally, the local tax on waste collection for companies (ringingorchr) will be completely re-evaluated in 2023. The city tested a new approach which included better information, clearer rules and stronger enforcement on ‘company waste’ that is incorrectly presented in three pilot areas in 2019. The goal is to scale up to other areas in the city.253

The city of Amsterdam spends more than € 2.5 billion annually on purchasing goods and services in accordance with national policies and priorities.254 Promotion of sustainable public procurement practices, in accordance with national policies and priorities. The city of Amsterdam spends more than € 2.5 billion annually on purchasing goods and services.255 With its procurement strategy, Amsterdam aims to support and, where possible, accelerate its sustainability goals. To this end, targets were set for circular, climate-neutral and emission-free purchasing:256

- Circular procurement: 10% in 2022, 50% in 2025 and 100% less use of primary raw materials in 2030.
- Climate-neutral procurement: by 2030 at the latest, the municipality’s business operations will be climate neutral.
- Emission-free procurement: 100% of traffic (with the exception of passenger cars), mobile equipment and aggregates within built areas are emission-free by 2023 at the latest.

The municipality has established two sustainable commissioning teams.257 Both serve as an advice desk and a centre of expertise for sustainable commissioning and purchasing. The aim is to make circular, CO₂ and energy-saving criteria more standard and visible.258 In addition, an ‘Environmental Cost Indicator’ (MKD) was introduced in a number of tenders, and from 2022 onwards, the CO₂ performance ladder (CO₂-prestateladder) is a standard ingredient for works, deliveries and services in the civil engineering sector.259

Information and awareness for sustainable development

Subgoal link: 12.8

By 2030, ensure that people everywhere have relevant information and awareness for sustainable development and lifestyles in harmony with nature.252

To achieve this subgoal, measurement is made of the extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in national education policies, curricula, teacher education and student assessment. There are no specific data available to measure this yet, but there is qualitative evidence of actions taken. Within the city of Amsterdam, a number of programmes and campaigns support awareness and knowledge of sustainable development among employees. During Green Lectures topics...
SDG 12 - RESPONSIBLE CONSUMPTION AND PRODUCTION | CONTENTS →

In a recent survey, a large proportion of respondents (89%) state that they are concerned about issues such as pollution of the earth, depletion of raw materials and emissions of greenhouse gases (CO₂) (Figure 30). More than half of the respondents are very concerned (55%), about a third of respondents are somewhat concerned (34%), and the rest are little or not concerned. The national CBS survey shows that about three-quarters (34%), and the rest are little or not concerned. The third of respondents are somewhat concerned (34%), and the rest are little or not concerned. The national CBS survey shows that about three-quarters of respondents are somewhat concerned about climate change. Whether people in Amsterdam are concerned about the environment and the climate is related to education level: for example, 9% of the highly educated are very concerned or somewhat concerned about these matters, compared to 88% of the intermediate and 79% of those with basic education. Young people more often have many or at least some worries (92%) in comparison with older people (84%).

In 2021, the city of Amsterdam launched the Business Involved platform for companies and their employees to find sustainable volunteer work and activities that have a positive impact on Amsterdam and the region. These opportunities are designed to match people’s individual skills and aspirations while also reflecting company social values. The platform is a collaboration between experts from the city of Amsterdam, Volunteer Centre Amsterdam (Volunteer Centre Amsterdam, VCA) and social tech company Deedmob. Participating companies are able to measure their local impact using the SDGs.

Tony’s Chocolonely is an Amsterdam-based chocolate brand, whose aim is to create the conditions for the eradication of child (slave) labour in the cocoa value chain. Its ultimate aim is to positively influence the practices of the largest chocolate companies in the world. The company aims to create awareness, lead by example and inspire others to act. To this end, it publishes an ‘Annual Fair Report’, in which it reports on its impact. To support its impact claims, Tony’s has not only integrated sustainability information in its reporting cycle; it has also audited a number of such non-financial Key Performance Indicators (KPI). This includes data on the ‘percentage chocolate farmers who are aware of the existence of modern day slavery on cocoa farms’, ‘percentage carbon footprint compensated’ and ‘tonnes of cocoa beans purchased through Tony’s Open Chain’.

Business Involved

→ SDG link: 12.6 Corporate responsibility

Goal: Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.

Sustainable commissioning

→ 12.7 Sustainable procurement

The city of Amsterdam has formed a working group with advisers representing both sustainable commissioning teams. The working group is frequently asked for advice in procurement processes, which has led to more sustainable purchasing, for instance sustainability criteria in tenders for construction, municipal catering, and green gas.

Educating sustainable and social entrepreneurship

→ 12.8 Information and awareness for sustainable development

In 2021, the city of Amsterdam supported a project delivering and researching an education programme on sustainable and social entrepreneurship to around 500 children in primary schools (age 9–12). This programme was delivered by social enterprise Fawaka Entrepreneurship School, and research on its effects was carried out by the Amsterdam University of Applied Sciences. Effects show that children clearly gain knowledge about sustainable development, which provides additional arguments to mainstream such types of programmes in curricula.

→ SDG link: 12.6

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SDG 13 is aimed at actions toward reaching the goals that are defined in the Paris Agreement concerning climate change.
Identifying zones where there is a significant level of heat-stress among lonely residents 75+ years old. This is the group who has the highest risk to suffer from heat stress due to the Urban Heat Island (UHI) effect. The data behind this map are developed by RIVM. They give an estimate per neighborhood based on a model calculation.

Preventing heat stress and water nuisance
The heat stress map demonstrates that in many places in Amsterdam, especially in the city centre, the perceived temperature is at least 40 degrees on a heat stress test day. In particular, seniors over 75 years old who suffer from loneliness are at risk for health consequences caused by heat stress (Figure 51).

Green areas in the city contribute to cooling the city during heat and to better capture water. Compared to other cities in the Netherlands, Amsterdam scores relatively low in relation to green space per home: Amsterdam ranks 23rd of the 31 larger municipalities (Figure 52) (mapped by Wageningen University).

In 2020, there was an average of 60 square metres of green space per resident in the city. This has decreased since 2015 (71 square metres per resident). In total, 16% of the land area in the city is green. The petrified surface in public and private gardens is 49 percent. Of the 12 square kilometres of flat roofs in the city, approximately 1% is green.\textsuperscript{266}

In 2021, data became available on the amount of ‘green’ in Amsterdam (Figure 53). This includes both trees and ‘low green’, such as bushes. Here, Amsterdam scores below the national average as well.

Climate adaptation is also an important task for municipalities. There is a strong warming effect in urban areas, especially at night, heat lingers for a long time. Trees and water can provide cooling. At the same time, the risks of flooding must be anticipated.

SDG 13 focuses on tackling human-caused climate change. This concerns both resilience to shocks caused by climate adaptation and ‘mitigation’, measures to combat climate change. Climate policy is closely related to the commitment to renewable energy (SDG 7), circularity (SDG 12), circular agriculture (SDG 2), industry, infrastructure and mobility (SDG 9), urban development (SDG 11) and water (SDG 6).

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Climate-related resilience and adaptive capacity
Subgoal link: 13.2
Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
This also relates to SDG 11.5

The city of Amsterdam is strengthening the adaptive capacity through the Strategy and Implementation Agenda Climate Adaptation. Prioritised climate-related hazards are heat, drought and flooding. To identify the resilience of the city to changing climate, climate stress tests are performed on these hazards by the local government. These tests provide insights into the risk areas for Amsterdam and are used in the preparation and implementation of the Climate Adaptation Strategy for Amsterdam and the Implementation Agenda.\textsuperscript{265}

Fig. 52 Green per house (m²) in selected Dutch cities, 2014

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Floods.

Through extensive rainfall and the growing build-
ing stock in the city, there is an increased risk for
flooding. Through the water nuisance stress test,
so-called bottleneck areas in the city are identified.
A bottleneck is a (part of) a street or neighbour-
hood with a strongly increased risk of nuisance
and damage in the event of extreme rain.\(^{268}\)

The risk of extreme flooding is very low. Only on
the east side of the urban district Noord, as a small chance of 1/300 to 1/3000 per year for a
flood. Policies to address future risks, such as sea
level rise, are discussed below.

Drought

To limit damage to buildings, greenery, infrastruc-
ture and dykes as much as possible, a system with
sufficient soil water is important. The city is look-
ing at the right balance between various aspects:
sewerage and watering of greenery, fluctuations
in groundwater (and the pumps that can adjust
this) and the collection of rainwater on the ground
and roofs and the water drainage.\(^{268}\)

Low groundwater levels pose especially significant
problems to the foundations of houses made up of
wooden poles that dry at low groundwater levels.
The piles and foundation can then begin to rot. We
call this groundwater underload (Figure 54).

In almost half of the measured areas, the ground-
water level is low or very low, more than 1.25
metres below the ground level.\(^{269}\)

Climate adaptation policy

To provide solutions for the prioritised hazards, the
climate adaptation implementation agenda was
launched in May 2021. The aim is to put the issue on the agenda, inspire and offer tools to get
started. The agenda consists of various examples,
concrete actions and inspiration for residents and
entrepreneurs, demonstrating the need for their
participation in creating a more climate-adaptive
city. The implementation agenda is characterised
by an ‘iterative process’: through experimenting,
monitoring and evaluating, actions and measures
can be adapted.\(^{269}\)

Some of the concrete measures involve, among
others, the creation of hundreds of extra green
spaces, testing water storage systems on tramelines,
greening of schoolyards through a subsidy Am-
sterdam Impuls Schoolyards, and increasing the
number of facade gardens. Rainwater basins are facili-
tated in greening their gardens through a public
service of removing tiles and climate adaptation
coaches. An additional goal is to have at least one
rain barrel placed per day by a resident. Through
the platform Rainproof, residents are inspired
and linked to these public services and other
activities in their local area.\(^{270}\)

To further prevent water nuisance and damage
in the city, the so-called Hemelwaterverordening
(The ‘Rainwater Regulation’) was adopted in 2021.
This regulation prescribes that for new buildings
and renovated buildings where one or more build-
ing layers are added, at least 60 litres of rainwater
per square metre must be stored and drained in
the following 60 hours.

The aim is to decrease the (small) risks of extreme
flooding in the city and to reduce the consequenc-
es in the event of a flood, both through spatial
planning and through crisis management.

In addition to the current work and overarching
activities, the city thrives to do the following:

* increase awareness of flood risks and the
  functioning of the water system among spatial
  planners, project developers, urban designers
  and asset managers

* set up a thematic study on water safety for
  knowledge development in the context of spa-
tial area development and utilities

* increase the role of flood risks and sea level rise
  in the choices made in spatial development
  through stress testing, both at project level and in
  the context of trajectories such as the Com-
  prehensive Vision Amsterdam 2050: a humane
  metropolis.\(^{271}\)

Climate change measures in policies

To integrate climate change measures into national
policies

In line with the Paris Climate Agreement and
EU policy, the city of Amsterdam aims to have
reduced the city’s CO₂ emissions by 5% in 2025,
35% in 2040, and 55% in 2050, compared to
1990, which is used as a reference year. The city
will switch over to 100% sustainably generated
energy.\(^{272}\) In 2040, Amsterdam will no longer use
natural gas and all traffic must be emission-free
as early as 2030. The municipal organisation
will also be climate neutral by 2030.\(^{273}\) The plan
of action for reaching these goals is detailed in
the Roadmap Amsterdam Climate Neutral 2050.\(^{274}\)
With the annual Climate Report, the city mon-
tors the progress of the implementation of the
roadmap. Based on an up-to-date CO₂ calculation
carried out by an independent research agency,
estimated expectations for the reduction are made
for the next several years.\(^{275}\)

The goals for CO₂ reduction are high and the
city of Amsterdam faces the challenge of realizing
more official capacity. Two programme teams
concerning gas-free and climate neutrality that
are coordinated in the Department for Urban Plan-
ing and Sustainability.\(^{276}\) Since 2010, CO₂ emissions
are decreasing, despite the growth of the city. CO₂
emissions were 4,468 kilotons in 2019, compared
to more than 5,500 kilotons in 2013.\(^{277}\)

According to the Climate Report 2021, the re-
duction in 2020 was 12%, compared to 2017. This
reduction is partially explained by the COVID-19
crisis (especially due to a reduction in traffic
and electricity). In a February 2022 update on
the estimated reduction, CE-Delft estimates a
CO₂ reduction of 42 percent in 2030 (within a
bandwidth of 12 to 58% ). They conclude that the
target of a reduction of 55% does not appear to be
fully achievable, unless all developments turn out
favourably, all the intended policies are estab-
lished as quickly as possible and the municipality
is given the tools and able to implement them
effectively for successful implementation. This
becomes more urgent every year.\(^{278}\) However, the
estimate looks better than in previous years, as
reduction of emissions in 2019 was higher than
expected.

Looking at these figures from the perspective of
the Amsterdam City Doughnut, the development
is positive, but still the planetary boundary is
exceeded by a factor of 2.3. This indicates that the
footprint is 2.3 times larger than it should be for
a city like Amsterdam.\(^{279}\)

The Roadmap Climate Neutral 2050 differentiates
between four transition paths: Built Environ-
ment, Mobility, Electricity, and Industry.

In the built environment, most of the greenhouse
gas emissions are caused by gas used to heat
houses and utility buildings. Therefore, in 2017
a separate programme Amsterdam Aardgasvrij

Fig. 53 Trees and green areas as % of total area, Amsterdam and the Netherlands, 2021

Fig. 54 Schematic representation of groundwater excess driven by precipitation and
evaporation.

Increase of groundwater level due to precipitation, Cellars and
streets are flooded. Foundation piles are drying up.

Reduction of the groundwater level by evaporation. Foundation piles are greening.

Amsterdam
The Netherlands

Source: Municipality of Amsterdam (2021, p. 60).

Along three lines: scaling of gas-free neighbourhoods, developing renewable energy sources for the built environment, and mobility. The foci are on the transition to a gas-free city, the realisation of heat networks, and mobility.

To reduce emissions in the built environment, governments will have a greater directing role in the development of a new law on heat (the ‘Warmtewet 2.0.’), local urban heat networks. Through the development of well-insulated and energy-efficient buildings, which is 24% of the total housing stock, the number of houses connected to a heat net. In 2020, the number of houses connected to a heat net rose by over 8,000 to a total of around 108,000 natural gas-free houses (and utility buildings) to 300,000. This goal was set, as it was decided to take more time for the transition. As there are no complete data available for the number of gas-free houses, the city looks instead at the number of houses connected to a heat net. Since January 2021, permit applications for all new constructions, both residential and non-residential, must meet the requirements for ‘Nearly Energy-Neutral Buildings’ (the so-called BENG standard). These new building regulations set requirements for the maximum energy requirement, fossil energy consumption, and the generation of renewable energy in buildings. Not only must proper insulation and energy-efficient installations be taken into account, but also the application of sustainable energy.

To reduce emissions in the built environment, the focus is on the transition to a gas-free city, along three lines: scaling of gas-free neighbourhoods, developing renewable energy sources for the built environment, and mobility. The aim is to make the vehicle fleet more sustainable and purchasing green gas (for buildings that are not yet natural gas-free).

An important indicator used in national comparisons is the presence of solar panels on houses. While Amsterdam clearly lags behind the national average with regard to this indicator (1.7% of houses have solar panels on the roof, compared to 12% nationally289), the lower percentage can at least partly be explained by the fact that Amsterdam has many apartments without its own roof. The growth rate of solar panels in Amsterdam (Figure 5) is similar to the national average.

Apart from solar energy, 62 MW of wind energy (installed capacity) was realised at the end of 2020. Apart from solar energy, 62 MW of wind energy (installed capacity) was realised at the end of 2020. The city is committed to reducing these emissions through sustainable procurement (see SDG 12).280

Another important pillar is to reduce energy use in buildings. For new developments, a range of instruments are in use to create energy-neutral or even positive energy development. Since 2015, all new-to-be built buildings have to meet a minimum norm of energy efficiency.282 All granted construction permits in 2019 and 2020 reached this norm, 3 July 2018, all new houses are built gas-free.283

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For mobility, the aim is to have emission-free transport for the whole city in 2030. Environmental zones have been established, and the city strives to introduce emission-free zones in 2025.284

The first pillar to reach this target is limiting the amount of transport movements, by stimulating the use of bicycles and public transport and creating less space for both moving and parked cars. By working together with residents, visitors, public and private parties in the programme Smart Mobility, the supply of goods in the city can be made cheaper and more efficient. Through well-located hubs, suppliers are facilitated in transferring their goods to smaller electric vehicles for movements within the city borders. Car-sharing is stimulated and in 2020 Amsterdam had the most shared cars in the Netherlands (11,113).285 In 2025, all shared vehicles must be emission-free.

The second pillar is to stimulate the switch to sustainable modes of transport and to facilitate these sustainable alternatives.286 In 2020, the proportion of electric vehicles was 4.7% (compared to 3.1% in 2019). Since the end of 2020, an environmental zone is in place for a large part of the city, blocking access to the city centre for the most polluting diesel vehicles.287

Electricity

Electricity is the key to transitioning to a fossil-free city: more electricity is needed and electricity can be generated sustainably. The city aims at maximum solar energy generation on roofs and wind turbines. The city works together with housing corporations (40% of the housing stock is owned by housing corporations) to accelerate the use of solar panels. For all new constructions and renovation projects, solar panels must be installed.

Looking at the total amounts of installed capacity, the numbers grow quickly. An important indicator used in national comparisons is the presence of solar panels on houses. While Amsterdam clearly lags behind the national average with regard to this indicator (1.7% of houses have solar panels on the roof, compared to 12% nationally289), the lower percentage can at least partly be explained by the fact that Amsterdam has many apartments without its own roof. The growth rate of solar panels in Amsterdam (Figure 5) is similar to the national average.

Apart from solar energy, 62 MW of wind energy (installed capacity) was realised at the end of 2020. The city aims to optimise the use of wind energy by instalment of more wind turbines.
As another measure to increase the amount of green space to strengthen the adaptivity of Amsterdam, the city is stimulating the implementation of blue-green roofs or vertical green. With the RESILIO project, 10,000 m² of rooftop space is transformed into smart blue-green roofs. Blue-green roofs can store more rainwater than ‘normal’ green roofs. Under the green layer of plants is a crate system in which water is stored. Through the substrate (soil) and a filter layer, the water reaches the plants. A smart drop decides (based on weather data) whether to retain the water (in times of drought) or to release it (when there is heavy rainfall). The water and plants have a cooling effect on and above the roof. The extra water increases the growth of the plants and improves biodiversity. The aim of the city is to stimulate the scaling up of these blue-green roofs in the city.

In the ATELIER project neighbourhoods in Amsterdam and Bilbao are transformed into ‘Positive Energy Districts’ by implementing innovative solutions, ultimately reducing 1.7 kton CO₂ emissions. In the north of Amsterdam, Buiksloterham, current and future residents will become part of a local energy market where they can trade sustainably generated energy – by equipping buildings with smart mobility and energy technologies – via a local digital platform. The surplus of energy will be created and balanced in Buiksloterham’s local energy system. The energy generated can also be stored locally and shared with the neighbours. Residents are thus not just energy consumers, but also producers. In the end, Buiksloterham will become a Positive Energy District: a carbon-neutral area where more energy is produced than the residents use. The ATELIER project is part of the European Commission’s research and innovation programme Horizon 2020.
When the SDGs were officially adopted by the UN in 2015, they were divided into five areas: People, Planet, Prosperity, Peace and Partnerships. We have structured this concluding chapter according to the five Ps.

However, as a city government, we find it of utmost importance that the five Ps do not operate in isolation from each other. Making the city thrive as a whole is a matter of finding commonalities between the goals. If we cannot see the relationships between the various goals we are collectively working on at various levels of government, we will end up competing against each other. In a world where time and resources are limited, such competition results in unforeseen and unwanted trade-offs. For these reasons, we end with a final P that we have added, Policy. With our policy recommendations, we show how Amsterdam is building bridges towards a sustainable future.

One of the main priorities in Amsterdam is equal opportunity for all its citizens. By connecting different programmes and goals against inequality (i.e., income and work, housing, education, health, and well-being), we aim to increase equal opportunity. For residents with a low income and rising debt, the approach focuses on prevention and early identification of possible problems.

Although inequality has been decreasing slightly over the past few years, equal opportunity between resident groups is still an issue. The growth of cities has generated prosperity in recent decades, but this also has a downside. Wealth inequality is particularly high in Amsterdam, which is mostly related to homeownership and rising property prices. Like other cities around the world, Amsterdam sees that this growth has increased the differences in opportunities between its residents.

The COVID-19 crisis has reduced equal opportunity even further. Residents with a lower level of education/income and/or non-western migration background often have fewer opportunities in society, suffer more from discrimination, have less social security and are more affected by crisis in their livelihood and health. Because many of these issues are related to and affect each other, the city focuses on an integrated approach to improve social equality. The basic principle here is to invest more in groups that have unequal opportunities.

The housing market situation is labelled as a housing crisis. Living in Amsterdam is becoming less and less accessible to low- and middle-income households. The wealth inequality between tenants and homeowners is increasing. Many of these developments have national causes and implications, but do affect the larger cities more. The city’s goal of supporting the development of adequate and affordable housing as formulated in the Housing Agenda 2025 needs to be closely monitored.

Finally, recent developments in Ukraine threaten to exacerbate inequality in cities. Inflation, higher energy prices and higher prices for goods influence everyone’s purchasing power. Low-income residents also often live in poorly insulated houses. There is a high risk that the crisis will affect them and reduce equal opportunity further. The national government has already implemented instruments that offer financial support, but not
The importance of Amsterdam as a logistic hub for material entering Europe provides leeways for Amsterdam to play a pivotal role in the transformation to a circular economy. The online monitoring of the city's progress was first published in February 2022 will frequently update the city on the possible interventions it can take with its stakeholders. The city takes an integrated approach towards the many challenges of the city, aiming to thrive within ecological and social boundaries, rather than to grow in terms of income. Amsterdam has a diversified economy which has shown rapid growth in the past decade, but also vulnerability to the implications of the COVID-19 pandemic. There are clear differences between groups in terms of economic participation: women, youth, persons with disabilities, a migrant background and/or lower levels of education are less often employed and/or economically independent. This has broader effects, since a lower level of income is related to lower levels of well-being. The city has a plan to recover the economy by taking measures that simultaneously promote sustainable development and employment growth. This integrated approach fits within the broader framework of Doughnut Economics that was adopted by the city, which is aimed at meeting the needs of all people within the means of the living planet. It is unclear to what extent the intended policies are capable of reducing differences in employment and economic independence between groups; monitoring of this subject is recommended.

Recent events, including the COVID-19 crisis and the conflict in Ukraine, have shown rapid growth in the past decade, but also vulnerability to the implications of the COVID-19 pandemic. There are clear differences between groups in terms of economic participation: women, youth, persons with disabilities, a migrant background and/or lower levels of education are less often employed and/or economically independent. This has broader effects, since a lower level of income is related to lower levels of well-being. The city has a plan to recover the economy by taking measures that simultaneously promote sustainable development and employment growth. This integrated approach fits within the broader framework of Doughnut Economics that was adopted by the city, which is aimed at meeting the needs of all people within the means of the living planet. It is unclear to what extent the intended policies are capable of reducing differences in employment and economic independence between groups; monitoring of this subject is recommended.

The municipality made the choice to prepare a detailed overview of six SDGs and a short update on the other eleven SDGs. This implies that we have a better view of achievements towards the six SDGs with detailed overviews: SDG 1, 8, and 10-13. However, there is significant overlap between the SDGs. For example, the city has an integrated approach towards promoting equal opportunity. This is directly tied to SDG 10 (reduce inequalities), and also connects to, for example, SDG 1 (poverty reduction), SDG 4 (equal opportunities in education), SDG 8 (equal economic opportunities), and SDG 11 (for example, equal opportunities on the housing market). The goal of this global view is to define what it means for Amsterdam to respect the health of the whole planet and the well-being of people worldwide and not just take local initiatives into account. The City Doughnut is proof that the global goals for 2030 can and should be localised in order to be realised by 2030.

Policy recommendations for implementing and monitoring SDGs

Based on our experience in constructing this VLR, the following policy recommendations for a better implementation process of the SDGs within the city are made:

1 – Improve monitoring. In some cases, policies have clear targets set out on a clear timeline; with related monitoring mechanisms. Examples are the Roadmap Amsterdam Climate Neutral 2050 and the related Circular Economy Monitor. However, for many other policies, this is less clear. To be able to properly assess the contribution of Amsterdam to the SDGs, it is important that the impact of policies and strategies can be measured. Since some policy documents lack SMART principles (Specific, Measurable, Achievable, Realistic, Time-bound) the impact on the SDGs can hardly be measured. This brings us to the topic of data. For some SDGs, a lot of data are available, while for others data are missing or incomplete. In some cases, it is difficult to find specific local indicators for achievements toward a subgoal. At first glance, indicators may then seem less directly connected to specific subgoals. Balance must be found between localising the SDGs in a way which facilitates comparisons on the one hand and room for the specifics of the local context on the other hand.

2 – Holistic approach to city challenges

The municipality made the choice to prepare a detailed overview of six SDGs and a short update on the other eleven SDGs. This implies that we have a better view of achievements towards the six SDGs with detailed overviews: SDG 1, 8, and 10-13. However, there is significant overlap between the SDGs. For example, the city has an integrated approach towards promoting equal opportunity. This is directly tied to SDG 10 (reduce inequalities), and also connects to, for example, SDG 1 (poverty reduction), SDG 4 (equal opportunities in education), SDG 8 (equal economic opportunities), and SDG 11 (for example, equal opportunities on the housing market). The goal of this global view is to define what it means for Amsterdam to respect the health of the whole planet and the well-being of people worldwide and not just take local initiatives into account. The City Doughnut is proof that the global goals for 2030 can and should be localised in order to be realised by 2030.
In the online version of this document, links to the policy documents are clickable.
In the online version of this document, links to literature are clickable.
Appendix 1. Constructing the VLR – a detailed look at the process

In this Appendix, we explain the approaches and methods used to construct this VLR. The infographic on pages 32-33 provides a basic overview of the phases and main ‘players’ involved, while this text provides more detail on the steps taken. This first VLR for Amsterdam provides a point of departure for possible future VLRs. Therefore, we elaborate on the methods used, so lessons learned in this process can be applied in the future.

In the following, we explain the steps taken in the different phases of the process. Note that some of the phases overlapped over time.

### Phase 1. Design

In the period up to 2021, the city went through a number of steps within the municipality to reach a decision on the VLR. The timeline is visualized in the top of the image on page 32-33. In 2018, a trainee conducted an opportunity analysis on the potential of implementing the SDGs in its municipal policy. With this, the first steps have been taken. In 2019, a larger study followed by the consultancy firm (PWC) on the SDGs in the city. It is an analysis on companies implementing the SDGs, the citizen perspective, the opportunities the SDGs bring to collaborations and an overview of the interfaces between the Amsterdam Implementation Agendas and the SDGs (see image). Subsequently, in the same year, Kate Raworth presented the interfaces perspective, the opportunities the SDGs bring to collaborations and an overview of the interfaces between the Amsterdam Implementation Agendas and the SDGs (see image). Subsequently, in the same year, Kate Raworth presented the interfaces perspective, the opportunities the SDGs bring to collaborations and an overview of the interfaces between the Amsterdam Implementation Agendas and the SDGs (see image).

From this follows the decision from the alderman of Economy to provide an administrative assignment to conduct a VLR of the city of Amsterdam. The assignment comes from the Department of Urban Planning and Sustainability and is carried out by the Department of Public Affairs. The decision was made to collaborate with the AUAS and outsource the research and writing to their research team.

At AUAS, the research team was formed and the research approach was drafted. Being the first VLR for both the city and the research team, the decision was made to conduct a pilot. By writing a review for one specific SDG, lessons would be learned for the rest of the project. SDG 12 was chosen for this pilot.

The research team and core team of the city jointly discussed the main sources that were to be used as input to decide the subgoals and indicators to focus on. The following sources were used:

1. Official UN indicators. This was obviously the point of departure. However, not all subgoals and indicators are aimed at or translatable to a review at the local level.

2. European Handbook for Voluntary Local Reviews. This report by the European Commission’s Joint Research Council is focused on indicators relevant at the local level; for which comparative data are available across Europe.

3. CBS indicators. The Dutch national statistics agency Statistics Netherlands (CBS in Dutch) publishes an annual SDG Monitor, reporting on progress on achieving the SDGs. This is a report at the national level, but the more the local data can correspond to this national report and vice versa, the more they can reinforce each other.

4. Input from other selected VLRs. In the exploratory phase of the process, a number of VLRs were studied for other cities, and a selection was made of VLRs that Amsterdam wanted to use as an example. These were based on a combination of comparable city size, comparable context and comparable goals in creating a VLR.

Three VLRs were selected:
- VLR Stockholm
- VLR Ghent
- VLR Helsinki

During the process of creating the pilot for SDG 12, the research team decided to use a fourth VLR as input. This VLR has worked out almost all SDG subgoals and related indicators in detail and could therefore provide valuable input (although the scope of this VLR was far larger than envisaged for Amsterdam).

- VLR Barcelona

Using these sources, an overview of possible indicators to be used was made. As a next step, indicators were chosen for the pilot on SDG 12 (see phase 3 for details on the selection process) and a draft text was written. A short report on the pilot process, including the problems encountered, was written to accompany the draft text. A first version of a table of contents was made, and a graphic designer was selected who drafted a few pages and worked out the results of the SDG 12 pilot. This provided a concrete idea of what the eventual VLR publication would look like.

All these materials were then used for the meeting of the full city working group, where decisions were made on the next steps of the project.

### Phase 2. SDG selection

As indicated earlier, the city did not aim for a full report on all the SDGs at this point. Instead, a number of SDGs were chosen for detailed reporting. After discussion with the full working group, the choice was made that the report would consist of a detailed overview of six SDGs and a short update on the other eleven SDGs.

The six SDGs chosen for a detailed review were:

- SDG 1 – No poverty
- SDG 8 – Decent work and economic growth
- SDG 10 – Reduce inequality
- SDG 11 – Sustainable cities and communities
- SDG 12 – Responsible consumption and production (pilot)
- SDG 13 – Climate action

The arguments for this specific selection are as follows:

- These SDGs are considered specifically relevant at the local level, as shown by the fact that these are often selected in other VLRs to be worked out in detail.

### Phase 3. Indicator selection and data collection

A new document had become available from the Association of Netherlands Municipalities (VNG in Dutch). They had developed a ‘Proposal for a set of local SDG indicators for the benefit of VNG and municipalities’, and were willing to share a draft document with the city core team and research team. This proved to be a useful new source.

Then a distinction was made between the six highlighted SDGs and the eleven other SDGs. For the other SDGs, a simple approach was taken. The new VNG document was taken as the point of departure for the decision on the indicators.
text, listing questions to discuss with the city core team. The paragraphs were written per selected subgoal and structured as follows:

**Goal**
- Data (where applicable and/or available)
- Comparison (where applicable and/or available)
- Policy (focus on goals)
- Good practice (in some cases; from business, society and/or policy)

The completed drafts were first discussed within the research team and then shared with the core city core team. In writing the chapters, an overlap of several SDG subgoals was found. In these cases, data were included in descriptions of the six detailed SDGs. Cross-references were made in a number of cases.

**Phase 5. Feedback**
After the first drafts were made, the important phase of asking for comments and feedback commenced. Feedback was provided in several ways:

- The city core team provided a first round of feedback through the Coordinator on the city side. Specific questions were sent to different departments to provide clarity, additional data or check the data used.
- Taking into account these comments and extra data, the document was shared with the full working group. All were invited to provide general feedback in a meeting and send specific feedback through email. The working group also took steps to include other relevant city officials in the feedback round.
- A team of reviewers at the AMS Institute (a research institute that works closely with the city on advanced metropolitan solutions) also provided feedback. Thanks to feedback, both the use of data and readability were improved. Furthermore, it turned out that with some SDGs, the relation between the specific official definitions of a subgoal and the indicators chosen raised some questions. Not all elements mentioned in a specific subgoal are always included in the description or the indicators used. This has to do with their specific relevance at the local level, the availability of data and the accessible space for elaboration.

**Phase 6. Rewriting and visualising**
Taking into account all of the feedback received as well as new data that become available, the rewriting of the draft texts started. The final deadline for new data input was 1 April 2022. In addition, semi-final texts were shared with the graphic design team, who could then start to create visualisations. The graphic design team produced a first draft of the final report, and after two review rounds, the report was published in its final form.

### Appendix 2.
List of indicators used

<table>
<thead>
<tr>
<th>SDG subgoal</th>
<th>Local indicator</th>
<th>Year</th>
<th>Comparison in time</th>
<th>Other comparison(s)</th>
<th>Other (sub) goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>% of households with minimum incomes</td>
<td>2018</td>
<td>x</td>
<td>Subgroups</td>
<td></td>
</tr>
<tr>
<td>1.2.</td>
<td>% children who live in households dependent upon social assistance</td>
<td>2020</td>
<td></td>
<td>Netherlands</td>
<td></td>
</tr>
<tr>
<td>1.2.</td>
<td>% of residents who are considered vulnerable (i.e. suffer from physical and/or mental illnesses)</td>
<td>2020</td>
<td>x</td>
<td>Other cities</td>
<td></td>
</tr>
<tr>
<td>1.2.</td>
<td>% of households with registered debts</td>
<td>2020</td>
<td>x</td>
<td>Subgroups (age, sex household types, education levels, social assistance)</td>
<td></td>
</tr>
<tr>
<td>1.2.</td>
<td>Neighborhoods with a high concentration of poverty</td>
<td>2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>% of households receiving social assistance benefits and support</td>
<td>2019</td>
<td></td>
<td>Netherlands</td>
<td>Subgroups (who receive these benefits more often)</td>
</tr>
<tr>
<td>1.4</td>
<td>No. of households receiving weekly food packages</td>
<td>2021</td>
<td>x</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>1.5.</td>
<td>% of households in energy poverty</td>
<td>Preliminary analysis, expectations for 2022</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5.</td>
<td>% of energy-poor households living in a housing association house</td>
<td>2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>No local data; local policy and national data</td>
<td>2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>% of population perceiving own health as ‘good’</td>
<td>2020</td>
<td></td>
<td>Netherlands</td>
<td>3.4</td>
</tr>
<tr>
<td>3.3</td>
<td>% of population with one or more long-term illnesses</td>
<td>2020</td>
<td></td>
<td>Netherlands</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>% of population overweight (BMI ≥25)</td>
<td>2020</td>
<td></td>
<td>Netherlands</td>
<td>3.5</td>
</tr>
<tr>
<td>3.4</td>
<td>% of smokers in population</td>
<td>2020</td>
<td>x</td>
<td>Netherlands</td>
<td></td>
</tr>
<tr>
<td>3.4.</td>
<td>% of drug users in population</td>
<td>2020</td>
<td></td>
<td>Netherlands</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>% of residents who indicate that they or someone in their household have not received necessary medical and/or dental treatment in the past year</td>
<td>2020</td>
<td></td>
<td>Netherlands</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Use of early childhood or preschool education</td>
<td>2021</td>
<td></td>
<td>Netherlands</td>
<td></td>
</tr>
<tr>
<td>SDG subgoal</td>
<td>Local indicator</td>
<td>Year</td>
<td>Comparison in time</td>
<td>Other comparison(s)</td>
<td>Other (sub) goals</td>
</tr>
<tr>
<td>-------------</td>
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<td>------------------</td>
</tr>
<tr>
<td>8.6</td>
<td>Youth Not in Employment, Education, or Training (NEET) per 10,000 inhabitants</td>
<td>2017</td>
<td>×</td>
<td></td>
<td>Netherlands</td>
</tr>
<tr>
<td>8.6</td>
<td>Youth unemployment rate</td>
<td>2020</td>
<td>×</td>
<td></td>
<td>Netherlands, subgroups</td>
</tr>
<tr>
<td>9</td>
<td>No local data, local policy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.1</td>
<td>Standardized income</td>
<td>2019</td>
<td>×</td>
<td></td>
<td>G4</td>
</tr>
<tr>
<td>10.1</td>
<td>Disposable income</td>
<td>2019</td>
<td></td>
<td></td>
<td>Subgroups</td>
</tr>
<tr>
<td>10.1</td>
<td>Income distribution households</td>
<td>2019</td>
<td>×</td>
<td></td>
<td>Netherlands/subgroups/neighborhoods</td>
</tr>
<tr>
<td>8.1</td>
<td>Growth rate of the Amsterdam economy</td>
<td>2021</td>
<td></td>
<td></td>
<td>MRA</td>
</tr>
<tr>
<td>8.2</td>
<td>Diversity of the Amsterdam economy (sectors)</td>
<td>2021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3</td>
<td>Number of companies started and closed</td>
<td>2021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.4</td>
<td>No. of jobs in energy transition and circular economy</td>
<td>2021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.5</td>
<td>Economic participation of women and men</td>
<td>2020</td>
<td>×</td>
<td></td>
<td>subgroups</td>
</tr>
<tr>
<td>8.6</td>
<td>Difference in hourly wages between men and women</td>
<td>2019</td>
<td></td>
<td></td>
<td>Netherlands/subgroups</td>
</tr>
<tr>
<td>8.6</td>
<td>People who are economic independent</td>
<td>2019</td>
<td></td>
<td></td>
<td>Netherlands/subgroups</td>
</tr>
<tr>
<td>8.6</td>
<td>Residents who experienced discrimination</td>
<td>2021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.6</td>
<td>Number of citizens on disability benefit</td>
<td>2020</td>
<td>×</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>8.6</td>
<td>18-30 year-olds who lack a starting qualification</td>
<td>2020</td>
<td></td>
<td></td>
<td>Netherlands/subgroups</td>
</tr>
<tr>
<td>SDG subgoal</td>
<td>Local indicator</td>
<td>Year</td>
<td>Comparison in time</td>
<td>Other comparison(s)</td>
<td>Other (sub) goals</td>
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<tr>
<td>11.1</td>
<td>No. of economically homeless (estimate)</td>
<td>2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Trips made by residents divided by modes of transport used</td>
<td>2019</td>
<td>x</td>
<td>Modes of transport</td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Car ownership per household</td>
<td>2018/2019</td>
<td>Netherlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Score as cycling city</td>
<td>2020</td>
<td>Netherlands, subgroups</td>
<td>3.7, 9.1</td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Average bicycle satisfaction of residents</td>
<td>2015</td>
<td>3.7, 9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Average public transport users satisfaction</td>
<td>2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>% of population experiencing transport poverty</td>
<td>2020</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>Resident satisfaction of road safety</td>
<td>2019</td>
<td>x</td>
<td>Modes of transport</td>
<td></td>
</tr>
<tr>
<td>11.2</td>
<td>No. of road deaths and seriously injured victims</td>
<td>2021</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.4</td>
<td>No. of listed monuments and conservation areas</td>
<td>2021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.4</td>
<td>Annual amount spent on cultural heritage</td>
<td>2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.7</td>
<td>Average score living environment</td>
<td>2019</td>
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“Our compass will always be set on providing fair and equal opportunities, a sustainable future and responsible growth of our city for all citizens of Amsterdam.”
Coalition Agreement 2022-2026