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SUSTAINABLE DEVELOPMENT GOAL 11 SUSTAINABLE CITIES AND COMMUNITIES

Teacher's Manual


11
SUSTAINABLE CITIES
AND COMMUNITIES

Lead authors: UPF, Brazil

Luciana Londero Brandli, Amanda Lange Salvia and Bianca Gasparetto Rebelatto

Contributing authors for the sections on Latin America

1. Luciana Londero Brandli
2. Amanda Lange Salvia
3. Bianca Gasparetto Rebelatto

Contributing authors for the sections on Africa

4. Rudi Pretorius
5. Melanie Nicolau
6. Leani van Vuuren
7. Sylvia Motene
8. Hennie Smit

Contributing authors for the sections on Europe

9. Jasmin Röseler
10. João Henrique Paulino Pires Eustachio
11. Andrea Spada Jiménez, Ph.D.
12. José Eduardo Pires de Oliveira
13. Maria Laura Salomão David

English language editing

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Translation to isiZulu and Sesotho sa Leboa

Unisa: Directorate of Language Services

Translation to Portuguese

Gabriela Rodrigues

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Project leaders

Prof. Dr mult. Walter Leal Filho (Hamburg University of Applied Science), Prof. Dr Luciana Londero Brandli University of Passo Fundo) and Prof. Dr Rudi Wessel Pretorius (University of South Africa)

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Contents

The DAAD-funded project " Digital Introduction to the Sustainable Development Goals in Higher Education Teaching – Regional Aspects in implementing the SDGs from Brazil and South Africa (DITTS)

1. Introduction to the SDGs

Readers (teachers) will be able to

- provide the link between the SDGs and the MDGs
- explain the origin and overall aim of the SDGs
- name and briefly discuss the five priority areas of the SDGs
- position SDG 11 within the framework of Agenda 2030

The Sustainable Development Goals (SDGs) are the central component of the 2030 Agenda for Sustainable Development, as agreed on by the United Nations (UN) in September 2015. The 2030 Agenda consists of a set of 17 interlinked goals (United Nations, 2015), with associated targets and indicators, which are to be achieved by 2030.

The 2030 Agenda was developed as an action plan with the purpose of boosting the development of humanity in five priority areas: People, Planet, Prosperity, Peace and Partnerships, as well as continuing the progress made with the Millennium Development Goals (MDGs), which were in force during the years 2000 to 2015. The MDGs consisted of eight international development goals and were supported with 21 individual targets. Compared to the MDGs, the SDGs have a more comprehensive scope, rely more on collective action and are more detailed, with the message very clear that success will depend on the active support and participation of every nation (Feeny, 2020).

The SDGs provide a framework within which global approaches can be planned and implemented to secure a fair, healthy and prosperous future for the current and future generations (Morton et al., 2017). A key element is that all the SDGs are closely interconnected, and that failure to take this into account will lead to a highly ineffective way to address the sustainability dilemma the world is facing (Van Soest et al., 2016). According to Van Soest et al. (2016), there are key interactions across all areas of critical importance of the SDGs but lie especially within the area of People, as well as between the areas of People and Prosperity, and between the areas of People and Planet. Figure 1 presents the set of 17 SDGs of the 2030 Agenda.

The aim of this module is to present an introduction to SDG 11 (sustainable cities and communities), covering its definition, the impact of global crises on the achievement

of its targets, the regional contexts, progress towards SDG 11, case studies with good practices and examples of exercises that can be set for students.

SDG 11 is included in the Planet dimension of the 2030 Agenda and deals with making cities and human settlements inclusive, safe, resilient and sustainable (United Nations, n.d.).

Figure 1: The 17 Sustainable Development Goals

Source: United Nations (n.d.(a))

Supplementary resources

- Allen, C., Metternicht, G., & Wiedmann, T. (2018). Initial progress in implementing the Sustainable Development Goals (SDGs): A review of evidence from countries. *Sustainability Science*, *13*(5), 1453-1467.
- United Nations. (2023). *The Sustainable Development Goals Report 2023: Special edition*. https://unstats.un.org/sdgs/report/2023/ [Accessed 14 November 2023].

- Díaz-López, C., Martín-Blanco, C., De la Torre Bayo, J. J., Rubio-Rivera, B., & Zamorano, M. (2021). Analyzing the scientific evolution of the Sustainable Development Goals. *Applied Sciences*, *11*(18), 8286.
- UN Video: The SDG Report 2023: Special edition. https://www.youtube.com/watch?v=zF361a019zA&ab_channel=UNStats (6 min, 2 s)

Examples of assessment questions

1. Introduction to the SDGs

- Name the five areas of critical importance to which the 17 SDGs are linked and explain why these are referred to as the 5 Ps.
- Explain the link between the MDGs and the SDGs.
- Explain how the SDGs differ from the MDGs.

Sources consulted

Feeny, S. (2020). Transitioning from the MDGs to the SDGs: Lessons learnt? In S. A. Churchill (Ed.), *Moving from the millennium to the sustainable development goals* (pp. 343-351). Palgrave Macmillan.

Morton, S., Pencheon, D., & Squires, N. (2017). Sustainable Development Goals (SDGs), and their implementation. *British Medical Bulletin*, *124*, 81-90.

United Nations. [n.d.(a)]. *Communication materials.* https://www.un.org/sustainabledevelopment/news/communications-material/ [Accessed 2 October 2022].

United Nations. [n.d.(b)]. *Goal 9 - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.* https://sdgs.un.org/goals/goal9 [Accessed 14 November 2023].

United Nations. (2015). *Transforming Our World, the 2030 Agenda for Sustainable Development. General Assembly Resolution A/RES/70/1.* https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E. [Accessed 7 August 2022].

Van Soest, H. L., Van Vuuren, D. P., Hilaire, J., Minx, J. C., Harmsen, M. J., Krey, V., Popp, A., Riahi, K., & Luderer, G. (2019). Analysing interactions among sustainable development goals with integrated assessment models. *Global Transitions*, *1*, 210-225.

2. Defining SDG 11

Readers (teachers) will be able to

- define SDG 11 and list its targets and indicators
- explain the significance of SDG 11 with reference to its three main thematic areas
- list and explain the advantages of SDG 11
- discuss the interdependencies between SDG 11 and the other SDGs
- discuss the implications of the interdependencies between SDG 11 and the other SDGs
- explain the challenges involved in achieving SDG 11 and discuss examples of actions to overcome these challenges

SDG 11 calls for action to "**make cities and human settlements inclusive, safe, resilient and sustainable**" (United Nations, n.d.). It has seven suggested global outcome targets and three additional targets, referred to as means of implementation. Each of these is accompanied by one or more indicators to monitor progress over time, as presented in table 1. The targets cover topics such as affordable housing, sustainable transport, sustainable urbanisation, cultural and natural heritage, resilience and **policy** implementation.

Table 1: Targets and indicators of SDG 11

Targets	Indicators
SDG target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums.	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing [1]
SDG target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities [2]

Targets	Indicators
SDG target 11.3: By 2030, enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.	11.3.1 Ratio of land consumption rate to population growth rate [2] 11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically [3]
SDG target 11.4: Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship) [3]
SDG target 11.5: By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100 000 population [2] 11.5.2 Direct disaster economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters [1]
SDG target 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities [2] 11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted) [1]
SDG target 11.7: By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities [3] 11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months [3]
SDG target 11.a: Support positive economic, social and environmental links between urban, peri urban and rural	11.a.1 Proportion of population living in cities that implement urban and regional development plans

Targets	Indicators
areas by strengthening national and regional development planning.	integrating population projections and resource needs, by size of city [3]
SDG target 11.b: By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels.	11.b.1 Number of countries that adopt and implement national disaster in line with the Sendai Framework for Disaster Risk Reduction 2015-2030a [1] 11.b.2 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies [2]
SDG target 11.c: Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilising local materials.	11.c.1 Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilising local materials [3]

[1] Indicator is conceptually clear, has an internationally established methodology and standards are available, and data is regularly produced by countries for at least 50% of countries and of the population in every region where the indicator is relevant.
[2] Indicator is conceptually clear, has an internationally established methodology and standards are available, but data is not regularly produced by countries.
[3] No internationally established methodology or standards are yet available for the indicator, but methodology/standards are being (or will be) developed or tested.

2.1 Significance of SDG 11

SDG 11 deals with the essential elements needed for sustainable development, including urban inclusivity, natural disasters and resilience, cultural and natural heritage, sustainable transport, environmental impact and policy implementation, as shown in table 2.

Table 2: Significance of SDG 11

Urban inclusivity	Natural disasters and resilience	Cultural and natural heritage

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Ensuring access to safe and affordable housing and basic services for all, especially marginalised and vulnerable populations. Reduce social and economic inequalities.	Strengthening urban resilience to natural disasters and climate-related risks through sustainable planning and infrastructure development.	Safeguarding the unique cultural and natural heritage of cities, integrating historical sites and biodiversity into urban planning to ensure that cities remain both functional and representative of local traditions.

Sustainable transport	**Environmental impact - city footprint**	**Policy implementation - urban planning**
Sustainable transportation plays a critical role in addressing climate change by reducing greenhouse gas emissions, lowering air pollution and minimising the urban carbon footprint. Moreover, sustainable transport enhances social equity, public health and the resilience of cities to climate-related risks, while strengthening urban-rural linkages and boosting productivity in rural areas. The focus of this goal is urban transport planning, holistic road design, public transport development, non-motorised transport opportunities, traffic engineering and transport safety.	The amount of greenhouse gases (especially CO_2) emitted due to energy use, transportation, industrial activities and building stock must be considered, as well as the total environmental impact of urban activities, pollution and solid waste.	Involves designing and executing policies and strategies to make cities inclusive, safe, resilient and sustainable. Urban planning is a key tool to address the complex challenges of rapid urbanisation while ensuring sustainable development.

Source: United Nations (2021), United Nations (2015), United Nations (n.d.)

2.2 Interdependencies of SDG 11

The aim of this section is to present the way in which the connection among the 17 SDGs can be perceived and how the 2030 Agenda comprises a set of goals that can be mutually achieved, when the targets in one SDG can contribute to the progress of the whole Agenda, or at least for a significant part of it. Nonetheless, before presenting the interdependencies between the SDGs, it is important to highlight some aspects about their synergies. Breuer et al. (2019) highlight that depending on the conditions of each

context, the achievement of the SDG targets can take more time and the result of the synergies between SDG targets may take a medium or a long period and might not occur immediately.

SDG 11, **sustainable cities and communities**, is deeply interconnected with all other SDGs, as sustainable urban development influences and is influenced by progress in multiple areas (including 1–5, 8, 10, 16 and 17). Some SDGs exhibit particularly strong connections and, according to Nabiyeva and Wheeler (2024), SDG 11 is linked with the 16 other SDGs to varying extents. Reliable and sustainable energy systems (SDG 7) are critical for supporting sustainable mobility. Additionally, SDG 13 (climate action) and SDG 3 (good health and well-being) share synergistic connections, with SDG 11 playing a pivotal role in influencing climate action (SDG 13). The main connections are presented in the summary below (table 3).

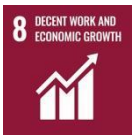
Table 3: Interdependencies between SDG 11 and the other SDGs

	Cities are centres of economic opportunities, but they also concentrate poverty. Urban poverty reduction depends on affordable housing, equitable access to resources and inclusive urban planning. Slum upgrading and inclusive urban development are crucial for addressing poverty in cities.
	Urbanisation impacts food systems, requiring sustainable urban agriculture, efficient food distribution and reduced food waste. Access to nutritious and affordable food is critical for urban populations, especially the vulnerable.
	Urban air quality, access to green spaces and adequate sanitation (targets under SDG 11) directly affect public health outcomes. Reducing urban pollution aligns with reducing respiratory and cardiovascular diseases.
	Inclusive cities must provide access to quality education, particularly in marginalised urban areas like slums. Urban planning impacts the location and accessibility of schools and educational facilities.

Safe and inclusive cities (a focus of SDG 11) enable women and girls to participate fully in economic, social and cultural life.
Urban policies can address gender-based violence and improve access to services for women.

Water supply and sanitation infrastructure are essential for sustainable cities.
Urban planning must integrate water management to address challenges like water scarcity and flooding.

Cities consume about 75% of global energy. Transitioning to clean energy systems in urban areas reduces emissions and enhances sustainability.
Energy-efficient buildings and sustainable public transport are critical for urban resilience.



Urban areas drive economic growth, but they also concentrate informal employment and inequality.
Inclusive urban policies promote equitable economic opportunities and sustainable livelihoods.

Sustainable urban development requires infrastructure such as water, sanitation and energy networks to be inclusive, resilient and accessible to all, especially marginalised communities. This also means investing in green infrastructure that supports sustainability and adapts to climate change.
Urban transportation, digital infrastructure and green technologies are vital for SDG 11 and SDG 9.

Cities amplify inequalities, with disparities in access to housing, transportation and services.
Urban policies must focus on social inclusion and equity to align with SDG 10.

Sustainable consumption and waste management systems are key to making cities more sustainable.
Cities can lead by adopting circular economy models and reducing resource use.

Urban areas are major contributors to greenhouse gas emissions (around 70% of total GGE), making cities central to mitigation efforts.
Climate-resilient urban planning addresses challenges like heat islands, flooding and sea-level rise.

Urban coastal areas affect marine ecosystems through pollution and development.
Sustainable urban wastewater management reduces marine pollution.

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	Urban expansion threatens ecosystems and biodiversity. Green urban spaces and sustainable land use planning are critical for balancing urban growth with ecosystem conservation.
	Inclusive governance and participatory urban planning are essential for peaceful, resilient communities. Addressing crime and ensuring safety align with SDG 16's goals for justice and strong institutions.
	Collaboration between governments, private sectors and civil society is vital for sustainable urban development. Effective partnerships enable funding, knowledge sharing and innovation in urban solutions.

2.3 Advantages of SDG 11

Overall, SDG 11 provides significant advantages by fostering sustainable and inclusive urban development, ensuring economic growth, enhancing environmental resilience and improving the well-being of urban populations, making it a cornerstone for achieving global sustainability. The advantages are also linked to its synergy with other SDGs.

The advantages of SDG 11 are listed below:

- **Improved quality of life:** Developing sustainable cities enhances access to basic services such as housing, sanitation, clean water and transportation, improving overall living conditions. Green and culturally inspiring urban spaces promote mental and physical well-being.

- **Reduced urban inequalities:** By creating affordable housing and accessible infrastructure, disparities between urban and marginalised communities are reduced. Also, equitable urban policies ensure that everyone, regardless of income or background, benefits from urban development.

- **Economic opportunities and development**: Well-planned cities foster local economies by creating jobs, attracting investments and enhancing productivity. Improved infrastructure and efficient transportation systems reduce costs for businesses and residents, boosting economic activity.

- **Enhanced environmental sustainability:** Sustainable urban planning promotes green spaces, energy-efficient buildings and sustainable waste management, reducing environmental degradation. Integrated solutions for clean energy and mobility reduce greenhouse gas emissions, mitigating climate change.

- **Resilience to climate change and disasters:** Resilient cities are better equipped to withstand and recover from climate-related events such as floods, storms and heatwaves. Sustainable urban infrastructure incorporates disaster risk reduction measures, protecting communities from natural hazards.

- **Improved mobility and connectivity:** Sustainable cities emphasise public transportation and non-motorised transit options, reducing traffic congestion and pollution. Urban infrastructure enhances accessibility, connecting rural areas to urban centres and facilitating trade and social inclusion.

- **Strengthened social cohesion and inclusion:** Inclusive urban policies promote participation in decision-making, empowering communities and fostering trust. Safe and inclusive public spaces encourage social interactions and strengthen community bonds.

- **Advancements in innovation and technology**: Cities act as hubs for innovation, fostering the development and adoption of smart technologies that optimise energy use, waste management and mobility. Smart cities enhance urban efficiency through data-driven decision-making and sustainable technological solutions.

2.4 Challenges in the implementation of SDG 11

The global population is continuously growing. In 2022, the world's population surpassed 8 billion, with more than half — 56% — living in cities. This figure is projected to rise to 68% by 2050, and an estimated 2 billion people are expected to join the global urban population by then, with all regions becoming more urbanised (UN-Habitat, 2024). These anticipated changes make it essential for cities to develop modern and sustainable solutions to accommodate everyone. Table 4 presents examples of specific challenges involved in achieving the targets of SDG 11.

Table 4: Examples of specific challenges involved in achieving SDG 11 targets

Specific difficulty	Actions to overcome the difficulties
Air pollution	Promote sustainable transportation, enhance green urban spaces, adopt cleaner energy solutions, implement strict emission standards, improve waste management, monitor and reduce indoor air pollution, raise public awareness and strengthen air quality monitoring.
Waste management	Promote recycling and circular economy practices, invest in modern waste management infrastructure, encourage community participation, implement strict waste disposal regulations, foster public-private partnerships, enhance waste segregation at source, promote composting and organic waste solutions and leverage technology for waste tracking and management.
Water supply and sanitation	Improve water conservation practices, invest in water infrastructure, promote efficient irrigation systems, expand access to clean water and sanitation, implement wastewater treatment solutions, strengthen water quality monitoring, educate communities on hygiene and sanitation and encourage sustainable water management policies.
Mobility	Promote public transportation systems, invest in cycling and walking infrastructure, encourage electric and low-emission vehicles, improve traffic management, enhance mobility for vulnerable groups, foster multimodal transportation solutions, develop smart mobility technologies and implement sustainable urban planning practices.
Energy supply, clean energy	Create policies for sustainable energy transition, promote renewable energy sources, improve energy efficiency, invest in clean energy infrastructure, encourage decentralised energy systems, support energy access for all, implement energy storage solutions and foster innovation in clean technology.
Lack of funds to provide basic services	Increase government revenue through tax reforms, foster public-private partnerships, leverage international aid and grants, prioritise budget allocation for essential services, promote community-based financing initiatives, strengthen transparency and accountability in spending, encourage innovative financing mechanisms and advocate for sustainable investment policies.
Informal settlements (lack basic infrastructure, services and adequate living conditions)	Addressing the challenges of slums requires slum upgrading programmes, affordable housing policies, inclusive urban planning, community empowerment and climate-resilient infrastructure development.
Social and economics inequalities	Promote inclusive economic growth, improve access to quality education and healthcare, implement fair employment policies, enhance social safety nets, foster gender equality and social inclusion, support affordable housing initiatives, address income disparities and strengthen access to basic services for marginalised groups.

Specific difficulty	Actions to overcome the difficulties
Lack of resilience to climate change - natural disasters	Adopt innovative urban planning strategies enriched with green spaces, invest in resilient infrastructure, implement early warning systems, leverage nature-based solutions, engage communities, diversify livelihoods, establish risk financing, enforce adaptation policies, support research and foster international collaboration.
Urban footprint	Promote compact and efficient urban development, enhance public transportation, increase green spaces, adopt sustainable building practices, implement circular economy models, use renewable energy sources, monitor and regulate urban expansion, leverage smart city technologies, foster community participation and strengthen policy frameworks.
Shifts in population structure and increase in urbanisation	Cities need to adequately monitor and prepare for forecasted shifts in their demographic composition and increase in urbanisation, which is expected to rise to 68% by 2050.

Source: UN-Habitat (2023), Sachs et al. (2024)

The latest UN report states that, on average, only 16% of the SDG targets are on track to be met globally by 2030, with the remaining 84% showing limited progress or a reversal of progress, and SDG 11 is one of them off track (Sachs et al., 2024).

The main concern is that, without intensified actions, substantial changes in urban policies and increased investments, the risk of failing to achieve SDG 11 remains high, potentially triggering widespread ripple effects across the entire 2030 Agenda (UN-Habitat, 2023).

Increasing population growth, rapid urbanisation and expanding economic development are straining limited energy resources, with annual demand growth while supply remains stable. Urban areas consume 75% of global primary energy (UN-Habitat, 2024). This imbalance between supply and demand extends to all infrastructure services, which must be addressed within the urban context.

Supplementary resources

- Leal Filho, W. et al. (2023). When the alarm bells ring: Why the UN sustainable development goals may not be achieved by 2030. *Journal of Cleaner Production*, *407*. https://doi.org/10.1016/j.jclepro.2023.137108

Examples of assessment questions

2.1 Defining SDG 11

- What are the main aspects of SDG 11?
- What is the focus of the first seven targets of SDG 11?
- What is the focus of the last three targets of SDG 11?

2.2 Significance of SDG 11

- What is the status of the progress in achieving SDG 11 by 2030?
- Explain the main characteristics of the key aspects of SDG 11: resilience and cities footprint.

2.3 Interdependencies of SDG 11

- How is SDG 11 interconnected with the other SDGs? What other Goals do you think will be most affected if SDG 11 is not achieved?
- Select any three SDGs and briefly explain how they interact with SDG 11. Use examples from your region to illustrate your explanation.

2.4 Advantages of SDG 11

- What will the main advantages be for the world if SDG 11 is achieved?
- Select any two of the targets of SDG 11 and explain the specific advantages which will result with these targets being achieved. Link these to advantages for your specific region.

2.5 Challenges in the implementation of SDG 11

- What are the difficulties in implementing SDG 11 in your country? Which are the main barriers? How can they be overcome?

Sources consulted

Breuer, A., Janetschek, H., & Malerba, D. (2019). Translating sustainable development goal (SDG) interdependencies into policy advice. *Sustainability*, *11*(7), 2092.

IEA. (2024). *Empowering urban energy transitions*. https://www.iea.org/reports/empowering-urban-energy-transitions/executive-summary [Accessed 26 November 2024].

Kabisch, S., Finnveden, G., Kratochvil, P., Sendi, R., Smagacz-Poziemska, M., Matos, R., & Bylund, J. (2019). New urban transitions towards sustainability: Addressing SDG challenges (research and implementation tasks and topics from the perspective of the Scientific Advisory Board (SAB) of the Joint Programming Initiative (JPI) Urban Europe). *Sustainability*, *11*, 2242. doi: 10.3390/su11082242.

Leal Filho, W., Trevisan, L. V., Simon Rampasso, I., Anholon, R., Pimenta Dinis, M. A., Londero Brandli, L., Sierra, J., Langa Salvia, A., Pretorius, R., Nicolau, M., Pires Eustachio, J. H. P., & Mazutti, J. (2023). When the alarm bells ring: Why the UN sustainable development goals may not be achieved by 2030. *Journal of Cleaner Production*, *407*. https://doi.org/10.1016/j.jclepro.2023.137108

Nabiyeva, G. N., & Wheeler, S.M. (2024). How is SDG 11 linked with other SDGs? Evidence from the United Nations Good Practices. *Highlights of Sustainability*, *3*(3), 294–307. https://doi.org/10.54175/hsustain3030017

Sachs, J. D., Lafortune, G., & Fuller, G. (2024). *The SDGs and the UN Summit of the Future. Sustainable Development Report 2024.* Dublin University Press. https://doi.org/10.25546/108572

UN-Habitat. (2023). *Rescuing SDG 11 for a Resilient Urban Planet. SDG 11 synthesis report: High Level Political Forum 2023.* https://unhabitat.org/sites/default/files/2023/07/sdg_11_synthesis_report_2023_final_0.pdf

UN-Habitat. (2024). *Urban energy*. https://unhabitat.org/topic/urban-energy [Accessed 26 November 2024].

United Nations. [n.d.(a)]. *Communications materials*. https://www.un.org/sustainabledevelopment/news/communications-material/ [Accessed 2 October 2022].

United Nations. [n.d.(b)]. *Goal 11 – Make cities and human settlements inclusive, safe, resilient and sustainable.* https://sdgs.un.org/goals/goal11 [Accessed 26 November 2024].

United Nations. (2015). *Transforming Our World, the 2030 Agenda for Sustainable Development. General Assembly Resolution A/RES/70/1*. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E [Accessed 7 August 2022].

United Nations. (2021). Sustainable transport, sustainable development. Interagency report for second Global Sustainable Transport Conference. United Nations.

3. Overview of various crises that have negatively impacted the achievement of SDG 11

Readers (teachers) will be able to

- identify the major crises that negatively impact the achievement of SDG 11
- explain how the major crises prevent the achievement of SDG 11
- describe how the impact of current crises on the achievement of SDG 11 differs regionally

Historically, crises have formed the basis of the catalyst that initiates significant social, political and economic change in society. A global or regional crisis also demonstrates exactly how interdependent and interlinked all the components of sustainable development are and this extends to the achievement of all the SDGs by 2030. Further, as the impact of most global and regional crises transcends national and international borders, it is important that the international community in collaboration with governments work together to develop common solutions that will mitigate the impact of the crisis. This collaboration could include the facilitation of structural transformation that will enable and encourage success in the pursuit of achieving the SDG targets by 2030 (United Nations, n.d.).

The most dominant global crises that negatively impact(ed) the process of making cities and human settlements inclusive, safe, resilient and sustainable (SDG 11) by 2030 include climate change, the consequences of the COVID-19 pandemic and conflicts.

3.1 Climate change

Climate change poses significant challenges to achieving SDG 11, which aims itself to create more resilient cities. Extreme weather events, including floods, hurricanes and heatwaves, are intensifying globally and have devastating impacts on urban infrastructure and populations. Rising temperatures increase the urban heat island effect, exacerbating heat stress and air pollution, which disproportionately affect vulnerable populations in cities. Coastal cities face added risks from sea-level rise, leading to the loss of coastal lands, displacement of communities and damage to critical infrastructure. These impacts

put enormous strain on urban services, such as water supply, sanitation and healthcare, hindering efforts to build resilient cities.

In addition to physical damage, climate change-driven migration and displacement challenge the inclusivity and sustainability of urban areas. Many cities are seeing an increase in climate migrants from rural areas or smaller towns as they seek refuge from worsening environmental conditions, putting additional pressure on housing, jobs and social services. This rapid urbanisation can lead to the growth of informal settlements, which often lack basic infrastructure and increase the risk of health and safety hazards.

3.1.1 Impact of climate change in Latin America

Latin America and the Caribbean is the second-most disaster-prone region in the world (Humanitarian Action, 2022). In the past 20 years, more than 190 million people across the region have been impacted by various disasters (UNDRR, 2023; Humanitarian Action, 2022).

The challenges associated with climate change and the achievement of SDG 11 in the region are worsened by inequality, rapid urbanisation and environmental vulnerability, especially as 8 of 10 people in the region live in cities (Agenda 2030 LAC, n.d.). One of the most critical impacts is on housing and basic services, as climate-related disasters such as storms, floods and landslides disproportionately affect informal settlements. Millions of people living in precarious conditions face heightened risks of displacement and loss of livelihoods (Batista et al., 2024). Rising sea levels in coastal cities and flooding in urban centres further strain efforts to provide safe, affordable housing, compounding inequalities and undermining progress toward sustainable urbanisation.

In 2024, Southern Brazil was hit by its worst flood in over 80 years. According to the latest report (Rio Grande do Sul, 2024), the floods affected nearly 2.4 million people, resulting in 183 deaths, 27 missing persons and widespread damage across 478 municipalities in the state. The recovery and restoration efforts have enabled the resumption of basic services, such as health, education and transportation, in various municipalities, although

there has been a noticeable decline in capacity in some areas (Da Rocha et al., 2024). At the peak of the emergency, nearly 60 000 people were displaced, with over 80 000 sheltering in official facilities across the state, increasing the protection needs of vulnerable groups, including women, girls, young children and the elderly. Although water levels have receded and access to basic services such as health, water, sanitation and education has been restored, concerns remain about the quality of these services. Significant challenges persist in bringing them back to pre-flood standards.

Most targets within SDG 11 lack sufficient data for comprehensive regional analyses and projections. However, target 11.5 — which aims to significantly reduce disaster-related deaths, the number of people affected and direct economic losses relative to global GDP by 2030, with a focus on protecting vulnerable populations—is among the most closely linked to climate change. Available data, as shown in figure 2, highlights the urgent need for greater efforts to mitigate both the economic and human toll of disasters (ECLAC, n.d.).

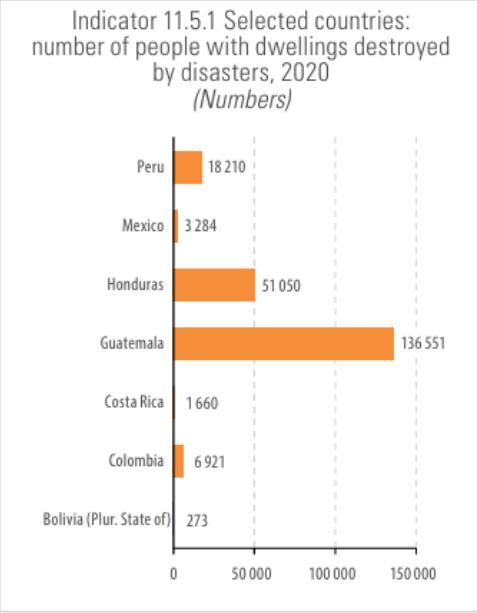

Figure 2: Indicator 11.5.1 referring to the number of people with dwellings destroyed by disasters (ECLAC, n.d.)

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Poor urban planning and limited disaster preparedness leave many cities ill-equipped to respond to these crises, while the economic burden of recovery diverts resources from sustainable development initiatives (Ribeiro et al., 2022). On a positive note, ECLAC partnered with the Global Covenant of Mayors for Climate and Energy to develop tools to accelerate the implementation of climate action plans in cities, based on the experiences of Belmopán, Guatemala City, Port-au-Prince, San Salvador and Santo Domingo (ECLAC, n.d.). The World Bank's analysis (2023a) of climate action plans in cities across Latin America and the Caribbean (figure 3) highlights progress in certain areas and a growing emphasis on others, particularly energy efficiency measures, waste management and climate adaptation through education and communication.

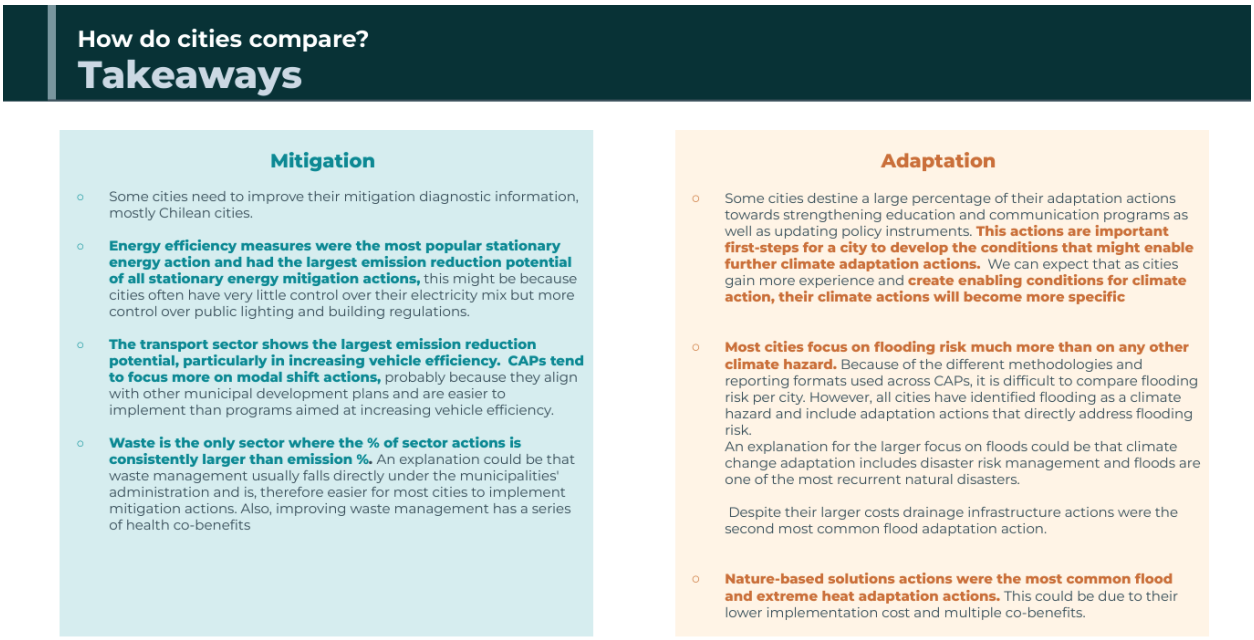

Figure 3: Takeaways on the city climate action plan analysis in Latin America and the Caribbean

Supplementary resources

- Comissão Econômica para a América Latina e o Caribe (CEPAL). (2024). *A economia da mudança climática na América Latina e no Caribe, 2023: necessidades de financiamento e ferramentas de política para a transição a*

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economias de baixo carbono e resilientes ao clima (LC/TS.2023/154), Santiago. https://repositorio.cepal.org/server/api/core/bitstreams/b3475230-6c7a-40df-9026-27f065246116/content

- UCLG. (2019). *Resiliência Climática e Desenvolvimento Urbano.* https://learning.uclg.org/wp-content/uploads/2021/01/26_resiliencia_climatica_e_desenvolvimento_urbano_port_1.pdf

3.1.2 Impact of climate change in Africa

Floods affect both the least developed and most economically advanced and industrialised nations. The risk of casualties, and social and economic hardships associated with flooding can be reduced by implementing the United Nations guidelines for reducing flood losses (2004). Some of these guidelines include a shift from post-disaster response to risk mitigation. There needs to be pre-, during and post-disaster investment in preparedness activities and associated infrastructure, flood plain policy development, effective watershed land use planning, flood forecasting and warning systems, and response mechanisms (United Nations, 2004).

Land use change also changes the landscape of urban areas. Land use planning is important to help ensure that infrastructure is properly sited and built to minimise damage as well as to reduce the cost of repair. Globally, there is an alarming increase in economic damage and the number of people affected by flooding. When floods occur in less developed nations, they can effectively wipe out decades of investments in infrastructure, reverse the advancements made in economic prosperity and result in thousands of deaths and epidemics. As storms will continue to occur, risk assessment and planning followed by actions are needed to help reduce the overall risk to society, the economy and the environment.

While Africa is one of the continents that contributes the least to anthropogenic climate change, it is most likely to be impacted by extreme climate variability. Target 11.5 of SDG 11 aims to “reduce the adverse effects of natural disasters”. There has been an increase in the frequency, duration and magnitude of droughts, flooding and extreme heatwaves over the past half-century. Flooding is among the world’s natural hazards that result in adverse disasters affecting social and economic development. The impact of these

natural disasters is devastating in African nations as they are not met by adequate urban development, governance, resource allocation and service provisioning. The lack of an effective adaptation policy and disaster response in many sub-Saharan African countries suggests a lack of capacity to deal effectively with the impacts of extreme weather events, thus impeding efforts toward achieving the SDGs.

Codjoe and Atiglo (2020) report that Africa is rapidly urbanising, with 44.4% of the population living in urban areas. It is estimated that 58.9% of the population will be living in urban areas by 2050 (Oumar, 2023). Unmanaged urbanisation will result in increased inequalities, inadequate and overburdened infrastructure and services, worsening air pollution and unplanned urban sprawl (Oumar, 2023). In 2022, extreme weather events resulted in at least 4 000 deaths and affected 19 million people. Africa's share of the global population affected by disasters increased from 8% to 29.4% between 2001 and 2020 (Oumar, 2023). Since 1990, droughts and floods have lowered African countries' GDP by 0.7% and 0.4%, respectively. Africa was most impacted by disasters between 1990 and 2019 with 1 107 recorded floods and droughts; 43 625 deaths and at least $14 billion in damages to crops, livestock and property were recorded in this period (Oumar, 2023). Over the past decade, the total economic losses due to natural disasters in Africa have been estimated at around $12 billion per year (Oumar, 2023).

Supplementary resources

- Codjoe, S. N. A., & Atiglo, D. Y. (2020) The implications of extreme weather events for attaining the Sustainable Development Goals in sub-Saharan Africa. *Frontiers in Climate, 2*, 592658. doi: 10.3389/fclim.2020.592658.
- Oumar, S. (2023). *Niamey, Niger. Progress, challenges, opportunities and priority actions: Accelerating the achievement of Sustainable Development Goal 11.* https://www.uneca.org/eca-events/sites/default/files/eventdocumets/Agenda_item_7_SDG11_Progress_challenges_opportunities_and_priority_actions_Oumar_Sylla.pdf

3.1.3 Impact of climate change in Europe

Climate change poses significant risks to the achievement of SDG 11 in Europe, affecting cities' ability to remain inclusive, safe, resilient and sustainable (Laumann et al., 2022; Pérez-Peña et al., 2021). Urban areas are increasingly vulnerable to extreme weather events, rising sea levels and shifting precipitation patterns, which threaten infrastructure, public health and economic stability. These risks necessitate adaptive urban planning strategies that address climate-related challenges while promoting sustainable growth (Pricope et al., 2024).

One of the most significant effects of climate change on European cities is the increased frequency and intensity of extreme weather events, especially heatwaves (Brás et al., 2021; Martin-Vide & Moreno-Garcia, 2020). These events are becoming more common and severe, particularly in southern Europe. Cities like Athens (Greece) and Rome (Italy) have experienced record-breaking temperatures, resulting in higher mortality rates among vulnerable populations (Di Bernardino et al., 2023; Galanaki et al., 2023). Urban heat islands exacerbate these effects, disproportionately affecting low-income neighbourhoods with limited access to green spaces (Delgado-Capel et al., 2023).

Figure 4 illustrates observed and projected temperature trends in Europe from 1950 to 2100, highlighting the potential consequences of different emission trajectories. The SSP5-8.5 scenario, representing very high emissions, shows temperature increases of up to 9 °C by the end of the century (Wageningen University, 2024). Such extreme temperature rises could exacerbate heatwaves, strain energy systems and lead to further water scarcity. In contrast, lower-emission scenarios, such as SSP1-2.6, indicate a more moderate temperature increase (Wageningen University, 2024). This projection underscores the importance of climate mitigation strategies, reflecting broader considerations linked to target 11.6 (reduce the adverse per capita environmental impact of cities).

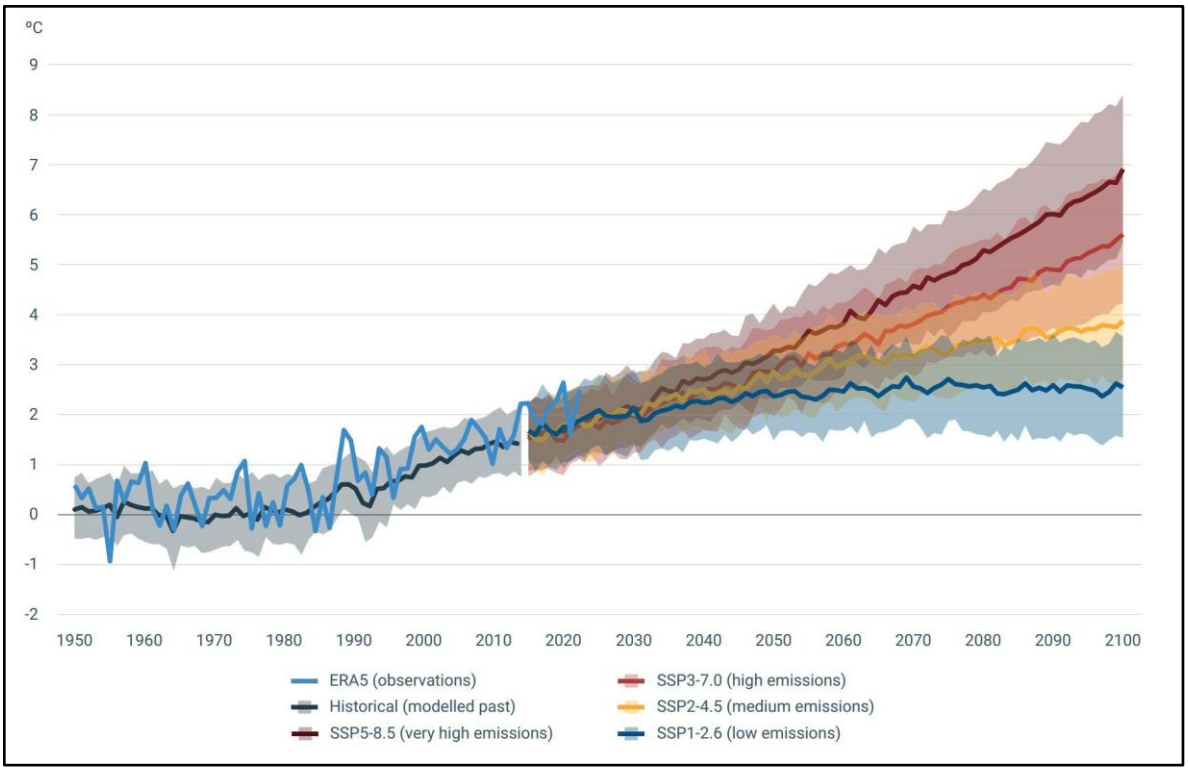

Figure 4: Projected temperature changes in Europe under different emissions scenarios (1950–2100)

Source: Wageningen University (2024)

Flooding is another major climate-related risk impacting European cities, particularly in low-lying and coastal areas. Venice (Italy) has faced repeated flooding events, with rising sea levels and intense rainfall overwhelming the city's aging infrastructure (Ferrarin et al., 2022; Lionello et al., 2021). Similarly, Hamburg (Germany) and Copenhagen (Denmark) are at increased risk of storm surges, threatening critical urban infrastructure (Osuide, 2022).

Water scarcity, driven by changing precipitation patterns and prolonged droughts, is another critical issue affecting European cities (Huang et al., 2021; Ricart et al., 2021). In Lisbon (Portugal) and Madrid (Spain), reduced rainfall and higher temperatures have led to water shortages, affecting urban water supply systems (Tortajada et al., 2019). Addressing these shortages requires efficient water management systems, such as rainwater harvesting and wastewater recycling (Huang et al., 2021). These efforts reflect

broader aims related to target 11.5 (reduce the number of deaths and the number of people affected by disasters), highlighting the need for resilient infrastructure that ensures continuity of essential services.

The increasing occurrence of wildfires in southern Europe further threatens urban sustainability (Meier et al., 2023). Cities such as Nice (France) and Barcelona (Spain) are vulnerable to wildfires that endanger lives, property and infrastructure (Meier et al., 2023; San-Miguel-Ayanz et al., 2013). These fires, intensified by prolonged droughts, present long-term challenges like air pollution and decreased biodiversity. Table 5 lists challenges related to SDG 11, their impact and European examples.

Table 5: Climate change, impacts and European examples

European cities	Climate change	Impact
Athens (Greece)	Heatwaves and urban heat islands	Increased mortality rates, higher energy consumption and strain on healthcare systems
Rome (Italy)	Extreme temperatures	Greater demand for cooling infrastructure and stress on urban energy systems
Venice (Italy)	Rising sea levels and flooding	Damage to cultural heritage sites and disruption of transportation networks
Hamburg (Germany)	Storm surges and coastal flooding	Threats to port operations and urban industrial zones
Lisbon (Portugal)	Water scarcity and droughts	Risks to urban water supply systems and surrounding agricultural production
Madrid (Spain)	Reduced rainfall and water shortages	Impact on water-intensive industries and public water distribution systems

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Nice (France)	Wildfires in urban peripheries	Air pollution, loss of biodiversity and damage to residential areas
Barcelona (Spain)	Urban expansion into fire-prone areas	Increased wildfire risk affecting suburban communities and critical infrastructure
Amsterdam (Netherlands)	Sea-level rise and coastal erosion	Long-term risks to residential areas and economic sectors reliant on coastal infrastructure
Stockholm (Sweden)	Coastal flooding risks	Potential displacement of communities and loss of economic activities near coastlines

In conclusion, the impact of climate change on European cities presents multifaceted challenges that threaten the achievement of SDG 11 (Pérez-Peña et al., 2021). From intensifying heatwaves in southern cities, leading to higher mortality rates and energy demands, to rising sea levels endangering coastal infrastructure, the effects of climate change reveal underlying urban vulnerabilities. These challenges underscore the need for adaptive urban planning that promotes resilience while minimising environmental impact, reflecting broader objectives related to sustainable resource management and disaster risk reduction (Pricope et al., 2024). Moreover, the disparities in adaptive capacity among European cities highlight the importance of fostering inclusive urban development, aligning with goals aimed at ensuring safe, accessible living environments and preserving cultural heritage.

Supplementary resources

- Kluza, K., Ziolo, M., & Postula, M. (2024). Climate policy development and implementation from the Sustainable Development Goals perspective. Evidence from the European Union countries. *Energy Strategy Reviews*, *52*, 101321. https://doi.org/10.1016/j.esr.2024.101321
- Laumann, F., Von Kügelgen, J., Uehara, T. H. K., & Barahona, M. (2022). Complex interlinkages, key objectives, and nexuses among the Sustainable

Development Goals and climate change: A network analysis. *The Lancet Planetary Health*, *6*(5), e422–e430. https://doi.org/10.1016/S2542-5196(22)00070-5

- Rosenzweig, C., Solecki, W., Romero-Lankao, P., Mehrotra, S., Dhakal, S., & Ali Ibrahim, S. (2018). *Climate change and cities: Second assessment report of the Urban Climate Change Research Network.* Cambridge University Press. https://doi.org/10.1017/9781316563878

3.2 COVID-19 pandemic

The COVID-19 pandemic significantly impacted SDG 11 by exposing and amplifying existing vulnerabilities in urban systems and infrastructure. Lockdowns, economic downturns and prioritisation of healthcare systems highlighted the need for resilient cities that can recover from crises. Many urban areas experienced a surge in poverty and inequality, with the loss of jobs and income disproportionately affecting low-income communities. This led to an increase in homelessness and informal settlements, placing additional stress on essential urban services like sanitation and healthcare. The pandemic also underscored the importance of and investments in accessible public spaces and green areas.

3.2.1 Impact of COVID-19 in Latin America

The impacts of the COVID-19 pandemic in Latin American countries exposed and exacerbated existing challenges in urban development. According to the Economic Commission for Latin America and the Caribbean (ECLAC, n.d.), cities with more than 1 million inhabitants account for almost half of the total urban population in the region. The pandemic caused a temporary easing of urbanisation in 2020 and 2021, reducing the pressure on megacities and strengthening medium-sized and smaller cities. These cities, on the other hand, face challenges such as insufficient infrastructure, unplanned growth and limited public services, which can hinder their ability to sustainably manage increased urbanisation. In the context of the pandemic, examples of initiatives in the region include

Guayaquil, Lima and Santo Domingo, which received support to formulate economic reactivation and urban resilience schemes.

The pandemic also contributed to expansion of slums and difficulties in acquiring, building and improving housing solutions in several countries in Latin America. The reasons include higher construction costs (due to disruption in international and local production and supply chains; in a sample of 11 countries, average construction costs per square metre rose by 23% between June 2020 and January 2021 (ECLAC, 2023b) and higher urban unemployment and increased rate of informal employment (ECLAC, 2023a). More than 55% of urban households living below the poverty line experienced overcrowding, and government funding for the housing sector across the region declined to an average of just 0.61% of GDP, a decrease compared to the allocation from ten years prior (ECLAC, 2023b). According to De los Ángeles et al. (2024), Latin America lacks green infrastructure to enhance urban resilience and reduce the contagion levels, particularly in times of pandemics. Their study points out the role played by green areas in the role of reducing the contagion risk in future pandemics.

The pandemic revealed the potential for transformative urban governance and digital innovation. Many cities leveraged technology to deliver public services, monitor health data and engage citizens in decision-making processes. These digital solutions highlighted opportunities for more inclusive and participatory urban governance. However, they also exposed the digital divide (Rotondi et al., 2020; Ancheta-Arrabal et al., 2021), emphasising the need to invest in equitable access to technology and digital infrastructure.

On a positive note, the pandemic has fostered a faster adoption of sustainable mobility measures such as emergency cycleways, street pedestrianisations and other traffic-calming initiatives in some regions, including Latin American cities (Vecchio et al., 2021). These combined efforts support public acceptance given the sense of urgency generated by the pandemic and accelerate implementation of future plans.

Supplementary resources

- Grijalba Castro, A. I., & Ramirez Lopez, L. J. (2021). Sustainability and resilience of emerging cities in times of COVID-19. *Sustainability*, *13*(16), 9480.
- UNDP. (2020). *UNDP LAC C19 PDS No. 21 Planning a sustainable post-pandemic recovery in Latin America and the Caribbean*. https://www.undp.org/sites/g/files/zskgke326/files/migration/latinamerica/undp-rblac-CD19-PDS-Number21-Green-Recovery-EN.pdf

3.2.2 Impact of COVID-19 in Africa

The COVID-19 pandemic abruptly affected every facet of life, particularly African cities, communities and the activities and interactions within them. It interrupted the implementation of SDG 11 for all countries, particularly those in Africa that already lagged behind because of poor funding and economic resources, population growth, climate change, corruption, poor governance etc. (Yuan et al., 2023). The pandemic contributed to urban unemployment, strained service delivery and public safety risk. With cities being the 'hotspots' for public crises such as the COVID-19 pandemic, effective SDG 11 implementation is of extreme importance (Ekwebelem et al., 2021; Mahlatsi, 2021; UN-Habitat, 2023). It is projected that by 2050, 65% of the world's population will reside in urban areas, and 90% of this growth is expected to be within Asia and Africa (Chen et al., 2022). Due to this projected trend of urbanisation, the achievement of the United Nations 2030 Agenda is closely related to the achievement of the various targets and indicators of SDG 11.

Yuan et al. (2023) suggest that setbacks from the pandemic have significantly affected countries in the Global South. This includes North Africa and sub-Saharan Africa, with these regions being highly vulnerable and having lower coping capacities (Yuan et al., 2023). As pandemics are notorious for exacerbating existing societal and other imbalances, the COVID-19 pandemic not only stalled SDG 11 progress in Africa, but further exacerbated already difficult-to-achieve targets for the other SDGs on the

continent. The pandemic furthermore made clear the importance of the inter-relatedness of the 17 SDGs and the need to address inequalities (Wang & Huang, 2021) at various levels of society. Inequalities are very tangible in cities and affect vulnerable urban residents such as the elderly, the youth, women, people with disabilities and individuals dependent on the informal sector. Also, the full extent of the impacts of the pandemic are highly complex and may remain unclear for the short to medium term. COVID-19 research has concentrated its efforts in the Global North and China, despite the impact of the pandemic being higher in low-income countries, such as African countries, than high-income countries (Yuan et al., 2023).

Two targets within SDG 11 focus on reducing the adverse effects of natural disasters and disaster risks (targets 11.5 and 11.9). The COVID-19 pandemic certainly required adequate disaster and risk reduction strategies and since the effects of the pandemic were felt mostly in cities (90% of cases were concentrated in cities), the importance of SDG 11 in creating resilient cities that can adequately manage such disasters and risks is clear (UN-Habitat, 2023). Smit (2021) explains the importance of the COVID-19 pandemic in helping rethink urban governance strategies with a particular focus on informal settlements and the informal sector. More than a billion people globally live in informal settlements, 230 million of whom are in sub-Saharan Africa (Chen et al., 2022). In 2020, 90% of informal dwellers were in Asia and Africa (UN-Habitat, 2023). The urban population is also highly dependent on the informal sector for their livelihoods. Informality intersects with nearly all the targets within SDG 11: targets 11.1 (safe and affordable housing), 11.2 (affordable and sustainable transport systems) and 11.3 (inclusive and sustainable urbanisation).

Smit (2021) explains the importance of upgrading informal settlements, e.g. improved water and sanitation to reduce risks and vulnerabilities such as exposure to infectious diseases, economic vulnerabilities, high population density, lack of access to food, recreation etc. Cobbinah et al. (2021) also highlight the need for more effective urban planning practices in Africa and the inclusion of the informal sector and informal areas in planning. Furthermore, the importance of urban green and public space has also been

highlighted. In the context of the COVID-19 pandemic, cities and people living in close communities were stripped of free access to vital public spaces and interactions. Social distancing was particularly challenging in dense communities (Cobbinah et al., 2021). It is recommended that Africa prioritise health, spatial and socio-economic factors in its urban planning strategies to increase capacity to deal with future crises and promote sustainable living (Cobbinah et al., 2021). The COVID-19 pandemic provided a renewed focus on the importance of urban areas in public health, well-being and risk management and highlighted the need for better city planning and policies to deal with social and environmental challenges and ultimately foster spatial, environmental justice (Chen et al., 2022).

Supplementary resources

- Cilliers, J. (2024). *Impact of COVID-19 in Africa: A scenario analysis to 2030 (July 2020): Special Report.* https://futures.issafrica.org/special-reports/other/covid/.
- UN-Habitat. (2023). *Rescuing SDG 11 for a Resilient Urban Planet. SDG 11 Synthesis Report: High Level Political Forum 2023.* https://unhabitat.org/sites/default/files/2023/07/sdg_11_synthesis_report_2023_final_0.pdf

3.2.3 Impact of COVID-19 in Europe

The COVID-19 pandemic profoundly reshaped urban life across Europe, exposing vulnerabilities in urban infrastructure, governance and social systems, thereby posing significant challenges to achieving SDG 11 (Honey-Rosés et al., 2021; Nundy et al., 2021). As densely populated areas with interconnected transportation networks, cities became epicentres of transmission. The pandemic triggered mobility restrictions, economic downturns and shifts in social behaviour that forced urban planners and policymakers to rethink strategies for sustainable urbanisation (Nundy et al., 2021). These disruptions demonstrated the urgent need for more resilient, adaptable and inclusive urban systems capable of withstanding global crises (Ranjbari et al., 2021). While these

challenges were evident across various sectors, the most critical impacts were felt in transportation, public spaces and the digital divide (Nundy et al., 2021).

One of the most immediate impacts of COVID-19 was on urban mobility (Kellermann et al., 2022; Melo, 2022). Public transportation systems experienced unprecedented declines in ridership as lockdowns and fears of contagion prompted residents to avoid enclosed and crowded spaces. The decline in ridership exposed the vulnerability of urban transport networks that rely heavily on daily commuters. Reduced reliance on public transportation disrupted the progress toward low-carbon mobility systems and underscored the need for flexible, multimodal transport infrastructure that can sustain future shocks (Melo, 2022).

Beyond transportation, the pandemic emphasised the critical role of public spaces in urban environments (Martínez & Short, 2021; Scopelliti et al., 2021). Lockdown measures restricted mobility and confined residents to their homes, leading to heightened awareness of the importance of accessible green spaces for physical and mental well-being (Scopelliti et al., 2021). Neighbourhoods with limited access to parks and recreational areas saw higher levels of psychological distress, underscoring the connection between urban design and public health (Poortinga et al., 2021). In cities like Berlin (Germany) and London (UK), the demand for accessible green spaces surged, prompting urban planners to re-evaluate land use policies (Poortinga et al., 2021).

A survey, conducted between 14 and 21 May 2020 across 21 cities in six European countries, revealed that 64% of respondents did not want to return to pre-pandemic air pollution levels (European Parliament, 2020). Moreover, about 74% believed that cities must take effective measures to protect citizens from air pollution. Notably, 78% supported safer spaces for active mobility, such as cycling, walking and public transport, as illustrated in figure 5. This situation reflects broader challenges related to target 11.7 (provide universal access to safe, inclusive and accessible green and public spaces), as cities recognise the need for equitable access to urban amenities that support community well-being and resilience.

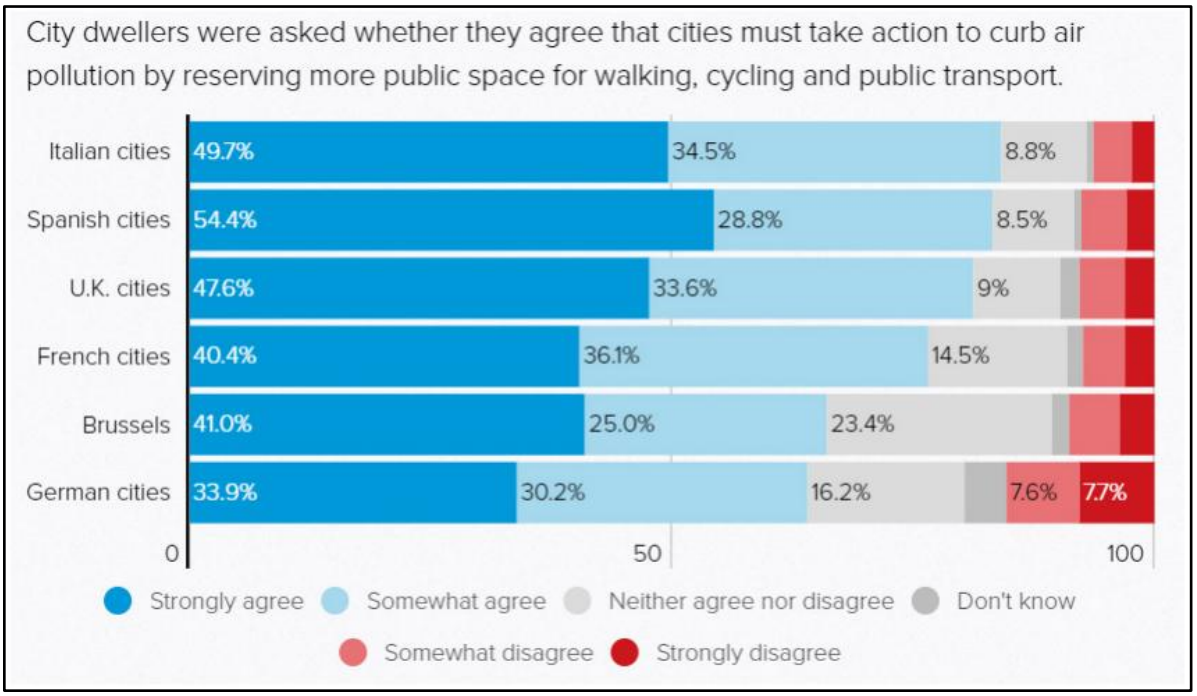

Figure 5: Urban sustainability perceptions post-COVID-19

Source: European Parliament (2020)

The pandemic also amplified housing inequalities across Europe. Overcrowded living conditions, prevalent in socio-economically disadvantaged neighbourhoods, contributed to higher infection rates and mortality (Cantó et al., 2021; Fiske et al., 2022). In Madrid (Spain) and Lisbon (Portugal), these disparities became particularly apparent, with lower-income populations facing greater risks due to limited living space and inadequate housing infrastructure. The vulnerabilities exposed during COVID-19 stress the importance of integrating housing policies into broader urban resilience frameworks, ensuring that cities can better protect their populations in future crises (Cantó et al., 2021). Economic repercussions from COVID-19 had effects on urban sustainability (Drammeh, 2024). Tourism-dependent cities like Venice (Italy) and Barcelona (Spain) suffered significant revenue losses as international travel ground to a halt. The closure of cultural institutions further impacted urban economies, highlighting the fragility of sectors reliant on tourism and cultural activities (Mróz, 2021).

Digital infrastructure emerged as a critical component of urban resilience during the pandemic (Borda et al., 2022; Fiske et al., 2022). Remote work, online education and digital access to public services became essential as physical mobility was restricted. The pandemic also exposed digital divides, with many vulnerable populations lacking reliable internet access and digital literacy (Borda et al., 2022; Fiske et al., 2022). Bridging this digital divide will be vital for achieving inclusive urban development, as technology continues to play a central role in shaping urban life. Figure 6 highlights the key urban dynamics affected by the COVID-19 pandemic in Europe, emphasising how these changes relate to specific SDG 11 targets.

Urban Dynamics	Pandemic-Driven Changes	Related Target
Mobility Patterns	Sharp decline in public transport usage; rise in cycling and pedestrian infrastructure.	Target 11.2: Provide access to safe, affordable, accessible, and sustainable transport systems for all.
Public Space Usage	Increased demand for accessible green areas due to lockdown restrictions.	Target 11.7: Provide universal access to safe, inclusive, and accessible, green and public spaces.
Housing Conditions	Overcrowded living conditions revealed heightened health risks.	Target 11.1: Ensure access for all to adequate, safe, and affordable housing and basic services.
Economic Structure	Tourism and cultural sectors faced severe disruptions, exposing economic vulnerabilities.	Target 11.4: Strengthen efforts to protect and safeguard the world's cultural and natural heritage.
Digital Accessibility	Digital divides became more evident, affecting access to services and opportunities.	Target 11.3: Enhance inclusive and sustainable urbanization and capacity for participatory, and sustainable human settlement.

Figure 6: Urban dynamics, changes and SDG 11 targets

The COVID-19 pandemic has fundamentally reshaped urban dynamics across Europe, posing critical challenges to the realisation of SDG 11 (Honey-Rosés et al., 2021; Monshipouri & Ramaswamy, 2024). From transforming mobility patterns and exposing housing inequalities to disrupting cultural economies and highlighting digital divides, the pandemic revealed deep-seated vulnerabilities in urban systems. Ultimately, the post-pandemic recovery presents an opportunity for European cities to build back better by

integrating inclusive planning, adaptive infrastructure and sustainable development strategies essential for achieving SDG 11.

Supplementary resources

- Honey-Rosés, J., Anguelovski, I., Chireh, V. K., Daher, C., Van den Bosch, C. K., Litt, J. S., & Nieuwenhuijsen, M. J. (2020). The impact of COVID-19 on public space: An early review of the emerging questions – design, perceptions and inequities. *Cities & Health*, 1–17. https://doi.org/10.1080/23748834.2020.1780074
- European Parliament. (2020). *Research for TRAN Committee - COVID-19 and urban mobility: Impacts and perspectives.* Think Tank. https://www.europarl.europa.eu/thinktank/en/document/IPOL_IDA(2020)652213
- Sharifi, A., & Khavarian-Garmsir, A. R. (2020). The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management. *Science of the Total Environment*, *749*, 142391. https://doi.org/10.1016/j.scitotenv.2020.142391
- Zhang, J., Hayashi, Y., & Frank, L. D. (2021). COVID-19 and transport: Findings from a world-wide expert survey. *Transport Policy*, *103*, 68–85. https://doi.org/10.1016/j.tranpol.2021.01.011

3.3 Conflict

Conflicts pose a significant challenge to achieving the goal by undermining urban safety, inclusivity and resilience. Armed conflict often results in the destruction of critical infrastructure, displacement of populations and increased pressure on urban services, especially in neighbouring cities that absorb refugees. Cities in conflict zones frequently experience unplanned growth, loss of governance structures and weakened capacities to implement sustainable urban planning.

3.3.1 Impact of conflict in Latin America

In Latin America, armed conflict and violence, often linked to organised crime, drug cartels and political instability, lead to increased urban insecurity, displacement and strain on public services. Several cities frequently face high homicide rates, which compromise safety and inclusivity (UNICEF, n.d.; Weitzman et al., 2024).

Conflict also disrupts infrastructure and economic activities, widening inequality and slowing investments in sustainable urban growth. Additionally, the influx of internally displaced persons exacerbates housing shortages and pressures urban systems, often resulting in informal settlements with inadequate access to water, sanitation and transportation. In Venezuela, the political crisis, violence, insecurity, threats and lack of food, medicine and essential services, have made over 7 million Venezuelan refugees and migrants worldwide, the vast majority in countries within Latin America and the Caribbean (UNHC, 2025), such as Brazil and Colombia. Cities in these countries are facing increased demand for housing, healthcare, education and social services, often leading to overcrowded informal settlements and strain on urban infrastructure (IOM, 2024). This influx challenges local governments' ability to maintain safe, inclusive and resilient urban environments. Additionally, the economic and social instability in Venezuela has disrupted regional trade, contributing to economic slowdowns and limiting the resources available for urban development in both the home and host countries (UNHCR, 2025).

The conflicts in Russia-Ukraine have indirect but significant effects on SDG 11 in Latin America, primarily through economic disruptions and resource reallocations. The war in Ukraine has caused global food and energy prices to rise, placing financial strain on urban populations in Latin American cities, especially those already dealing with poverty and inequality (ECLAC, 2022). The resulting inflation has diverted government resources, limiting investments in urban infrastructure, housing and sustainability initiatives. Additionally, global supply chain disruptions and delays in the energy transition due to increased fossil fuel reliance further hinder urban resilience and the development of sustainable cities (Lima, 2023).

Supplementary resources

- Acosta-Ormaechea, S. et al. (2022). *Latin America faces unusually high risks.* https://www.imf.org/en/Blogs/Articles/2022/04/26/blog-latin-america-faces-unusually-high-risks
- How does war affect the global economy? Analyze this! https://youtube/srgC6N5KZm0, 1 min 52 s

3.3.2 Impact of conflict in Africa

According to the UN's own assessment, the world is not going to meet the SDGs by 2030. This is also true in Africa, where progress is uneven and sometimes even regressive. The urban population of Africa is projected to expand from 27% in 1950 to 60% by 2050 (United Nations, 2024a). This implies that a growing proportion of Africans will be impacted negatively by being forced to live in cities that are not inclusive, safe, resilient and sustainable, in other words, not meeting the desired outcomes and targets of SDG 11.

Conflict, especially armed conflict, is a possible driver of vulnerability in urban populations in Africa. On top of the prevalent problems of poverty, unemployment, slow economic growth and political instability, Africa is also plagued by persistent conflict in large parts of the continent. (See figure 7 of countries in Africa that experienced some kind of violent conflict in 2024.) In this regard, Cilliers (2024) of the Institute for Security Studies Africa (ISS), a South African think tank, declared in August of 2024 that "Africa is not in a happy spot". He then continued to list more than 10 countries in Africa with current, ongoing conflicts.

The influence of conflict on the achievement of SDG 11 is multifaceted and insidious. In terms of direct influence, the impact of conflict manifests in terms of the destruction of infrastructure, loss of lives and livelihoods and reduced economic activities, as well as in the increased vulnerability of the urban population. Indirectly, conflict prevents the

sustainable development of inclusive and resilient urban societies because of the channelling of (sometimes vast amounts of) resources to manage the conflicts and mitigate and rectify the effect of conflict (Ezeoha et al., 2023). As an example, in 2021, 11 African countries spent more than 10% of their respective GDP on their armed forces – a stark reminder of the price of conflict in already resource-scarce African countries (World Bank, 2024).

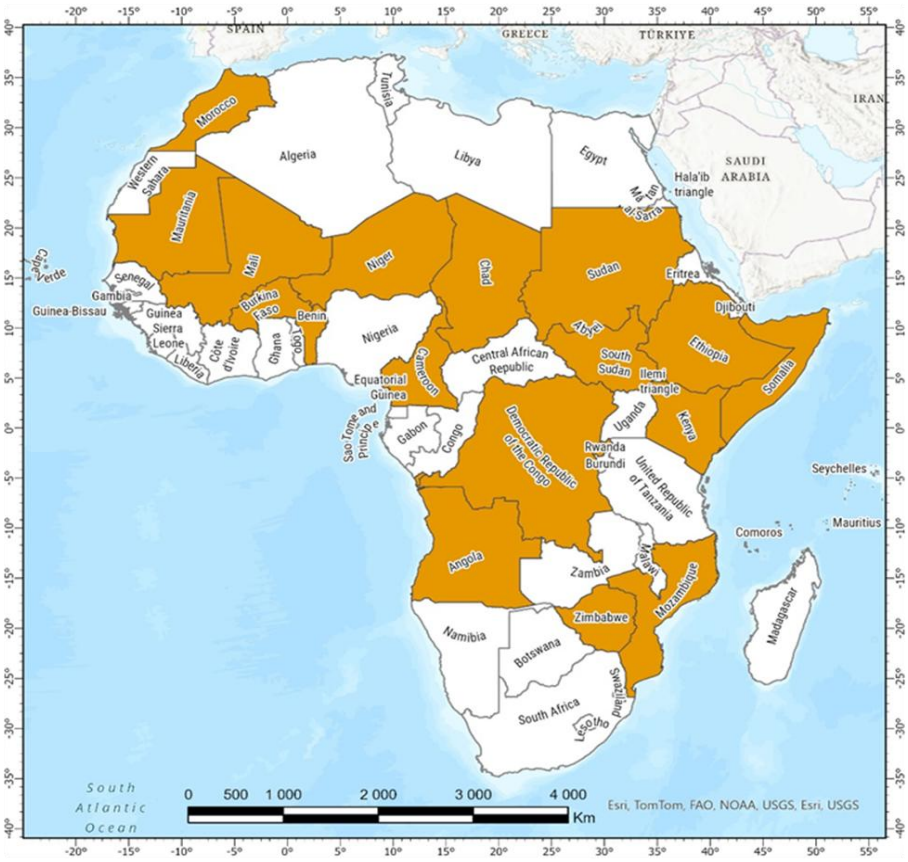

Figure 7: Conflict map of Africa: 1 January to 31 July 2024 (Compiled by Dr SP Carow using data from Armed Conflict Location and Event Data (ACLED), 2024)

One of the possible negative ways in which conflict can influence cities is through the impact on cultural assets (target 11.4 of SDG 11) (United Nations, 2024b). In Africa, the legendary Timbuktu libraries are prime examples. During the rebel attacks on the city during 2012/2013, the international community feared for the safety of the irreplaceable treasures housed in the various libraries in Timbuktu, Mali. The threat against and

physical destruction of some of the artefacts in some libraries illustrated the vulnerability of cultural assets during conflict, also in urban areas (Rasmussen, 2014). Ironically, the conflict and the resulting publicity led to a drive to digitise the libraries to increase resilience and sustainability of these cultural treasures, an unintended consequence of the drive to destroy them (Motsi, 2017).

In summary, it is safe to say that conflict has the potential to impact each of the ten targets of SDG 11 in Africa. This happens either through conflict directly impacting the accomplishment of the targets, or by indirectly channelling much-needed funding and other resources to conflict-related activities, to the detriment of the development of inclusive, safe, resilient sustainable cities and other settlements – an urgent need in Africa.

Supplementary resources

- Cilliers, J. (2024). *The power of relative deprivation: Unmet expectations amid stagnant growth fuel Africa's cycle of conflict and instability.* https://futures.issafrica.org/blog/2024/Why-is-Africa-more-violent-in-2024. [Accessed 26 September 2024].
- Ezeoha, A., Igwe, A., Okoyeuzu, C., & Uche, C. (2023). The fiscal effects of armed conflicts in Africa. *African Development Review*, *35*, 444–456. https://doi.org/10.1111/1467-8268.12720.
- Rasmussen, V. (2014). The manuscripts of Timbuktu: Armed conflict and the preservation of memory. Degree of Master of Library and Information Science. University of Hawai'i at Manoa, Hawai'i.

3.3.3 Impact of conflict in Europe

Conflicts in Europe have significantly affected the progress toward achieving SDG 11 (Briggs, 2023). Recent conflicts, including the Russia-Ukraine war, Balkan tensions and

migration crises stemming from conflicts in neighbouring regions, have disrupted urban sustainability efforts. The impact of these conflicts is multidimensional, affecting housing, urban infrastructure, social cohesion and urban planning strategies (Pereira et al., 2022). The destabilisation caused by war and regional tensions demonstrates how urban resilience can be undermined, requiring adaptive strategies to restore and maintain sustainable urban systems.

A critical consequence of armed conflicts is the destruction of urban infrastructure, which severely hampers sustainable urban development (Bin-Nashwan et al., 2022; Pereira et al., 2022). The Russia-Ukraine conflict, for example, has resulted in widespread damage to residential areas, transport networks and essential urban services (World Bank, 2023b). According to reports from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), more than 1.4 million homes were damaged or destroyed in Ukraine by the end of 2023, leaving millions without adequate shelter (OCHA, 2023).

Figure 8 illustrates the comparison of sectoral damages in Ukraine between RDNA2 (covering February 2022–2023) and RDNA3 (covering February 2022–December 2023). The data highlights that housing remains the most affected sector, with damage exceeding US$50 billion, underscoring severe challenges for target 11.1 (ensure access to adequate, safe and affordable housing). The transportation sector follows, reflecting disruptions in urban mobility systems aligned with target 11.2 (provide access to safe, affordable, accessible and sustainable transport systems). The progression from RDNA2 to RDNA3 shows escalating impacts, indicating that prolonged conflicts not only cause immediate destruction, but also deepen long-term vulnerabilities in urban sustainability (Pereira et al., 2022; World Bank, 2023).

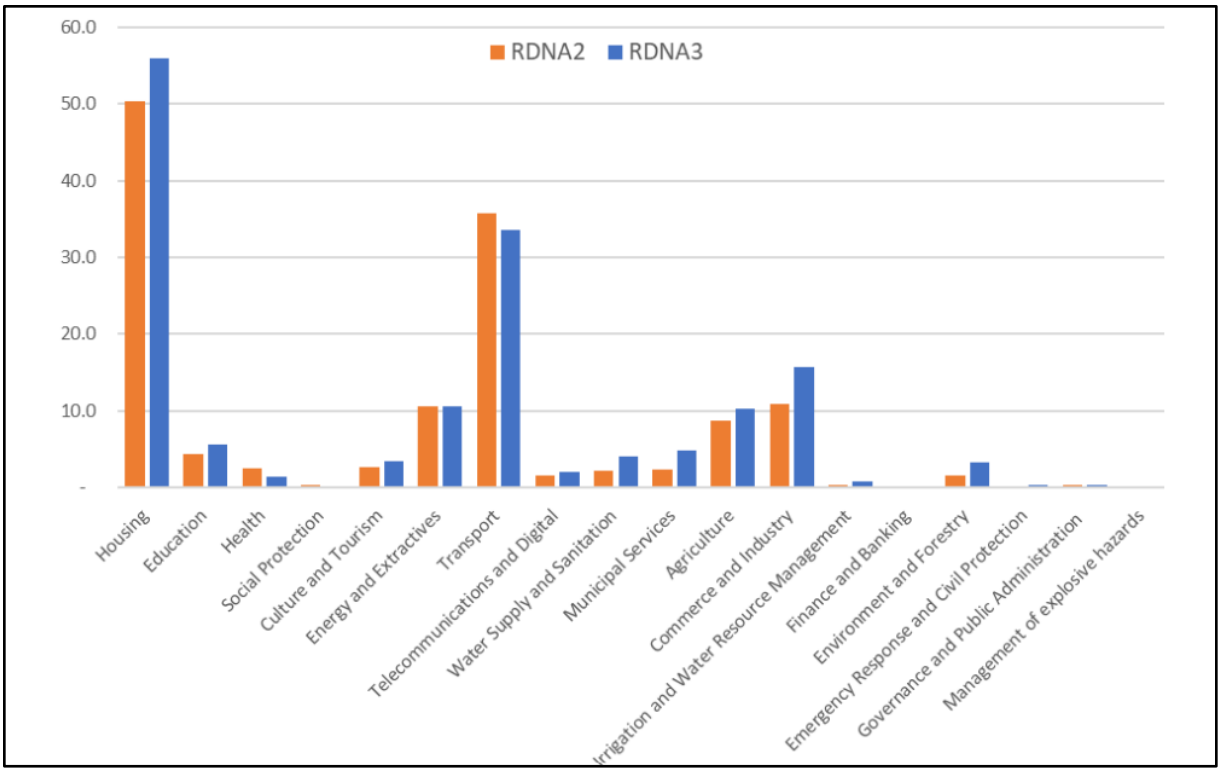

Figure 8: Sectoral damage in Ukraine in US$ billion (2022–2023)

Source: World Bank (2023)

Beyond armed conflicts, socio-political tensions within the European Union continue to hinder progress toward SDG 11, affecting urban development and sustainability (Pricope et al., 2024). One notable issue is the rise of populist and nationalist movements in countries such as Hungary and Poland, which challenge the implementation of cohesive urban sustainability policies (Honey-Rosés et al., 2021; Lendvai-Bainton & Szelewa, 2021).

Additionally, migration crises stemming from geopolitical conflicts outside Europe continue to impact urban sustainability within the EU (Dines et al., 2018; Espey et al., 2023). The arrival of large numbers of refugees and asylum seekers from regions such as the Middle East, Africa and South Asia has placed pressure on urban infrastructures in frontline states like Greece (Ciommi et al., 2023), as well as in Western Balkans (Komljenović, 2022). The rapid and unplanned growth of migrant populations strains

housing markets, public transportation systems and healthcare services, posing challenges to SDG 11, targets 11.1 and 11.2.

Supplementary resources

- Devisscher, T., Konijnendijk, C., Nesbitt, L., Lenhart, J., Salbitano, F., Zhaohua, C. C., Lwasa, S., & Van den Bosch, M. (2019). *Chapter 11 - SDG 11: Sustainable cities and communities - impacts on forests and forest-based livelihoods.* https://flore.unifi.it/handle/2158/1224603
- Lyzun, M., Lishchynskyy, I., & Dobrovolska, O. (2024). *Enhancing European partnership for sustainable development in the face of global conflicts: A comprehensive analysis and strategic framework*. http://212.1.86.13/xmlui/handle/123456789/6895
- Pereira, P., Zhao, W., Symochko, L., Inacio, M., Bogunovic, I., & Barcelo, D. (2022). The Russian-Ukrainian armed conflict will push back the sustainable development goals. *Geography and Sustainability*, *3*(3), 277–287. https://doi.org/10.1016/j.geosus.2022.09.003

Examples of assessment questions

3.1 Overview of global crises that have negatively impacted the achievement of SDG 11

- Name at least three global crises that affect the achievement of the SDG 11 targets.

3.2 Climate change

- How has climate change negatively impacted the progress in making cities more sustainable?
- How are these impacts perceived in your region?

3.3 COVID-19

- What are the effects of the COVID-19 pandemic on the SDG 11 targets?
- How are these effects perceived in your region?

3.4 Conflict

- Explain how conflicts negatively impact the efforts to achieve SDG 11.

- How are these impacts perceived in your region?

Sources consulted

Agenda 2030 LAC. [n.d.]. *Goal 11* https://agenda2030lac.org/en/sdg/11-sustainable-cities-and-communities

Ancheta-Arrabal, A., Pulido-Montes, C., & Carvajal-Mardones, V. (2021). Gender digital divide and education in Latin America: A literature review. *Education Sciences*, *11*(12), 804.

Armed Conflict Location and Event Data (ACLED). 2024. *Regional overview: Africa (January to June 2024).* https://acleddata.com/2024/07/05/africa-overview-june2024/#:~:text=ACLED%20records%2010%20ADF%20attacks,by%20the%20group%20in%20June [Accessed 27 September 2024].

Batista, C., Knipper, M., Sedas, A. C., Farante, S. V., Wainstock, D., Borjas-Cavero, D. B., Rojas Araya, K., Arteaga España, J. C., & Yglesias-González, M. (2024). Climate change, migration, and health: Perspectives from Latin America and the Caribbean. *The Lancet Regional Health–Americas*, *40*.

Bin-Nashwan, S. A., Hassan, M. K., & Muneeza, A. (2022). Russia–Ukraine conflict: 2030 Agenda for SDGs hangs in the balance. *International Journal of Ethics and Systems*, *40*(1), 3–16. https://doi.org/10.1108/IJOES-06-2022-0136

Borda, M., Grishchenko, N., & Kowalczyk-Rólczyńska, P. (2022). Impact of digital inequality on the COVID-19 pandemic: Evidence from European Union countries. *Sustainability*, *14*(5), Article 5. https://doi.org/10.3390/su14052850

Brás, T. A., Seixas, J., Carvalhais, N., & Jägermeyr, J. (2021). Severity of drought and heatwave crop losses tripled over the last five decades in Europe. *Environmental Research Letters*, *16*(6), 065012. https://doi.org/10.1088/1748-9326/abf004

Briggs, A. (2023). *Climate change, conflict, and contagion: Emerging threats to global public health*. https://doi.org/10.5772/intechopen.108920

Cantó, O., Ayala, L., Navarro Ruiz, C., & Bárcena-Martín, E. (2021). *Housing inequalities in COVID-19 lockdown across European countries*. https://www.researchgate.net/publication/352816498_Housing_Inequalities_in_COVID-19_Lockdown_Across_European_Countries

Chen, M., Chen, L., Cheng, J., & Yu, J. (2022). Identifying interlinkages between urbanization and Sustainable Development Goals. *Geography and Sustainability*, *3*(2022), 339-346. https://doi.org/10.1016/j.geosus.2022.10.001

Cilliers, J. (2024). *The power of relative deprivation: Unmet expectations amid stagnant growth fuel Africa's cycle of conflict and instability.* https://futures.issafrica.org/blog/2024/Why-is-Africa-more-violent-in-2024 [Accessed 26 September 2024].

Ciommi, M., Egidi, G., Vardopoulos, I., Chelli, F. M., & Salvati, L. (2023). Toward a 'migrant trap'? Local development, urban sustainability, sociodemographic inequalities, and the economic decline in a Mediterranean metropolis. *Social Sciences*, *12*(1), Article 1. https://doi.org/10.3390/socsci12010026

Cobbinah, P. D., Erdiaw-Kwasie, M., & Adams, E. A. (2021). COVID-19: Can it transform urban planning in Africa? *Cities & Health*, *5*(s1), S48-S51. https://doi.org/10.1080/23748834.2020.1812329

Da Rocha, R. P., Reboita, M. S., & Crespo, N. M. (2024). Análise do evento extremo de precipitação ocorrido no Rio Grande do Sul entre abril e maio de 2024. *Journal Health NPEPS*, *9*(1).

De los Ángeles, D. J. R., Tamayo, G., De Malpartida, L. E. L. A., Ibárcena, V. R. I., Castro, G. P. C., Alanoca, L. J. M., ... & Braun, A. (2024). Development of green infrastructure during the COVID-19 pandemic using spatial analysis methods. *Environmental and Sustainability Indicators*, 100422.

Delgado-Capel, M. J., Cariñanos, P., & Escudero-Viñolo, M. (2023). Capacity of urban green infrastructure spaces to ameliorate heat wave impacts in Mediterranean compact cities: Case study of Granada (South-Eastern Spain). *Land*, *12*(5), Article 5. https://doi.org/10.3390/land12051076

Di Bernardino, A., Falasca, S., Iannarelli, A. M., Casadio, S., & Siani, A. M. (2023). Effect of heatwaves on urban sea breeze, heat island intensity, and outdoor thermo-hygrometric comfort in Rome (Italy). *Urban Climate*, *52*, 101735. https://doi.org/10.1016/j.uclim.2023.101735

Dines, N., Montagna, N., & Vacchelli, E. (2018). Beyond crisis talk: Interrogating migration and crises in Europe. *Sociology*, *52*(3), 439–447. https://doi.org/10.1177/0038038518767372

Drammeh, F. Y. (2024). Managing tourism during the COVID-19 pandemic. A systematic review of crisis management in the tourism industry. *Cogent Social Sciences*, *10*(1), 2311955. https://doi.org/10.1080/23311886.2024.2311955

ECLAC. [n.d.]. *United Nations, Regional Knowledge Management Platform for the Sustainable Development Goals in Latin America and the Caribbean, SDGs in Latin America and the Caribbean: Statistical knowledge management hub.* https://agenda2030lac.org/estadisticas/index.html

ECLAC. (2022). *Repercussions in Latin America and the Caribbean of the war in Ukraine: how should the region face this new crisis?* https://repositorio.cepal.org/bitstream/handle/11362/47913/3/S2200418_en.pdf [Accessed 1 March 2025].

ECLAC. (2023a). *Halfway to 2030 in Latin America and the Caribbean: Progress and recommendations for acceleration (LC/FDS.6/3/Rev.1).* Santiago.

ECLAC. (2023b). Transforming habitats and cities: Towards urban development in Latin America and the Caribbean. Statements delivered at the 31st General Assembly of the Forum of Ministers and High-level Authorities on Housing and Urbanism in Latin America and the Caribbean (MINURVI), Seminars and Conferences series, N° 104 (LC/TS.2023/133). Santiago.

Ekwebelem, O. C., Ofielu, E. S., Nnorom-Dike, O. V., Iweha, C., Ekwebelem, N. C., Obi, B. C. & Ugbede-Ojo, S. E. (2021). Perspective piece: Threats of COVID-19 to achieving United Nations Sustainable Development Goals in Africa. *American Journal of Tropical Medicine and Hygiene*, *104*(2), 457-460. https://doi.org/10.4269/ajtmh.20-1489

Espey, J., Parnell, S., & Revi, A. (2023). The transformative potential of a Global Urban Agenda and its lessons in a time of crisis. *Npj Urban Sustainability*, *3*(1), 1–10. https://doi.org/10.1038/s42949-023-00087-z

European Parliament. (2020). *Research for TRAN Committee - COVID-19 and urban mobility: Impacts and perspectives.* Think Tank. https://www.europarl.europa.eu/thinktank/en/document/IPOL_IDA(2020)652213

Ezeoha, A., Igwe, A., Okoyeuzu, C., & Uche, C. (2023). The fiscal effects of armed conflicts in Africa. *African Development Review*, *35*, 444–456. https://doi.org/10.1111/1467-8268.12720

Ferrarin, C., Lionello, P., Orlić, M., Raicich, F., & Salvadori, G. (2022). Venice as a paradigm of coastal flooding under multiple compound drivers. *Scientific Reports*, *12*(1), 5754. https://doi.org/10.1038/s41598-022-09652-5

Fiske, A., Galasso, I., Eichinger, J., McLennan, S., Radhuber, I., Zimmermann, B., & Prainsack, B. (2022). The second pandemic: Examining structural inequality through reverberations of COVID-19 in Europe. *Social Science & Medicine*, *292*, 114634. https://doi.org/10.1016/j.socscimed.2021.114634

Galanaki, E., Giannaros, C., Kotroni, V., Lagouvardos, K., & Papavasileiou, G. (2023). Spatio-temporal analysis of heatwaves characteristics in Greece from 1950 to 2020. *Climate*, *11*(1), Article 1. https://doi.org/10.3390/cli11010005

Honey-Rosés, J., Anguelovski, I., Chireh, V. K., Daher, C., Konijnendijk van den Bosch, C., Litt, J. S., … & Nieuwenhuijsen, M. J. (2021). The impact of COVID-19 on public space: An early review of the emerging questions – design, perceptions and inequities. *Cities & Health*, *5*(sup1), S263–S279. https://doi.org/10.1080/23748834.2020.1780074

Huang, Z., Yuan, X., & Liu, X. (2021). The key drivers for the changes in global water scarcity: Water withdrawal versus water availability. *Journal of Hydrology*, *601*, 126658. https://doi.org/10.1016/j.jhydrol.2021.126658

Humanitarian Action. (2022). *Latin America and the Caribbean*. https://humanitarianaction.info/article/latin-america-and-caribbean-0

IOM. (2024). *Migration trends in the Americas*. https://lac.iom.int/sites/g/files/tmzbdl2601/files/documents/2025-03/q4-2024-migration-trends-in-the-americas_0.pdf [Accessed 1 March 2025].

Kellermann, R., Sivizaca Conde, D., Rößler, D., Kliewer, N., & Dienel, H.-L. (2022). Mobility in pandemic times: Exploring changes and long-term effects of COVID-19 on urban mobility behavior. *Transportation Research Interdisciplinary Perspectives*, *15*, 100668. https://doi.org/10.1016/j.trip.2022.100668

Komljenović, M. (2022). The EU and the Western Balkans' response during the migrant crisis. *Energy, Sustainability and Society*, *12*(1), 44. https://doi.org/10.1186/s13705-022-00371-3

Laumann, F., Von Kügelgen, J., Uehara, T. H. K., & Barahona, M. (2022). Complex interlinkages, key objectives, and nexuses among the Sustainable Development Goals and climate change: A network analysis. *The Lancet Planetary Health*, *6*(5), e422–e430. https://doi.org/10.1016/S2542-5196(22)00070-5

Lendvai-Bainton, N., & Szelewa, D. (2021). Governing new authoritarianism: Populism, nationalism and radical welfare reforms in Hungary and Poland. *Social Policy & Administration*, *55*(4), 559–572. https://doi.org/10.1111/spol.12642

Lima, J. D. (2023). *Lights and shadows of the war in Ukraine: Economic and social effects on Latin America and the Caribbean*. https://www.cepal.org/sites/default/files/news/files/lights_and_shadows_of_the_war_in_ukraine_0.pdf [Accessed 1 March 2025].

Lionello, P., Nicholls, R. J., Umgiesser, G., & Zanchettin, D. (2021). Venice flooding and sea level: Past evolution, present issues, and future projections (introduction to the special issue). *Natural Hazards and Earth System Sciences*, *21*(8), 2633–2641. https://doi.org/10.5194/nhess-21-2633-2021

Pereira, P., Zhao, W., Symochko, L., Inacio, M., Bogunovic, I., & Barcelo, D. (2022). The Russian-Ukrainian armed conflict will push back the sustainable development goals. *Geography and Sustainability*, *3*(3), 277–287. https://doi.org/10.1016/j.geosus.2022.09.003

Pérez-Peña, M. del C., Jiménez-García, M., Ruiz-Chico, J., & Peña-Sánchez, A. R. (2021). Analysis of research on the SDGs: The relationship between climate change, poverty and inequality. *Applied Sciences*, *11*(19), Article 19. https://doi.org/10.3390/app11198947

Poortinga, W., Bird, N., Hallingberg, B., Phillips, R., & Williams, D. (2021). The role of perceived public and private green space in subjective health and wellbeing during and after the first peak of the COVID-19 outbreak. *Landscape and Urban Planning*, *211*, 104092. https://doi.org/10.1016/j.landurbplan.2021.104092

Ranjbari, M., Shams Esfandabadi, Z., Zanetti, M. C., Scagnelli, S. D., Siebers, P.-O., Aghbashlo, M., Peng, W., Quatraro, F., & Tabatabaei, M. (2021). Three pillars of sustainability in the wake of COVID-19: A systematic review and future research agenda

for sustainable development. *Journal of Cleaner Production*, *297*, 126660. https://doi.org/10.1016/j.jclepro.2021.126660

Rasmussen, V. (2014). The manuscripts of Timbuktu: Armed conflict and the preservation of memory. Degree of Master of Library and Information Science. University of Hawai'i at Manoa, Hawai'i.

Ribeiro, D. F., Saito, S. M., & Dos Santos Alvalá, R. C. (2022). Disaster vulnerability analysis of small towns in Brazil. *International Journal of Disaster Risk Reduction*, *68*, 102726.

Ricart, S., Villar-Navascués, R. A., Hernández-Hernández, M., Rico-Amorós, A. M., Olcina-Cantos, J., & Moltó-Mantero, E. (2021). Extending natural limits to address water scarcity? The role of non-conventional water fluxes in climate change adaptation capacity: a review. *Sustainability*, *13*(5), Article 5. https://doi.org/10.3390/su13052473

Rio Grande do Sul. (2024). *Casa militar de Defesa Civil RS. Defesa Civil atualiza balanço das enchentes no RS.* https://www.estado.rs.gov.br/defesa-civil-atualiza-balanco-das-enchentes-no-rs-24-6-18h

Rotondi, V., Billari, F., Pesando, L., & Kashyap, R. (2020). *Digital rural gender divide in Latin America and the Caribbean.* https://ora.ox.ac.uk/objects/uuid:6650a8aa-ebae-4ff0-b95d-fb243f4108aa

San-Miguel-Ayanz, J., Moreno, J. M., & Camia, A. (2013). Analysis of large fires in European Mediterranean landscapes: Lessons learned and perspectives. *Forest Ecology and Management*, *294*, 11–22. https://doi.org/10.1016/j.foreco.2012.10.050

Scopelliti, M., Pacilli, M. G., & Aquino, A. (2021). TV news and COVID-19: Media influence on healthy behavior in public spaces. *International Journal of Environmental Research and Public Health*, *18*(4), Article 4. https://doi.org/10.3390/ijerph18041879

Smit, W. (2021). The challenge of COVID-19 in African cities: An urgent call for informal settlement upgrading. *Cities & Health*, *5*(s1), S56-S58, https://doi.org/10.1080/23748834.2020.1816757.

Tortajada, C., González-Gómez, F., Biswas, A. K., & Buurman, J. (2019). Water demand management strategies for water-scarce cities: The case of Spain. *Sustainable Cities and Society*, *45*, 649–656. https://doi.org/10.1016/j.scs.2018.11.044

UNDRR. (2023). *Overview of disasters in Latin America and the Caribbean 2000-2022.* https://www.undrr.org/media/89900/download?startDownload=20250306

UN-Habitat. (2023). *Rescuing SDG 11 for a Resilient Urban Planet. SDG 11 Synthesis Report: High Level Political Forum 2023.* https://unhabitat.org/sites/default/files/2023/07/sdg_11_synthesis_report_2023_final_0.pdf

UNHCR. (2025). *Venezuela situation* https://reporting.unhcr.org/operational/situations/venezuela-situation#:~:text=The%20outflow%20of%20Venezuelan%20refugees,worldwide%20as%20of%20May%202024 [Accessed 1 March 2025].

UNICEF. [n.d.]. *Children on the move and those affected by armed violence in Latin America appeal.* https://www.unicef.org/appeals/children-on-the-move-in-latin-america [Accessed 2 May 2025].

United Nations. [n.d.]. *Transforming our world: The 2030 Agenda for Sustainable Development.* https://sdgs.un.org/2030agenda [Accessed 2 May 2025].

United Nations. (2004). *Guidelines for reducing flood losses.* https://sdgs.un.org/publications/guidelines-reducing-flood-losses-16964 [Accessed 2 May 2025].

United Nations. (2024a). Inter-agency policy briefs on accelerating progress on the 2030 Agenda from local to global levels. Policy briefs 11: National structures promoting localization: Practical examples from Africa. United Nations.

United Nations. (2024b). *Sustainable Development Goal 11: Make cities and human settlements inclusive, safe, resilient, and sustainable. A guide to assist national and local governments to monitor and report on SDG 11+ indicators*. https://www.local2030.org/library/60/SDG-Goal-11-Monitoring-Framework-A-guide-to-assist-national-and-local-governments-to-monitor-and-report-on-SDG-goal-11-indicators.pdf

Vecchio, G., Tiznado-Aitken, I., & Mora-Vega, R. (2021). Pandemic-related streets transformations: Accelerating sustainable mobility transitions in Latin America. *Case Studies on Transport Policy*, *9*(4), 1825-1835.

Wageningen University. (2024). *Europe is not prepared for rapidly growing climate risks, researchers say.* https://phys.org/news/2024-03-europe-rapidly-climate.html

Wang, Q., & Huang, R. (2021). The impact of COVID-19 pandemic on sustainable development goals – a survey. *Environmental Research*, *202*(2021), 111637. https://doi.org/10.1016/j.envres.2021.111637.

Weitzman, A., Caudillo, M., & Levy, E. J. (2024). Hybrid interpersonal violence in Latin America: Patterns and causes. *Annual Review of Criminology, 7*(1), 163-186.

World Bank. (2023a). *City climate action plan analysis in Latin America and the Caribbean - summary (English).* http://documents.worldbank.org/curated/en/099111023105537642

World Bank. (2023b). *Ukraine - Third Rapid Damage and Needs Assessment (RDNA3): February 2022 - December 2023*.

https://documents.worldbank.org/en/publication/documents-reports/documentdetail/en/099021324115085807

World Bank. (2024). *Military expenditure (% of general government expenditure) - sub-Saharan Africa.* https://data.worldbank.org/indicator/MS.MIL.XPND.ZS?locations=ZG [Accessed 20 September 2024].

Yuan, H., Wang, X., Gao, L., Wang, T., Liu, B., Fang, D., & Gao, Y. (2023). Progress towards the Sustainable Development Goals has been slowed by indirect effects of the COVID-19 pandemic. *Communications Earth & Environment*, (4), 184. https://doi.org/10.1038/s43247-023-00846-x.

4. Regional contexts/progress towards the achievement of SDG 11

Readers (teachers) will be able to

- develop an understanding of regional differences in achieving SDG 11
- discuss the factors that negatively impact the achievement of the various targets for SDG 11

The beginning of the Decade of Action – which was supposed to be dedicated to accelerating solutions for meeting the 2030 Agenda and achieving a more sustainable world from 2020 to 2030 – ended up starting with a global pandemic. Even before the devastating impacts of the spread of the coronavirus across the world, the United Nations was alerting that global efforts were not sufficient to deliver the change needed. Nevertheless, previous reports were pointing out progress and positive trends in important areas.

Within the first five years of implementation of the SDGs, some aspects had improved considerably.

4.1 Regional progress in Latin America

In Latin America and the Caribbean, where 80% of the population lives in urban areas, this high concentration presents both challenges and opportunities. Cities are key drivers of economic growth but are also the region's largest sources of greenhouse gas emissions, with urban expansion often amplifying social inequalities.

The Latin America and Caribbean region was the first developing region to experience rapid urbanisation. UN-Habitat (2023) estimated that by 2030, an estimated 86.5% of South America's population is expected to reside in urban areas, making it the most urbanised developing region in the world. Urban populations in the Caribbean, Central America and Mexico are also projected to reach 76.2%, 78.5% and 88% (UN-Habitat, 2023), respectively. This concentration underscores that many regional challenges — and potential solutions — are inherently urban. Large cities with populations exceeding 1 million account for 46.1% of the total urban population. However, since the 1990s, the

attraction of some major cities has diminished, particularly in megacities with populations above 10 million, which are now experiencing shifts in population towards other areas. The COVID-19 pandemic may have temporarily slowed urbanisation trends in 2020 and 2021, increasing the appeal of smaller and mid-sized cities.

Figure 9: Progress of Goal 11 indicators in Latin America and the Caribbean

Source: UN-Habitat (2023)

Figure 9 shows the progress of SDG 11 indicators in Latin America and the Caribbean. Most indicators, including 11.1.1 (both proportion-based and population-based), 11.2.1 and 11.6.1, are at a moderate distance from their targets, as indicated by the yellow markers. However, the trends show concerns: while 11.1.1 (proportion-based) is making fair progress but requires acceleration, the population-based measure of 11.1.1 is deteriorating, signalling a worsening situation. Additionally, indicator 11.7.1 is far from the target and showing signs of deterioration (orange mark), highlighting significant challenges in achieving inclusive, safe, resilient and sustainable urban areas in the region.

According to the latest ECLAC report (2024), although progress on SDG 11 is on track, it is not advancing quickly enough to meet the targets by 2030. The proportion of people living in informal settlements (target 11.1) has decreased relatively in line with urban growth, yet recent progress has slowed, raising concerns about future trends. Rising construction costs, limited credit availability, budget constraints, economic slowdowns, increased unemployment and migration challenges all affect housing accessibility for low-income households, compounding the issue.

In examining target 11.1, which aims to ensure access for all to adequate, safe and affordable housing and basic services while upgrading slums, data from 2022 shows a decrease in the share of the population living in slums to 16.9% of the urban population in Latin America and the Caribbean, compared to previous years, as shown in figure 10. However, after a significant decline throughout the 2000s, the percentage of urban residents in slums, informal settlements, or inadequate housing (indicator 11.1.1) has plateaued in recent years, likely due to increased poverty and economic stagnation. While progress is visible, the pace remains too slow, making it unlikely that this target will be fully met by 2030.

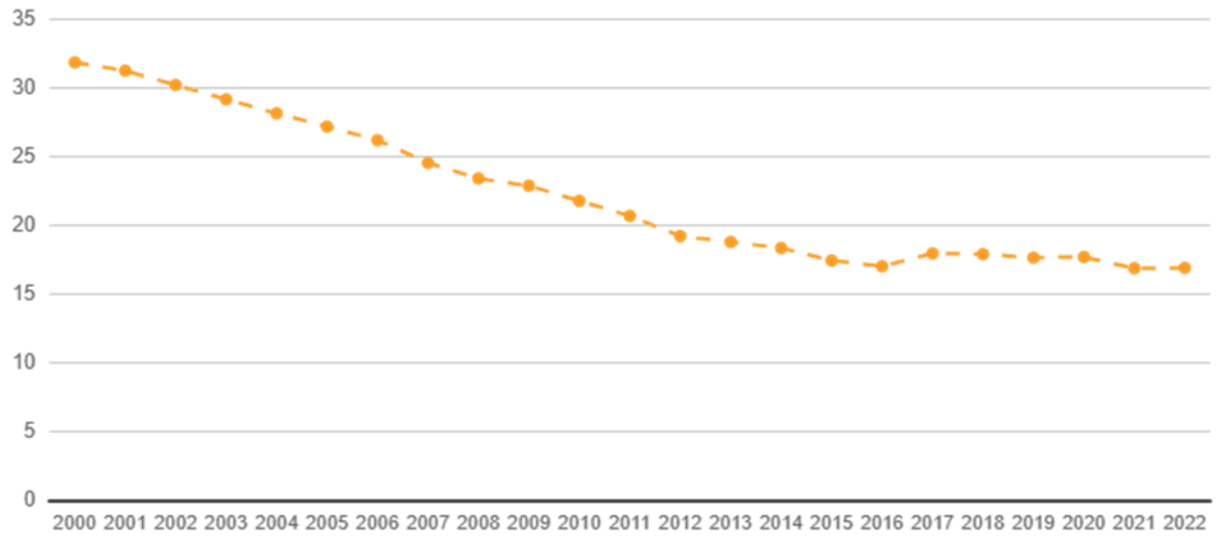

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Figure 10: Proportion of urban population living in slums (%)

Source: ECLAC (2024a)

Although the Latin America and Caribbean region is one of the most urbanised regions in the world, only 43% of its urban population had access to reliable public transportation in 2020. This figure falls below the global average of 51.6% and is significantly lower than in developed regions, where about 90.6% of the urban population enjoys accessible public transport. Within Latin America and the Caribbean, public transport access varies greatly by city. As household incomes increase, more people shift from public to private transport for faster travel, leading higher-income groups to spend more on private fuel while public transport costs remain a disproportionate burden for most of the population. Ensuring sustainable, quality public transport (target 11.2) is therefore a major regional challenge. Lengthy commutes reduce quality of life and productivity, with lower-income households bearing the greatest impact. This issue is exacerbated by urban sprawl, which forces residents to travel greater distances, creating inefficiencies and reinforcing urban segregation.

For targets 11.2, 11.3, 11.4 and 11.7, there is currently a lack of sufficient regional data to support detailed analysis or reliable forecasting. Target 11.5 underscores the heightened risk of climate-related hydrometeorological disasters as a result of climate change, emphasising the urgent need for strengthened regional efforts to mitigate economic and human impacts from these events. Encouragingly, some cities have made progress in improving air quality (target 11.6), although further improvement is essential to meet newly established international standards. Between 2010 and 2019, fine particulate matter levels across Latin America and the Caribbean showed a steady decline. In urban areas, concentrations of fine particulate matter fell from 18.6 to 15.3 micrograms per cubic metre (μg/m³), and in rural areas, levels dropped from 18.1 to 15.1 μg/m³. Despite these gains, progress remains insufficient to meet the air quality standards set by the World Health Organization (WHO) for 2030. The graphic below shows the annual mean levels of fine particulate matter (population-weighted), by location (μg/m³). The map of Latin America and the Caribbean shows significant variation in air quality

across the region, with the annual mean levels of fine particulate matter, highlighting areas of concern for SDG target 11.6, as shown in figure 11.

Figure 11: Annual mean levels of fine particulate matter (population-weighted), by location (µg/m³)

Source: ECLAC (2024b)

Supplementary resources

- Joint SDG Fund. [n.d.]. *Goal 11: Sustainable cities and communities*. https://www.jointsdgfund.org/sustainable-development-goals/goal-11-sustainable-cities-and-communities
- International Institute for Sustainable Development (IISD). [n.d.]. *Goal 11: Sustainable cities and communities*. https://sdg.iisd.org/sdgs/goal-11-sustainable-cities-communities/
- Agenda 2030 LAC. [n.d.]. *Prioritized set of indicators for the regional statistical follow-up of the SDG.* https://agenda2030lac.org/estadisticas/prioritized-set-indicators-regional-statistical-follow-up-sdg.html#11

4.2 Regional progress in Africa

Several African cities have initiated urban planning projects to improve the infrastructure, such as transportation, housing and public spaces. For example, Kigali (Rwanda) and Cape Town (South Africa) are specifically acknowledged for the efforts in terms of sustainable development and the drive to achieve SDG 11 (Agunbiade et al., 2024). Investments in public transport and mobility have been made in various cities; the Bus Rapid Transport systems in Lagos (Nigeria) and Dar es Salem in Tanzania have been particularly successful (Kindt, 2024). Efforts to reduce the number of people living in inadequate housing have been implemented with some success in Africa.

The challenges discussed in section 3 have set back the achievement of SDG 11 in Africa. Owing to data gaps, several indicators for SDG 11 are often not reported on, and overcoming the collection of data and the reporting difficulties within the phenomena important for SDG 11 remains a crucial challenge for the future (UN et al., 2023). The achievement of SDG 11 is geographically uneven across the continent (figure 12). The countries in northern and southern Africa, some countries in eastern Africa and most of the island states were progressing to achieve the respective targets in 2020, but still faced significant challenges. Most of the central African countries are still experiencing significant challenges, with Botswana the only country that has made significant progress, albeit within the context of several challenges (Almulhim et al., 2024).

Figure 12: States in Africa progress in 2020 towards achieving SDG 11

Source: https://countries.africasdgindex.org/#/

A closer evaluation of the various targets for which data is available and related to the 2022 achievement of SDG 11 reflects an uneven achievement of the respective targets (figure 13).

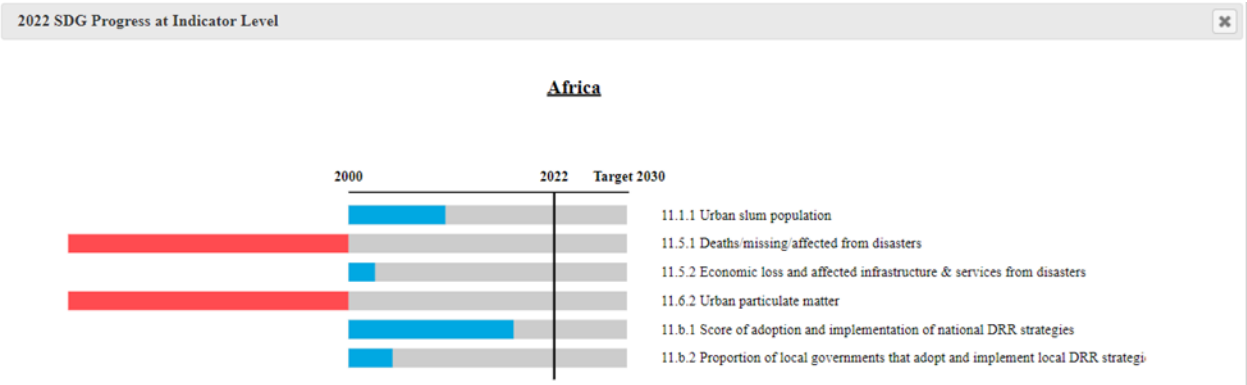

Figure 13: Africa progress in 2022 towards achieving SDG 11

Source: https://ecastats.uneca.org/unsdgsafrica/SDGs/SDG-progress-2023

Targets that have shown significant negative progress

Indicator 11.5.1 of the SDGs tracks the number of deaths, missing persons and directly affected individuals due to disasters per 100 000 people. This metric is vital for assessing the impact of disasters and enhancing disaster risk reduction strategies. In Africa, the data reveals significant disparities across various countries and years. For example, nations such as Mozambique, Malawi and Zimbabwe have faced high numbers of fatalities and affected individuals due to cyclones and floods (Nhundu et al., 2021). The importance of tracking the number of deaths and missing persons is critical for sustainable development as this information is instrumental in pinpointing vulnerable regions and populations, thereby supporting the creation of targeted interventions to boost resilience and mitigate disaster risks (Cvetković, 2024).

Poor air quality is addressed by indicator 11.6.2 and has specific reference to the air particulate matter (PM2.5 and PM10). The air particulate matter for the five regions in Africa are reflected in figure 14 with a comparison to levels for the globe. In 2019, fine particulate matter levels were notably high in West Africa (52.08 µg/m³), North Africa (47.73 µg/m³) and Central Africa (42.42 µg/m³). Conversely, East and Southern Africa had relatively low levels, at 21.06 and 23.47 µg/m³, respectively, compared to the global average of 32.86 µg/m³ (UN et al., 2023).

Ouma et al. (2024) report that reducing the air particulate matter is critical for public health, environmental protection and economic stability. As such, the achievement of the targets for SDG 11, specifically indicator 11.6.2, is critical due to its close interrelated nature with many other SDGs.

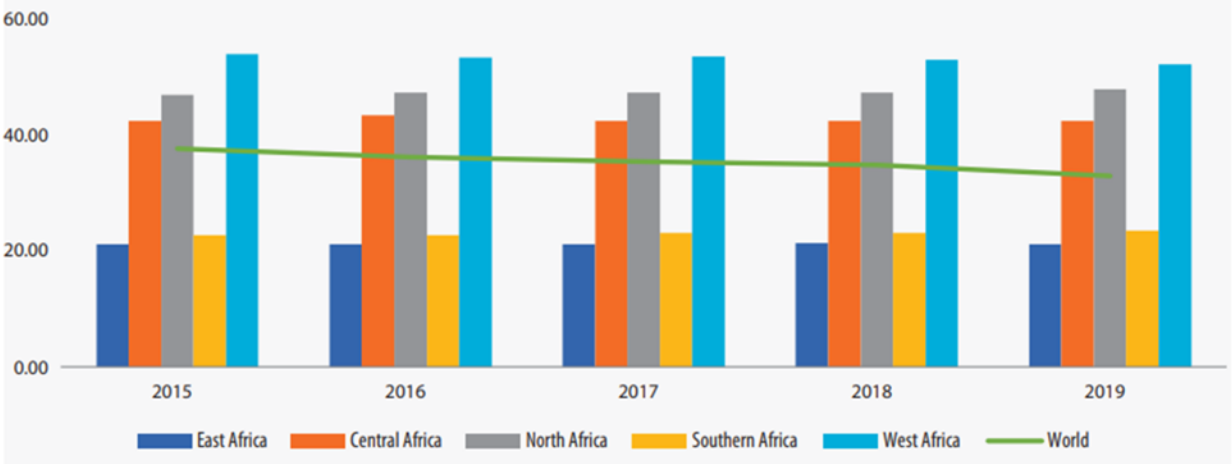

Figure 14: Annual mean levels of fine particulate matter (population-weighted) in cities in the worlds and the five African sub-regions, 2015- 2019 (UN et al., 2023)

Targets that must accelerate progress in order to achieve the 2030 targets

Target 11.1 focuses on the provision of access to safe, adequate and affordable housing with sufficient basic services, and the target includes the upgrading of slums. Figure 15 reflects the number of people living in inadequate housing for the two-year period 2018 to 2020.

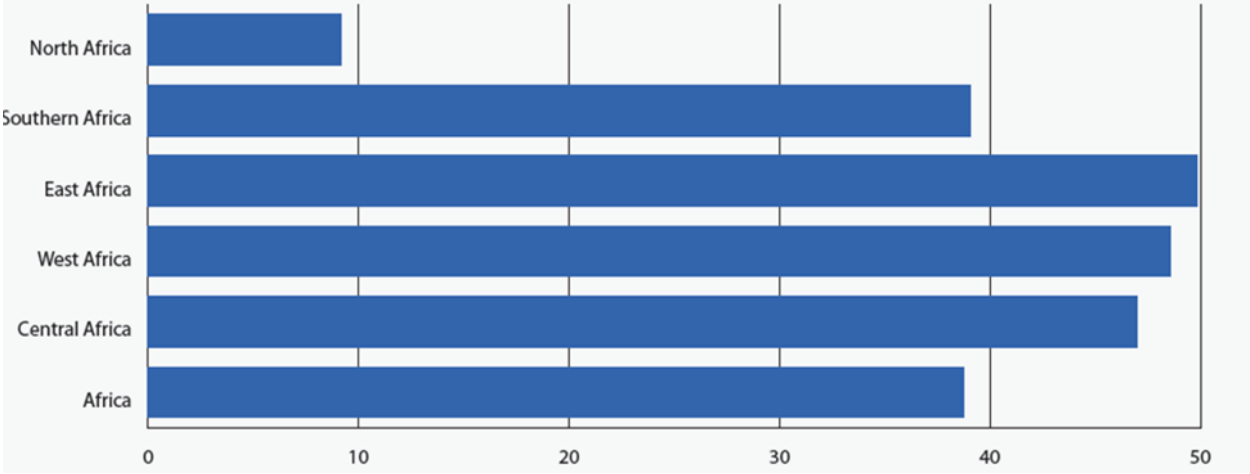

Figure 15: Percentage urban population living in slums, informal settlements and inadequate housing in Africa: 2018 to 2020 (UN et al., 2023)

While there has been a modest decline in the proportion of people living in inadequate housing in Africa, efforts to upgrade the slum areas and provide better housing and

services need to be accelerated if Africa is to achieve SDG 11.1. UN et al. (2023) indicate that between 2018 and 2020, an average of 38.72% of the urban population in Africa lived in slums, informal settlements, or inadequate housing. As shown in figure 16, the highest proportions were in East Africa (49.83%), West Africa (48.54%) and Central Africa (47.01%), whereas North Africa had the lowest at 9.19%. This suggests that regions with higher population densities have more people living in such conditions. For example, East and West Africa have a population density of 73 people per km², compared to North Africa's 34 people per km².

Measures to mitigate against economic loss and the destruction of infrastructure due to disasters (SDG 11.5.2) also need to be increased to achieve SDG 11. Strengthening these measures will help build more resilient cities and communities, ensuring sustainable urban development and reducing the vulnerability of populations to future disasters. Many African countries have adopted the Sendai Framework, which addresses disaster risk reduction (SDG 11.b.1) by making sure that disaster risk is understood, improved disaster risk governance is developed, investment in disaster risk reduction is increased and enhanced disaster preparedness is developed (Otwori & Nyandiko, 2024). Africa has also increased its efforts to build and upgrade infrastructure to withstand disasters and these include more flood-resistant buildings and better drainage systems (Sharma & Gupta, 2024).

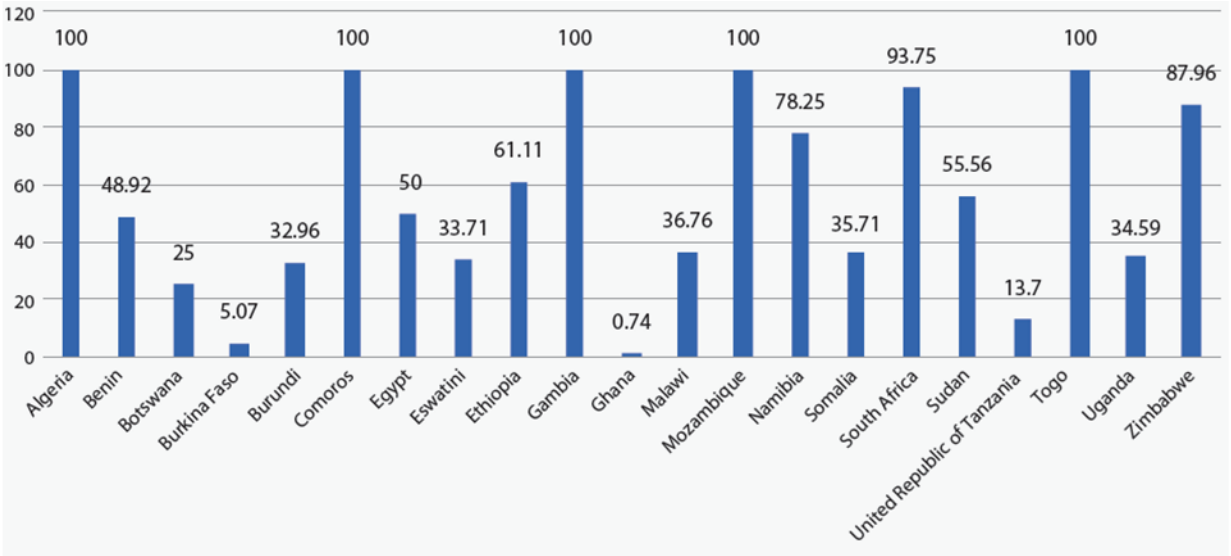

Figure 16: Percentage of local governments in selected African countries that have

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adopted and implemented local disaster risk reduction strategies from 2015 to 2020 (UN et al., 2023)

As illustrated in figure 16, a very high proportion of local governments in certain African countries, including Algeria, the Comoros and Gambia, have successfully adopted and implemented local disaster risk reduction strategies in line with their national strategies. This ensures that local actions are aligned with national priorities and resources are utilised effectively. In these countries local communities are actively involved in the planning and implementation of disaster risk reduction strategies. This participatory approach ensures that the strategies are tailored to the specific needs and vulnerabilities of each community. Training and capacity-building programmes are conducted at local level to equip communities with the knowledge and skills needed for effective disaster management. This includes training in early warning systems, emergency response and recovery planning. Local governments have implemented early warning systems that are linked to national systems. These systems provide timely information to communities about impending disasters, allowing for better preparedness and response. Investments are made in building and upgrading infrastructure to withstand disasters. This includes constructing flood-resistant buildings, improving drainage systems and reinforcing critical infrastructure like hospitals and schools (Dimitrova & Snair, 2024). Unfortunately, many African countries, including Burkina Faso, Ghana and the United Republic of Tanzania, have made limited progress in adopting and implementing local disaster risk reduction strategies. As highlighted in section 3, the lack of adoption of these measures will negatively impact on the achievement of SDG 11 in Africa (Otwori & Nyandiko, 2024).

Supplementary resources

- Africa SDG Index. (2020). *Africa SDG Index 2020 Dashboard*. https://countries.africasdgindex.org/#/ [Accessed 28 September 2024].
- African Union. (2024). *African Union 2024*. https://au.int/en/aga [Accessed 28 September 2024].

- Almulhim, A. I., Sharifi, A., Aina, Y. A., Ahmad, S., Mora, L., Filho, W. L., & Abubakar, I. R. (2024). Charting sustainable urban development through a systematic review of SDG11 research. *Nature Cities*, 1-9.
- United Nations. (2024). *The Sustainable Development Goals Report*. https://unstats.un.org/sdgs/report [Accessed 27 September 2024].

4.3 Regional progress in Europe

European countries have demonstrated substantial progress toward achieving SDG 11 (Pricope et al., 2024). While facing complex challenges such as climate change, socio-political tensions and migration crises, European nations have implemented multifaceted urban strategies that extend beyond local governance to encompass regional and international collaborations (Ionescu et al., 2024; Pricope et al., 2024). These initiatives integrate policy frameworks, cross-border partnerships and community-centred planning, reflecting a comprehensive approach to sustainable urban development (table 6).

Table 6: Regional progress in SDG 11

SDG 11 targets	**Examples of regional progress in European countries**
11.1 Ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums.	Austria: Extensive social housing integrating energy-efficient designs (Cucca & Friesenecker, 2022). Netherlands: Mixed-income housing developments promoting social inclusion (Derkenbaeva et al., 2023; Kempen & Priemus, 2002).
11.2 Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to vulnerable populations.	Denmark: Integrated cycling infrastructure reducing urban emissions (Gössling, 2013). Finland: MaaS platform providing seamless sustainable mobility (Audouin & Finger, 2018).

11.3 Enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.	France: Confluence eco-district showcasing renewable energy integration (Hainoun et al., 2022).
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage.	Poland: Adaptive reuse of historical buildings balancing heritage and modern needs (Hu & Świerzawski, 2024). Croatia: Tourism regulation policies preserving cultural heritage (Villa & Šulc, 2021).
11.5 Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global GDP caused by disasters, with a focus on protecting vulnerable populations.	Italy: Seismic retrofitting programmes enhancing disaster resilience (Carofilis Gallo et al., 2022; Vona et al., 2021). France: Enhanced flood control systems integrating green infrastructure in Paris (OECD, 2018; Schifman et al., 2017).
11.6 Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.	Norway: Climate budget framework aligning governance with emission targets (Björk, 2023; Hofstad et al., 2022). Slovenia: Zero-waste initiatives and pedestrian zones promoting low-carbon lifestyles (Bresciani et al., 2024).
11.7 Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.	Spain: Superblocks model fostering pedestrian-centric urban spaces (Mueller et al., 2020). Sweden: Royal National City Park providing accessible green spaces (Adem Esmail et al., 2022).
11.8 Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.	Portugal: Integrated urban-rural strategies for balanced territorial development (Chamusca, 2023).
11.9 Substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion,	Norway: Green infrastructure integrated into climate adaptation plans (Di Marino et al., 2024; Wilbers et al., 2022).

resource efficiency, climate adaptation, resilience to disasters and holistic disaster risk management.	France: Comprehensive Climate Action Plan promoting carbon neutrality (Millot et al., 2018; United Nations, n.d.).
11.a Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilising local materials.	The European Union: Supporting sustainable urban development initiatives in least developed countries, providing financial and technical assistance for climate-resilient infrastructure (Eckert & Kovalevska, 2021; Kluza et al., 2024).

For safe and affordable housing (target 11.1), housing policies in Europe emphasise both accessibility and sustainability. Vienna (Austria) stands out with its internationally recognised social housing model, which prioritises affordability without compromising environmental performance (Cucca & Friesenecker, 2022; Hainoun et al., 2022). Amsterdam (Netherlands) complements this approach through mixed-income housing developments, where diverse socio-economic groups co-exist in architecturally cohesive neighbourhoods (Derkenbaeva et al., 2023; Kempen & Priemus, 2002). These policies are reinforced by the European Housing Partnership, which promotes inclusive housing policies across member states, supporting the integration of affordability and sustainability in urban planning frameworks (Batra, 2022).

Progress in affordable and sustainable transport systems (target 11.2) reflects Europe's commitment to low-carbon mobility solutions. Copenhagen (Denmark) has become a global model for sustainable urban transport through its cycling infrastructure, seamlessly integrated with public transportation systems, thereby reducing reliance on fossil fuels and lowering urban emissions (Gössling, 2013). Helsinki (Finland) advances this agenda with its Mobility-as-a-Service (MaaS) ecosystem, a digital platform that consolidates various modes of transport into a single, user-friendly service (Audouin & Finger, 2018). These advancements are underpinned by the EU Urban Mobility Framework, which establishes a unified approach to sustainable mobility, emphasising inclusivity, safety and accessibility (Carvalho et al., 2023; Sforna, 2022).

In the realm of inclusive and sustainable urbanisation (target 11.3), European cities have adopted participatory planning processes that empower local communities. Lyon (France) exemplifies this through the Confluence eco-district, a comprehensive urban redevelopment project that transforms industrial brownfields into vibrant, sustainable neighbourhoods powered by renewable energy and characterised by extensive green spaces (Hainoun et al., 2022).

Efforts to protect the world's cultural and natural heritage (target 11.4) are central to Europe's urban strategies. In Kraków (Poland), the adaptive reuse of historical buildings has become a cornerstone of urban development, combining heritage preservation with contemporary urban functions (Hu & Świerzawski, 2024). Dubrovnik (Croatia) has implemented sustainable tourism policies to protect its UNESCO-listed old town, regulating tourist flows to mitigate the negative impacts of over-tourism (Villa & Šulc, 2021).

The challenge of reducing the adverse effects of natural disasters (target 11.5) requires robust disaster risk management frameworks. Italy has responded through nationwide seismic retrofitting programmes, focusing on enhancing the structural resilience of buildings in earthquake-prone regions (Carofilis Gallo et al., 2022; Vona et al., 2021). Paris (France) has invested in strengthening Seine River flood control systems, integrating green infrastructure with traditional engineering solutions to mitigate flood risks (OECD, 2018; Schifman et al., 2017).

When it comes to reducing the environmental impact of cities (target 11.6), leading European capitals are setting ambitious sustainability benchmarks. Oslo (Norway) has integrated a climate budget into its municipal governance, ensuring that carbon emissions are considered in all city decisions (Björk, 2023; Hofstad et al., 2022). This approach systematically aligns city policies with emission reduction targets, establishing a governance model for climate accountability. Ljubljana (Slovenia) has emerged as a sustainability leader by implementing comprehensive waste management systems,

achieving high recycling rates while expanding pedestrian-friendly urban zones (Bresciani et al., 2024).

Providing access to safe, inclusive and accessible green and public spaces (target 11.7) has gained prominence in response to the growing recognition of urban green spaces as vital for public health and climate resilience. Barcelona (Spain) has pioneered the Superblocks initiative, which transforms urban blocks into pedestrian-friendly spaces by restricting car traffic (Mueller et al., 2020). In Stockholm (Sweden), the Royal National City Park provides extensive green areas accessible to all residents, enhancing urban biodiversity and offering essential ecosystem services (Adem Esmail et al., 2022).

Regional development strategies that strengthen national and regional development planning (target 11.8) have been essential in addressing territorial inequalities. Portugal has adopted integrated urban-rural development policies that promote balanced regional growth by strengthening the connections between urban centres and surrounding rural areas (Chamusca, 2023).

European cities are also advancing policies for inclusion, resource efficiency and disaster risk reduction (target 11.9) through climate adaptation and urban resilience initiatives. In Oslo (Norway), green infrastructure such as green roofs, urban forests and blue-green corridors have been integrated into city planning to absorb rainfall, reduce heat islands and increase biodiversity (Di Marino et al., 2024; Wilbers et al., 2022). Paris (France) is implementing its Climate Action Plan, which includes renewable energy expansion, urban greening and sustainable construction practices, all designed to achieve carbon neutrality (Millot et al., 2018; United Nations, n.d.).

Lastly, supporting least developed countries in sustainable and resilient building (target 11.a) underscores the European Union’s commitment to fostering global urban resilience (Eckert & Kovalevska, 2021; Kluza et al., 2024). Through financial and technical assistance programmes, the EU supports sustainable urban development initiatives in vulnerable regions, promoting climate-resilient infrastructure and the use of locally

sourced materials (Wyrwa, 2020). These efforts are integral to the European Consensus on Development, which provides a framework for Europe's collective contribution to sustainable development by aligning urban growth strategies with environmental and social priorities on a global scale (Ionescu et al., 2024; Pricope et al., 2024).

Supplementary resources

- Elbakidze, M., Dawson, L., Van Ermel, L. K., Mikusiński, G., Hedblom, M., Korohoda, N., Kruhlov, I., Smaliychuk, A., Kurdadze, T., Ugrekhelidze, K., Ongena, Y., Sayadyan, H., Galstyan, M., & Grodzinska, O. (2023). Understanding people's interactions with urban greenspace: Case studies in Eastern Europe. *Urban Forestry & Urban Greening*, *89*, 128117. https://doi.org/10.1016/j.ufug.2023.128117
- Filho, W. L., Sierra, J., Price, E., Eustachio, J. H. P. P., Novikau, A., Kirrane, M., Dinis, M. A. P., & Salvia, A. L. (2024). The role of universities in accelerating the sustainable development goals in Europe. *Scientific Reports*, *14*(1), 15464. https://doi.org/10.1038/s41598-024-65820-9
- Khurshid, A., Huang, Y., Cifuentes-Faura, J., & Khan, K. (2024). Beyond borders: Assessing the transboundary effects of environmental regulation on technological development in Europe. *Technological Forecasting and Social Change*, *200*, 123212. https://doi.org/10.1016/j.techfore.2024.123212

Examples of assessment questions

4.1 Progress towards the achievement of SDG 11 by 2030

- How does your current life pattern affect the achievement of the SDG 11 targets?

4.2 Regional progress in Latin America

- In your opinion, will the countries in Latin America be able to achieve the SDG 11 targets by 2030?
- What are the main obstacles to achieving SDG 11 in your region/country?

4.3 Regional progress in Africa

- In your opinion, will the countries in Africa be able to achieve the SDG 11 targets by 2030?
- What are the main obstacles to achieving SDG 11 in your region/country?

4.4 Regional progress in Europe

- In your opinion, will the countries in Europe be able to achieve the SDG 11 targets by 2030?
- What are the main obstacles to achieving SDG 11 in your region/country?

Sources consulted

Adem Esmail, B., Cortinovis, C., Suleiman, L., Albert, C., Geneletti, D., & Mörtberg, U. (2022). Greening cities through urban planning: A literature review on the uptake of concepts and methods in Stockholm. *Urban Forestry & Urban Greening*, *72*, 127584. https://doi.org/10.1016/j.ufug.2022.127584

Africa SDG Index. (2020). *Africa SDG Index 2020 Dashboard*. Sustainable Development Solutions and Sustainable Development Center for Africa. https://countries.africasdgindex.org/#/ [Accessed 28 September 2024].

African Union. (2024). *African Union 2024*. https://au.int/en/aga [Accessed 28 September 2024].

Agunbiade, M., Akindeju, O., Elias, P., Olajide, O., & Agama, F. (2024). Transit-oriented development and spatial data infrastructure in African cities. In T. Nubi, T. Lawanson, & B. Oyalowo (Eds.), *Transit oriented development in West African cities* (pp. 147-161). Springer International.

Almulhim, A. I., Sharifi, A., Aina, Y. A., Ahmad, S., Mora, L., Filho, W. L., & Abubakar, I. R. (2024). Charting sustainable urban development through a systematic review of SDG11 research. *Nature Cities*, 1-9.

Audouin, M., & Finger, M. (2018). The development of Mobility-as-a-Service in the Helsinki metropolitan area: A multi-level governance analysis. *Research in Transportation Business & Management*, *27*, 24–35. https://doi.org/10.1016/j.rtbm.2018.09.001

Batra, R. (2022). Review of public–private partnerships across building sectors in nine European countries: Key adaptations for PPP in housing. *Engineering, Construction and Architectural Management*, *30*(7), 2904–2927. https://doi.org/10.1108/ECAM-07-2021-0664

Björk, K. M. (2023). Climate action through transnational city networks: Lessons from Oslo. Master's thesis, Norwegian University of Life Sciences. https://nmbu.brage.unit.no/nmbu-xmlui/handle/11250/3097637

Bohdanowicz, Z., Łopaciuk-Gonczaryk, B., & Kowalski, J. (2025). Europe becomes pro-nuclear? Drivers of public support for nuclear energy in six EU countries after the energy crisis of 2022. *Energy Policy*, *200*, 114528. https://doi.org/10.1016/j.enpol.2025.114528

Bresciani, S., Rizzo, F., & Mureddu, F. (2024). Social innovation and co-design for climate neutrality: The NetZeroCities Project. In S. Bresciani, F. Rizzo, & F. Mureddu (Eds.), *Assessment framework for people-centred solutions to carbon neutrality: A comprehensive list of case studies and social innovation indicators at urban level* (pp. 1–19). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-53111-8_1

Carofilis Gallo, W. W., Clemett, N., Gabbianelli, G., O'Reilly, G., & Monteiro, R. (2022). Seismic resilience assessment in optimally integrated retrofitting of existing school buildings in Italy. *Buildings*, *12*(6), Article 6. https://doi.org/10.3390/buildings12060845

Carvalho, J., De Sousa, J. P., & Macário, R. (2023). Sustainable urban mobility planning at the metropolitan scale: A review of current practices and narratives. *Transportation Research Procedia*, *72*, 4175–4182. https://doi.org/10.1016/j.trpro.2023.11.357

Chamusca, P. (2023). Urban planning and policy in Portugal: An overview on the role of EU funds and guidelines. *Urban Research & Practice*, *16*(1), 44–65. https://doi.org/10.1080/17535069.2021.1980607

Cucca, R., & Friesenecker, M. (2022). Potential and limitations of innovative housing solutions in planning for degrowth: the case of Vienna. *Local Environment*, *27*(4), 502–516. https://doi.org/10.1080/13549839.2021.1872513

Cvetković, V. M., Renner, R., Aleksova, B., & Lukić, T. (2024). Geospatial and temporal patterns of natural and man-made (technological) disasters (1900–2024): Insights from different socio-economic and demographic perspectives. *Applied Sciences*, *14*(18), 8129.

Derkenbaeva, E., Hofstede, G. J., Van Leeuwen, E., & Halleck Vega, S. (2023). Simulating households' energy transition in Amsterdam: An agent-based modeling approach. *Energy Conversion and Management*, *294*, 117566. https://doi.org/10.1016/j.enconman.2023.117566

Di Marino, M., Tiitu, M., Saglie, I.-L., & Lapintie, K. (2024). Conceptualizing 'green' in urban and regional planning – the cases of Oslo and Helsinki. *European Planning Studies*, *32*(6), 1187–1209. https://doi.org/10.1080/09654313.2023.2285811

Dimitrova, M., & Snair, M. (2024). Classifying disaster risk reduction strategies: Conceptualizing and testing a novel integrated approach. *Globalization and Health*, *20*(1), 7.

Eckert, E., & Kovalevska, O. (2021). Sustainability in the European Union: Analyzing the discourse of the European Green Deal. *Journal of Risk and Financial Management*, *14*(2), Article 2. https://doi.org/10.3390/jrfm14020080

ECLAC. (2024a). *Regional data bank for statistical follow-up to the SDGs in Latin America and the Caribbean.* https://agenda2030lac.org/estadisticas/regional-data-bank-statistical-follow-up-sdg-1.html?lang=en&goal_id=11

ECLAC. (2024b). *Regional SDG statistical profiles by target.* https://agenda2030lac.org/estadisticas/regional-sdg-statistical-profiles-target-1.html?lang=en&target_id=11.6

Gössling, S. (2013). Urban transport transitions: Copenhagen, city of cyclists. *Journal of Transport Geography*, *33*, 196–206. https://doi.org/10.1016/j.jtrangeo.2013.10.013

Hainoun, A., Neumann, H.-M., Morishita-Steffen, N., Mougeot, B., Vignali, É., Mandel, F., … & Rozel, B. (2022). Smarter together: monitoring and evaluation of integrated building solutions for low-energy districts of lighthouse cities Lyon, Munich, and Vienna. *Energies*, *15*(19), Article 19. https://doi.org/10.3390/en15196907

Hofstad, H., Sørensen, E., Torfing, J., & Vedeld, T. (2022). Designing and leading collaborative urban climate governance: Comparative experiences of co-creation from Copenhagen and Oslo. *Environmental Policy and Governance*, *32*(3), 203–216. https://doi.org/10.1002/eet.1984

Hu, M., & Świerzawski, J. (2024). Assessing the environmental benefits of adaptive reuse in historical buildings. A case study of a life cycle assessment approach. *Sustainable Environment*, *10*(1), 2375439. https://doi.org/10.1080/27658511.2024.2375439

Ionescu, G. H., Firoiu, D., Manda, A.-M., Pîrvu, R., Jianu, E., & Antoniu, M.-E. (2024). Progress towards the 2030 Sustainable Development Goals for EU urban communities (SDG11). *Sustainability*, *16*(11), Article 11. https://doi.org/10.3390/su16114513

Kempen, R., & Priemus, H. (2002). Revolution in social housing in the Netherlands: Possible effects of new housing policies. *Urban Studies*, *39*, 237–253. https://doi.org/10.1080/00420980120102948

Kindt, O. W. E. (2024). Integrating Matatus in Nairobi's public transport future: A study investigating how to include informal transport to Bus Rapid Transit (BRT) Projects Doctoral dissertation, Rijksuniversiteit Grongingen http://www.rug.nl/

Kluza, K., Ziolo, M., & Postula, M. (2024). Climate policy development and implementation from the Sustainable Development Goals perspective. Evidence from the European Union countries. *Energy Strategy Reviews*, *52*, 101321. https://doi.org/10.1016/j.esr.2024.101321

Millot, A., Doudard, R., Le Gallic, T., Briens, F., Assoumou, E., & Maïzi, N. (2018). France 2072: Lifestyles at the core of carbon neutrality challenges. In G. Giannakidis, K. Karlsson, M. Labriet, & B. Ó. Gallachóir (Eds.), *Limiting global warming to well below 2*

°C: energy system modelling and policy development (pp. 173–190). Springer International. https://doi.org/10.1007/978-3-319-74424-7_11

Mueller, N., Rojas-Rueda, D., Khreis, H., Cirach, M., Andrés, D., Ballester, J., … & Nieuwenhuijsen, M. (2020). Changing the urban design of cities for health: The superblock model. *Environment International*, *134*, 105132. https://doi.org/10.1016/j.envint.2019.105132

Nhundu, K., Sibanda, M., & Chaminuka, P. (2021). Economic losses from cyclones Idai and Kenneth and floods in Southern Africa: Implications on Sustainable Development Goals. In G. Nhamo & G. Chikodzi (Eds.), *Cyclones in Southern Africa: Volume 3: Implications for the Sustainable Development Goals* (pp. 289-303), Springer.

OECD. (2018). *Preventing the flooding of the Seine in the Paris – Ile de France region*. https://www.oecd.org/en/publications/preventing-the-flooding-of-the-seine-in-the-paris-ile-de-france-region_bb9e49e6-en.html

Otwori, D., & Nyandiko, N. (2024). Challenges against the achievement of disaster risk reduction strategies in African states. *Journal of the Kenya National Commission for UNESCO*. https://doi.org/10.62049/jkncu.v4i1.61

Ouma, Y. O., Keitsile, A., Lottering, L., Nkwae, B., & Odirile, P. (2024). Spatiotemporal empirical analysis of particulate matter PM2. 5 pollution and air quality index (AQI) trends in Africa using MERRA-2 reanalysis datasets (1980–2021). *Science of The Total Environment*, *912*, 169027.

Pricope, L. N., Antohi, V. M., Meca, A., Buboi, D. A., Fortea, C. & Zlati, M. L. (2024). The New European Development Scoreboard for SDG11 at the European level. *Sustainability*, *16*(17), Article 17. https://doi.org/10.3390/su16177736

Schifman, L. A., Herrmann, D. L., Shuster, W. D., Ossola, A., Garmestani, A., & Hopton, M. E. (2017). Situating green infrastructure in context: A framework for adaptive socio-hydrology in cities. *Water Resources Research*, *53*(12), 10139–10154. https://doi.org/10.1002/2017WR020926

Sforna, M. (2022). *The role of Sustainable Urban Mobility Plan instruments in the development of smart cities*. https://www.research.unipd.it/handle/11577/3473489

Sharma, D., & Gupta, A. K. (2024). Climate resilient infrastructure in developing countries. In A. K. Gupta, A. Gupta, & P. Acharya (Eds.), *Disaster risk and management under climate change* (pp. 211-229).Springer Nature Singapore.

UN, ECA, African Union, African Development Bank & UNDP. (2023). *Africa Sustainable Development Report. Accelerating the recovery from the coronavirus disease (COVID-19) and the full implementation of the 2030 Agenda for Sustainable Development and African Union Agenda 2063 at all levels*. https://digitallibrary.un.org/record/4046860?v=pdf [Accessed 30 September 2024].

UN-Habitat. (2023). *Rescuing SDG 11 for a resilient urban planet.* https://unhabitat.org/sites/default/files/2023/11/sdg11_booklet_2023.pdf.

United Nations. [n.d.]. *City of Paris: Carbon neutral by 2050 for a fair, inclusive and resilient transition*. https://unfccc.int/climate-action/un-global-climate-action-awards/climate-leaders/city-of-paris [Accessed 27 February 2025].

United Nations. (2024). *The Sustainable Development Goals Report*. https://unstats.un.org/sdgs/report [Accessed 27 September 2024].

United Nations Economic Commission for Latin America and the Caribbean. [n.d.]. *Prioritized set of indicators for regional statistical follow-up of the SDGs*. Agenda 2030 LAC. https://agenda2030lac.org/estadisticas/prioritized-set-indicators-regional-statistical-follow-up-sdg.html#11 [Accessed 11 November 2024].

UNODC. (2024). *DataUNODC*. https://dataunodc.un.org/dp-intentional-homicide-victims-est [Accessed 28 September 2024].

Villa, Ž., & Šulc, I. (2021). *Cultural heritage, tourism and the UN Sustainable Development Goals (SDGs): The case of Croatia* (pp. 341–358). https://doi.org/10.1007/978-3-030-71819-0_19

Vona, M., Flora, A., Carlucci, E., & Foscolo, E. (2021). Seismic retrofitting resilience-based for strategic RC buildings. *Buildings*, *11*(3), Article 3. https://doi.org/10.3390/buildings11030111

Wilbers, G.-J., De Bruin, K., Seifert-Dähnn, I., Lekkerkerk, W., Li, H., & Budding-Polo Ballinas, M. (2022). Investing in urban blue–green infrastructure—assessing the costs and benefits of stormwater management in a peri-urban catchment in Oslo, Norway. *Sustainability*, *14*(3), Article 3. https://doi.org/10.3390/su14031934

Wyrwa, J. (2020). A review of the European Union financial instruments supporting the innovative activity of enterprises in the context of Industry 4.0 in the years 2021-2027. *Entrepreneurship and Sustainability Issues*, *8*(1), 1146–1161. https://doi.org/10.9770/jesi.2020.8.1(77)

5. Case studies

Readers (teachers) will be able to

- identify good practices in various regional case studies in achieving SDG 11
- develop and apply a local project aimed at achieving SDG 11
- use the knowledge presented in regional case studies to adapt to a more sustainable way of living

In this section we present examples of good practices applied in different countries around the world to support the implementation of SDG 11. These practices take different approaches, as shown in table 7. Additional examples can be found on the United Nations' SDGs Knowledge Platform.

Table 7: Examples of best practices related to SDG 11

Name and geographical coverage	Objective	Related SDGs	Source
Curitiba - Bus Rapid Transit (BRT) Modernisation	Curitiba's BRT system was originally built in 1974. In tandem with its development, the city government adopted strategic approaches to meet the challenges that arose at different stages.	9, 11, 13	https://www.ebrdgreencities.com/policy-tool/modernizing-bus-rapid-transit-curitiba-brazil/
The Singapore Green Plan 2030	It seeks to galvanise a whole-of-nation movement and advance Singapore's national agenda on sustainable development. Spearheaded by five ministries - the Ministries of Sustainability and the Environment (MSE), Trade and Industry (MTI), Transport (MOT), National Development (MND) and Education (MOE) - and supported by the whole of government, the Green Plan charts ambitious and concrete targets for the rest of this decade.	3, 8, 9, 11, 13	https://www.greenplan.gov.sg/
Vienna, Austria – Social Housing Model	The roughly 220 000 municipal flats and about 200 000 subsidised dwellings of Vienna make up the cornerstone of social housing in the city. Approximately 50% of Vienna's	3, 9, 11, 13	https://socialhousing.wien/policy/the-vienna-model

	population live in one of these two housing types. Social housing strives for a more equitable society that involves both the middle class and lower-income groups.		
Medellín, Colombia – Urban Transformation	City of Comprehensive Urban Projects (PUI) is the result of several years, several previous projects, academia, politicians and citizens who found in dialogue and collective work a favourable strategy to rebuild the territories. The PUIs are an intervention strategy that applies the social urbanism model composed of three components: physical, social and institutional.	3, 9, 11, 13	https://www.archdaily.com/1015216/the-urban-transformation-of-medellin-a-case-study
Rotterdam, Netherlands – Climate Adaptation Strategy	Rotterdam Climate Proof (2008) and the Rotterdam Climate Change Adaptation Strategy (2013) aims to a) strengthen a robust system of flood, stormwater surge and sea-level rise defences; b) adapt the urban space to combine its three functions: 'sponge' (water squares, infiltration zones and green spaces), protection (dykes and coastal protection) and damage control (evacuation routes, water-resistant buildings and floating structures); c) increase city resilience through integrated planning; d) foster the opportunities that climate change brings, such as strengthening the economy, improving the quality of life and increasing biodiversity.	3, 9, 11, 13	https://static1.squarespace.com/static/5f082078d610926644d22e00/t/62b19d595f452d43febaa862/1655807334154/20121210+RAS+EN+lr+versie+4_compressed.pdf
San Francisco, USA – Zero Waste Initiative	The Zero Waste programme is a policy initiative to reduce waste and increase access to recycling and composting. Zero waste is defined by San Francisco as sending nothing to landfill or for high-temperature destruction (incineration). Instead of waste being sent to landfill or incineration, products are designed and used according to the principle of highest and best use, and the waste reduction hierarchy: prevent waste – reduce and reuse, recycle and compost (in that order). By becoming a zero-waste city, San Francisco aims to achieve three goals: conserve valuable resources, reduce environmental impacts – such as climate change resulting from methane emitted by landfill – and help create green jobs.	3, 9, 11, 13	https://www.epa.gov/transforming-waste-tool/zero-waste-case-study-san-francisco
Copenhagen, Denmark – Cycling Infrastructure	The Copenhagen cycling strategy is part of the city target to become the first carbon-neutral city by 2025. Copenhagen exemplifies a powerful integrated strategy to reach transportation net zero, leveraging on compact city, accessibility, networks of connected streets and bike lanes and sustainable	3, 9, 11, 13	https://www.neighbourhoodguidelines.org/promoting-cycling-copenhagen

	lifestyles. The Bicycle Account is a document that is compiled every two years by the City of Copenhagen, currently by the Technical and Environmental Administration.		

5.1 Latin America

5.1.1 Case 1 - The São Paulo Mobility Plan, São Paulo, Brazil

São Paulo has a population of 11 451 999, making it the largest city in Brazil and one of the most populous in the world. As the country's primary economic and financial hub, it hosts the headquarters of numerous major national and international companies and banking institutions. With a GDP of R$828.98 billion, it accounts for 7.6% of Brazil's total GDP.

São Paulo offers a wide range of data on urban issues, public policies and sustainable practices that can be analysed in light of global sustainability goals. In 2024, São Paulo was awarded third place among the most intelligent and connected cities in the country. The city leads in the area of mobility, standing out particularly for its diverse modes of transport. São Paulo is one of the first Brazilian cities to implement an electronic ticketing system for public transportation and also one of the pioneers in deploying intelligent traffic lights to improve traffic flow. The city now boasts over 600 km of bike lanes, a smart mode of transport that takes up less space, reduces pollutant emissions and encourages physical activity and health, with a ratio of 6.48 km of bike lanes per inhabitant. Additionally, the fleet of low-emission vehicles has increased from 0.21% to 0.56% of the total.

In terms of mobility, São Paulo residents benefit from access to three of Brazil's largest and busiest airports — Congonhas, Guarulhos and Viracopos — within a 100 km radius. The city also offers interstate bus transportation to over 415 destinations across Brazil (Connected Smart Cities, 2024).

Although we will detail the Mobility Plan in the next section, the city also addresses significant topics through initiatives such as the Plano de Ação Climática do Município de São Paulo (PlanClima SP), the 100 Parques para São Paulo programme, the PROJETO NOVA LUZ and various social housing programmes, including Casa Paulista, Programa Vida Longa and Programa Pode Entrar.

Figure 17: The first long-distance cycle path on a highway in Brazil, the Ciclovia dos Bandeirantes (https://www.archdaily.com.br/br/978581/sao-paulo-tera-primeira-ciclovia-de-longa-distancia-em-rodovia-no-brasil)

Strategy of the programme

The São Paulo Mobility Plan (PlanMob/SP) was developed between 2013 and 2015, following federal, state and municipal regulations on urban mobility. Its central goal is to coordinate transportation policies with urban development plans, aiming to reduce excessive motorised commuter trips and prioritise public transport, active transportation and walking (Prefeitura São Paulo, n.d.). The plan also emphasises the need for regional coordination, linking transportation policies across the São Paulo Metropolitan Area. The planning process is ongoing, incorporating new technologies, data and research. PlanMob/SP proposes a comprehensive transportation network strategy, focusing on collective and active transportation modes, and defines principles, objectives and guidelines for a more sustainable urban mobility policy.

The strategy of PlanMob/SP is to integrate transportation policies with urban development to create a more sustainable and efficient mobility system. The plan focuses on prioritising public transport, active transportation (such as walking and cycling) and reducing excessive motorised commuter trips. One of its key strategies is the coordination of transportation networks with areas designated for residential and employment activities, encouraging urban density around transport hubs. The plan also aims to reduce traffic congestion, improve accessibility and ensure a safer, more inclusive environment for all modes of transport.

Another important strategy of PlanMob/SP is its metropolitan approach, recognising the interdependence of São Paulo with neighbouring municipalities and the need for coordinated transport planning across the São Paulo metropolitan area. The plan promotes the development of a multi-modal transportation network that includes not only public transport and cycling, but also intelligent traffic systems and infrastructure to support the efficient movement of goods.

The plan also emphasises continuous planning, research and the integration of new technologies, ensuring that policies and actions evolve in response to emerging data and needs. The long-term vision is to create a more connected, accessible and sustainable urban mobility system that aligns with broader goals of urban development and environmental sustainability.

Results and impact of the programme

According to a study released by Rede Nossa São Paulo on 19 September 2024, in partnership with Ipec, entitled *Pesquisa Viver em SP 2024* (*Nossas São Paulo, 2024): Urban Mobility*, the municipal bus is the most commonly used means of transportation by the population (38%), followed by cars (23%) and the metro (12%).

The number of people using public transport more frequently has been gradually increasing year by year since the pandemic: it was 45% in 2021 and rose to 61% in 2024. On the other hand, the number of users of private/individual transportation has been decreasing each year: it was 54% in 2021 and dropped to 38% in 2024.

In 52% of households in São Paulo, there is a family car; 30% of people say they use their own car every day or almost every day to get around the city. The number of residents reporting using their car more frequently increased from 19% in 2023 to 29% in 2024. The main reasons for this are comfort, overcrowding on public transport and long waiting times at bus stops and terminals.

Regarding cycling, 12% of respondents say they use bicycles more frequently: 2% use them every day, 3% almost every day and 7% occasionally.

Links with SDG 11 targets and indicators

PlanMob/SP 2015 aligns with several targets and indicators of SDG 11:

- **Target 11.2 (provide access to safe, affordable, accessible and sustainable transport systems):** PlanMob/SP emphasises the expansion and improvement of public transport, prioritising accessibility and safety, particularly for vulnerable populations. The plan integrates various modes of transportation, such as buses, metros and bicycles, to ensure inclusivity and greater mobility options for all residents, including those with disabilities, the elderly and low-income communities.
- **Target 11.3 (enhance inclusive and sustainable urbanisation):** The PlanMob/SP directly supports sustainable urban development by coordinating transport policies with urban development. The plan outlines strategies for urban densification, linking transportation to areas of housing and employment, which promotes efficient land use and integrated urban planning.
- **Target 11.6 (reduce adverse per capita environmental impact of cities):** The focus on public transport, cycling infrastructure and promoting active transport in PlanMob/SP aims to reduce car dependency, lower emissions and improve air quality in São Paulo.
- **Target 11.7 (provide universal access to safe, inclusive and accessible green and public spaces):** The plan includes the development of pedestrian-friendly spaces and the expansion of green spaces that enhance the quality of urban life. These improvements ensure that public spaces are accessible, safe and welcoming for all residents, with special attention to vulnerable groups.

Sustainability and possibility for replication

PlanMob/SP is designed for long-term sustainability through its focus on environmental, social and economic dimensions. It promotes public transport and active mobility (cycling and walking), reducing reliance on private cars and cutting pollution. The plan ensures accessibility for vulnerable groups and supports equitable transportation systems, contributing to both social inclusion and the city's economic productivity. Furthermore,

PlanMob/SP's integration of urban planning and transport systems enhances urban sustainability, while institutional support and public-private partnerships ensure its long-term viability.

The replicability of PlanMob/SP lies in its adaptable strategies for other cities facing similar urban mobility challenges. Its emphasis on integrating public transport with urban development, promoting low-carbon transport options and fostering public engagement makes it a scalable model. The plan aligns with international sustainability frameworks, such as the New Urban Agenda and SDGs, providing a framework that can be customised for different cities to achieve sustainable, inclusive and resilient mobility solutions.

5.1.2 Case 2 – Urban Regeneration in Villa 31, Buenos Aires, Argentina

Barrio Mugica, previously known as Villa 31, is one of Buenos Aires' largest informal communities, located centrally in the city. Initially settled in the 1930s by European immigrants, it later grew as people migrated from within Argentina and nearby countries. Today, it spans about 72 hectares and is home to about 40 000 residents.

Over the years, various governments attempted to remove the settlement, nearly succeeding in the 1970s. However, these efforts showed that simply relocating people to distant areas did not provide a sustainable solution. In contrast, improvements in infrastructure, housing, education, healthcare and economic opportunities have gradually transformed Barrio Mugica, helping it integrate more fully into the urban landscape.

Strategy of the programme

The main goals of the Barrio Mugica project are as follows:

- **Urban integration:** Ensure that everyone has access to essential services, infrastructure and eco-friendly public spaces.
- **Housing:** Enhance living conditions by providing safe, suitable housing options.
- **Social integration:** Expand access to quality public education and healthcare, and support cultural and community activities.

- **Sustainable economic integration:** Formalise local businesses and support entrepreneurs.

The implementation plan is aligned with the city's development goals and emphasises a holistic approach that addresses multiple challenges concurrently. Launched in 2016, the project is managed by the Secretariat of Social and Urban Integration, established specifically to oversee the initiative.

The Barrio Mugica Integration Plan focuses on connecting one of Argentina's most prominent informal settlements with Buenos Aires. The plan's comprehensive approach tackles various issues, such as limited access to public services, inadequate living conditions, informal employment and gaps in education and healthcare, all at once. Initiatives include developing infrastructure for sewage, drainage, drinking water, electricity, street paving and public lighting, along with creating and enhancing public spaces. Over 1 200 new homes are being constructed, with additional renovations to existing homes, new schools and healthcare centres, all designed to promote social and economic advancement. The goals are implemented as follows:

- **Urban integration:** Local infrastructure is connected with that of the city, improving access to services, transport and connectivity. Renovated public spaces and new green areas reduce pollution and promote community health. A new park under the Illia Highway will also transform this area into a lively public space.
- **Habitat**: The Housing Improvement Programme upgrades existing homes, focusing on facilities, access and waterproofing. Additionally, over 1 200 new homes have been built for families whose homes cannot be renovated.
- **Social integration:** Three new schools were built, including a kindergarten, primary school and adult education centre. The neighbourhood now has two new health centres, one renovated, and a 24-hour ambulance service, ensuring that residents receive quality care nearby.
- **Sustainable economic development**: Half of the workforce earns informally, with limited training options. The project aims to integrate the neighbourhood economy through the Centre for Entrepreneurial and Labour Development (CeDEL), which

provides advice, training and support in labour integration, trade skills, formalisation and entrepreneurship.

Results and impact of the programme

The Barrio Mugica integration project tackles all aspects of human development through interconnected policies. The City Government has achieved significant results and impacts.

Housing and infrastructure

- 17 700 m of infrastructure were built, providing basic services such as sewage, drainage, pavement, public lighting, electricity and drinking water.
- 2 225 people were resettled to new homes within the neighbourhood, each receiving a property title.
- 1 154 new housing units were constructed.
- 1 732 homes underwent improvements.
- 27 public spaces were upgraded.

Social integration

- Three new schools built and one improved, adding over 2 600 school seats.
- The new Ministry of Education headquarters was inaugurated in January 2020.
- 565 teenagers participated in the Estudiar es Elegir tu Futuro programme, which supports secondary education completion.
- Two new health centres were built, and one was renovated, ensuring that all residents have access to a health centre within a 15-minute walk.
- 20 386 residents engaged in cultural activities organised by the City Government.
- Over 5 000 residents participated in gender equity and empowerment programmes.
- More than 4 000 participatory meetings were held.

Economic development

- 63% of the labour force participated in training and mentoring at CeDEL.

- 900 people were hired through CeDEL's Job Exchange.
- 123 companies partnered to offer jobs and training.
- 223 entrepreneurs received training, empowerment and mentoring.
- 180 entrepreneurs were granted microcredits to enhance their businesses.

Sustainability

To prevent gentrification in Barrio Mugica, the City Government worked with residents and the legislature to create regulations under City Law 6,129. This law limits land plot sizes, building heights (capped at four storeys) and construction area (max 250 m²), with 80% reserved for residential use, ensuring that the neighbourhood remains affordable and sustainable. Additionally, the City Government can buy properties from residents wishing to sell, ensuring protection from external pressures. This process formalises property ownership and regularises public services like water and electricity after nearly 90 years of informality.

The Barrio Mugica project promotes economic development by offering City Training courses that improve skills in accounting, business management and marketing. An entrepreneurs' network provides support and advice, while small businesses gain financial inclusion. Residents are also assisted in securing formal jobs. By involving residents in the policy process, the project fosters better improvements, strengthens relationships with the government and encourages shared responsibility among all stakeholders.

Links with SDG 11 targets and indicators

This project aligns with various targets and indicators of SDG 11:

- **Target 11.1 (access to adequate, safe and affordable housing and basic services):** The project aims to improve housing conditions in the Barrio Mugica by constructing new homes, upgrading existing structures and providing access to basic services such as water, sanitation and electricity. This directly supports the target of improving housing for marginalised populations.

- **Target 11.3 (enhance inclusive and sustainable urbanisation):** Barrio Mugica's integration project involves significant urban planning to incorporate the informal settlement into the wider city. This includes creating public spaces, improving transportation networks and integrating the area with the formal urban environment, fostering inclusive urbanisation.
- **Target 11.4 (protect and safeguard the world's cultural and natural heritage):** The project includes efforts to preserve the cultural heritage of the community while modernising the neighbourhood. It aims to maintain the identity of the area, balancing development with cultural respect, such as through community participation and consultation in the design process.
- **Target 11.6 (reduce the adverse per capita environmental impact of cities):** The project addresses environmental concerns by improving waste management systems, creating green spaces and enhancing public infrastructure to reduce pollution. It aims to lower the environmental footprint of the settlement while improving residents' quality of life.
- **Target 11.7 (provide universal access to safe, inclusive and accessible green and public spaces):** One of the goals of the Barrio Mugica integration project is to develop more green spaces and public areas that are safe, inclusive and accessible for all residents, including vulnerable groups such as children, elderly people and persons with disabilities.
- **Indicator 11.1.1 (proportion of urban population living in slums, informal settlements or inadequate housing):** The project directly seeks to reduce the proportion of the urban population living in inadequate housing by upgrading Barrio Mugica and offering formal housing solutions to those living in informal conditions.

Sustainability and possibility for replication

The Barrio Mugica integration project in Buenos Aires presents a sustainable model for upgrading informal settlements by improving housing, infrastructure and public services, while fostering community participation. The project addresses environmental sustainability through green spaces, waste management and energy-efficient solutions, and promotes social inclusion by providing affordable housing, healthcare and education.

By engaging local residents in the planning process, it ensures that the development aligns with community needs, enhancing its long-term social sustainability.

The project's replicability is strong, particularly in cities with informal settlements facing similar challenges. Its adaptable approach, which integrates technical and social solutions, can be scaled to different urban contexts. Successful financing through public-private partnerships and community-driven design further enhances its potential for replication in the Global South. However, challenges like securing financial resources and overcoming social resistance may impact replication efforts, making strong political will and long-term commitment crucial for success.

5.1.3 Case 3 - Planning and Transforming Iztapalapa programme, Mexico City

Mexico City is the capital and largest city of Mexico, and the most populous city in North America. It is one of the most important cultural and financial centres in the world. Iztapalapa is one of Mexico City's 16 territorial divisions, or districts, within its metropolitan area. Situated to the east of the city, it covers the southern area of the Lake Texcoco basin. According to the 2020 population and housing census conducted by INEGI, Iztapalapa had 1 835 486 residents, making it the second most populated district in Mexico.

The Planning and Transforming Iztapalapa programme strengthens community organisation and fosters democratic, participatory and inclusive governance. It aims to improve government-citizen relations in decision-making and urban planning, working directly with communities. This initiative has advanced participatory democracy, promoting citizen engagement in improving living conditions and ensuring the full exercise of rights in Iztapalapa.

Strategy of the programme

The programme focuses on empowering citizens to build a critical, active and transformative form of citizenship through planning, training and action. It uses participatory and creative methods that integrate traditions, art and culture, fostering local

community development through horizontal dialogue, reflection and collective proposal formulation. These processes encourage consultation, co-management and self-management of community strategies and priority projects.

A key element of the strategy is promoting community organisation and cohesion. This is achieved through the establishment of Planning Collectives and active participation in Community Assemblies. These groups collaborate to create Local Agendas for Community Development, which capture the community's vision, strategies and priority actions. The programme encourages the exercise of the Right to the City across 48 neighbourhoods in Iztapalapa, benefitting nearly 400 000 residents.

Results and impact of the programme

The programme has made significant strides in fostering a culture of citizen participation and enhancing the right to participate in government decisions. By creating innovative spaces for participatory democracy, such as the Planning Collectives, it has enabled inclusive, non-discriminatory civic engagement in shaping community projects. The impact is visible through the 367 projects implemented across various thematic areas, including economic development, social development, culture, communication, urban planning and environmental sustainability.

These projects have addressed diverse needs, such as the creation of cooperatives, business incubators and urban gardens, as well as women's empowerment initiatives and the recovery of public spaces. Notably, projects designed to strengthen citizen participation account for 34% of the total, focusing on improving local organisation, citizen training and management capacities.

The programme has also led to a shift in government-citizen relations, with the government now valuing citizen participation as a critical element of democratic governance. This has contributed to the enrichment of representative democracy, challenging bureaucratic and technocratic norms and deepening the democratisation of social relations and public decision-making.

Of the 123 prioritised *colonias* (neighbourhoods) identified for their low development levels and high crime rates, planning initiatives are currently underway in 48 areas, which include neighbourhoods, towns and housing units, at various stages of progress. This represents a quantitative advancement of nearly 40%, impacting around 384 468 people or 20.9% of the municipality's total population.

At a qualitative level, significant progress is noted as planning groups have developed 367 community projects and actions across 12 key areas: Participation (34%), Economy (16%), Culture (14%), Safety (9%), Environment (7%), Public Spaces (6%), Water (4%), Health (3%), Gender (2%), Sports (2%), Mobility (2%) and Education (1%). These initiatives are vital for fostering neighbourhood and district-level development.

Furthermore, at least 80 actions have already been implemented through partnerships between Planning Collectives and various departments within the Mayor's Office, with all parties expressing a positive outlook on the progress of these joint efforts (Observatory on Participatory Democracy (OIDP), n.d.(b)).

Links with SDG 11 targets and indicators

The Planning and Transforming Iztapalapa programme directly aligns with several targets and indicators of SDG 11:

- **Target 11.3 (enhance inclusive and sustainable urbanisation):** The programme's emphasis on community-led urban planning, the formation of Planning Collectives and the active involvement of Community Assemblies in creating Local Agendas for Community Development directly support this target. By promoting participatory processes in urban planning and governance, the programme enhances the capacity of local communities to manage and plan for sustainable urban development.
- **Target 11.7 (provide universal access to safe, inclusive and accessible green and public spaces):** The programme includes urban projects such as the co-design and recovery of public spaces (e.g. UTOPIAS, *ludicalles* and indigenous

people's squares), which are critical for providing inclusive and safe spaces for diverse community members, supporting the principles of this target.

- **Target 11.6 (reduce the adverse per capita environmental impact of cities):** Through projects focused on urban gardens, composting, reforestation, rainwater harvesting and sustainable land use planning, the programme addresses environmental sustainability within urban areas, reducing the adverse impacts of urbanisation on the environment, in line with this target.
- **Target 11.4 (protect and safeguard the world's cultural and natural heritage):** The programme's cultural initiatives, such as the recovery of historical memory, community archives and museums, directly contribute to safeguarding and promoting local heritage, ensuring that cultural practices and traditions are preserved and passed on to future generations.
- **Target 11.2 (provide access to safe, affordable, accessible and sustainable transport systems):** The emphasis on public space recovery and urban planning can influence transport systems in Iztapalapa, supporting more accessible and safer public spaces, which could be linked to improvements in transportation infrastructure in the area.

Sustainability and possibility for replication

The Planning and Transforming Iztapalapa programme is highly sustainable due to its community-driven approach, which empowers local residents to manage and implement their own development projects. By fostering citizen participation, co-management and capacity-building, the programme ensures long-term impact and self-reliance. Its integrated focus on social, economic, cultural and environmental development further strengthens its sustainability. The use of local knowledge and partnerships with government and other stakeholders enhances the programme’s ability to adapt and endure.

The programme is also highly replicable. Its participatory model, which engages communities in decision-making and project implementation, can be adapted to other regions with similar socio-economic contexts. The success of the projects, combined with

the focus on training and capacity-building, provides a scalable blueprint for other cities. Additionally, its focus on local solutions, cultural relevance and government collaboration makes it an adaptable model for sustainable urban development in diverse settings.

5.2 Africa

5.2.1 Case 1 – Cape Town: Africa's smart city

Contextual setting

The smart city concept forms part of the smart urbanism movement and has been around since the 1990s. According to Du Toit and Stimie (2023), the city of Los Angeles paved the way for smart cities with its urban big data project. Despite the concept being around for decades, no single or commonly accepted definition exists for smart cities and the concept is often applied differently and adapted in different contexts across the world (Department of Cooperative Governance, RSA, 2021). However, some of the common elements that underpin smart cities lie broadly in the following: improved decision-making that is informed by data and technology, reduced environmental footprint, economic development and efficiency, improved quality of life, safer communities and greater citizen engagement and involvement (Department of Cooperative Governance, RSA, 2021). The implementation of smart city strategies ultimately connects citizens and helps advance the spread of information, service delivery, emergency responses and disaster risk management such as in the case of the COVID-19 pandemic. SDG 11 and the goal towards sustainable and safe cities also underpin the smart city drive. Most, if not all, targets within SDG 11 are enhanced through effective smart cities. Particularly, target 11.3 (inclusive and sustainable urbanisation), target 11.8 (strong national and regional development planning) and targets 11.5 and 11.9 (reduce adverse effects of natural disasters; implement policies for inclusion, resource efficiency and disaster risk reduction) are clearly enhanced through successful smart cities.

In South Africa, the Smart Cities Framework was developed in 2021 and aims to guide decision-making regarding smart city initiatives. This followed President Cyril

Ramaphosa's inclusion of smart cities in his 2019 and 2020 State of the Nation addresses (SONAs) (Du Toit & Stimie, 2023). The framework specifically does not market itself as a guideline of good practice but rather an informative document to aid initiatives by providing information on the local context in South Africa, definitions and other factors to consider (Department of Cooperative Governance, RSA, 2021). The International Organisation for Standardization (ISO) does, however, provide a set of indicators for smart cities (ISO 37122 under ISO 37120) which serve as guidelines. The ISO also usefully defines a smart city as one *"that increases the pace at which it provides social, economic and environmental sustainability outcomes and responds to challenges such as climate change, rapid population growth, and political and economic instability by fundamentally improving how it engages society, applies collaborative leadership methods, works across disciplines and city systems, and uses data information and modern technologies to deliver better services and quality of life to those in the city (residents, businesses, visitors), now and for the foreseeable future, without unfair disadvantage of others or degradation of the natural environment"* and this is also endorsed in South Africa's framework (Department of Cooperative Governance, RSA, 2021:7).

Strategy of the programme

Cape Town (figure 18) is regarded as one of the leading smart cities in Africa and is considered the pioneer of this strategy on the continent. The Smart Cities Playbook named Cape Town as the smartest city in Africa in 2016. However, the city is generally considered to have lost some momentum in its smart city campaign to other African cities (such as Nairobi) due to political restructuring that occurred in the municipality in 2016.

Figure 18: Location of Cape Town in South Africa
(https://en.wikipedia.org/wiki/Cape_Town)

Cape Town's drive towards becoming a smart city started in the 2000s with its first Smart City Strategy (which later became the Digital City Strategy). This occurred when the City of Cape Town was established as a 'unicity' from the merging of 7 previously separate municipalities. The concept of a smart city was first introduced in the City's 2002 Integrated Development Plan. The City of Cape Town depended on information and communications technologies (ICT) and partnered with private industry to enable its strategy (Fataar, 2020; Wright et al., 2022).

The City's smart strategy was implemented by its Smart City Steering Group and its Smart City Working Group (Wright et al., 2022). The five pillars of Cape Town's smart city strategy are to create the well-run, the opportunity, the safe, the caring and the inclusive city through digital governance, digital citizens, digital infrastructure and digital inclusion. This fits within the guiding principles of South Africa's Smart City Framework that recommends that smart cities be inclusive where they should (1) be smart for all, (2) use technology as an enabler rather than a driver, (3) be shaped by, and respond to, the local context, (4) be informed by the real needs of the community, (5) embrace innovation, partnerships and collaboration and (6) be sustainable, resilient and safe (Department of Cooperative Governance, RSA, 2021). Furthermore, this speaks to initial conceptualisation of smart cities from the Global North that strategise smart economies, people, governance, mobility, environment and living (Fataar, 2020; Du Toit & Stimie, 2023).

Some of the smart city initiatives incorporated by the City of Cape Town include the Universal Broadband Access Programme, which started in 2009, where the city rolled out fibre optic infrastructure of around 700 km throughout the city (clinics, libraries and other public buildings). Another is the WiFi Public Access Point Programme that aims to expand access to high-speed internet throughout the city. Several facilities such as IRT bus stations, MyCiti buses and other public WiFi points have benefitted from this initiative and are connected to the internet via the SmartCape initiative, which started in 2002. In addition, an Open Data Policy was also approved in 2015 which aims to make certain datasets accessible and free (Wright et al., 2022).

A Mobile e-Services application system was also incorporated in 2013 where citizens can perform several functions on the online e-Services website, such as settling municipal accounts, lodging service requests, purchasing electricity, submitting municipal job applications etc. This includes the SAP C3 Notification System where service delivery faults can be reported and are routed to the relevant service department within the city to respond (Wright et al., 2022).

Results and impact of the programme

The two most significant examples that display the positive and successful application or use of the City's smart city initiatives include its response to the Cape Town droughts in 2017/18 and the COVID-19 pandemic in 2020.

During the 2017/18 droughts, data could be used and shared across the city that enabled the City's #DayZero campaign in response to the droughts, and aided government planning and problem solving. This assisted with improved water usage and awareness among citizens. A water dashboard and a water usage map are two examples of how data and information were harnessed, distributed and made available to citizens to monitor. The drought response and its campaign were successful in reducing water consumption in the city (Wright et al., 2022; Du Toit & Stimie, 2023).

Improved data and research also aided the City's response to the COVID-19 pandemic. A COVID-19 Coordination Committee (CCC) was chaired by the Chief Data Officer of the

City, and this enabled the city to plan around service delivery and emergency responses. Examples include a clinics model, which captured the staff, material and other capacities in clinics around the city, as well as the vulnerability viewer dashboard and map, which used visual spatial and other forms of data to display vulnerable citizens and areas (Wright et al., 2022).

Challenges experienced

Since the City of Cape Town is in South Africa, there are many local elements that pose barriers to successful smart city incorporation, e.g. high urbanisation and population growth, growth of informal settlements, poor legislation and regulation, economic uncertainties, governance, poverty, inequality, inefficient infrastructure etc. Other barriers or criticisms in the country's application include a lack of an integrated national smart city strategy and lack of coordination between private and public stakeholders (Du Toit & Stimie, 2023).

Fataar (2020) also identifies challenges in the form of the need for city officials to be given adequate training and skills to properly incorporate the concept and the fact that the City has other priority issues to address, such as unemployment. Furthermore, corruption makes allocating funds for such initiatives very challenging.

Lessons learnt

Smart cities are not always successful and there are several factors and potential limitations that may impact success. These include the relevance of the strategy to the specifical local context, corporate or financial implications and commitment, technology, application of definitions, and ethics concerning privacy of citizens (Department of Cooperative Governance, RSA, 2021). Recommendations from lessons learnt include (1) more effective data management and systems, (2) transparency with citizens through open data, (3) citizen-centred governance, (4) alignment with municipal strategies and (5) inclusion of citizen rights and values. Furthermore, coherent frameworks and appropriate infrastructure are essential (not only physical infrastructure but also soft infrastructure

such as social capital, knowledge and skills). Pilot or test strategies are also recommended from which lessons can be learnt (Fataar, 2020).

Sustainability and possibility for replication

As evident in the sections above, smart city strategies (such as those incorporated by the City of Cape Town) carry immense potential to enhance city functionality and feed the targets towards achieving SDG 11 and creating resilient cities across the world. The potential benefits are also immense on a continent such as Africa. This, however, requires properly adapted strategies that adequately serve the local context with investment and buy-in from public and private stakeholders as well as urban citizens. The City of Cape Town is considered to have somewhat lost its momentum due to political changes, yet the need for its continued success is clear when considering how it has assisted the city with disaster risk responses in the recent past.

Supplementary resources

- Department of Cooperative Governance, RSA. (2021). *A South African Smart Cities Framework: A decision-making framework to guide the development of smart cities in South Africa*. https://www.cogta.gov.za/cgta_2016/wp-content/uploads/2023/01/Annexure-A-DCoG_Smart-Cities-Framework.pdf
- Smart Cities Network. (2020). *Smart Cities Paper Series: Smart Governance in South African Cities, 29-36.* https://www.sacities.net/publication/smart-cities-paper-series/
- Wright, C., Primo, N., Delbridge, V., & Fortuin, K. (2022). *Cities that work: Case study. Data and research as key enablers of city outcomes: A case study of the City of Cape Town (2000 - 2022).* International Growth Centre. https://www.theigc.org/publications/data-and-research-key-enablers-city-outcomes-case-study-city-cape-town-2000-2022

5.2.2 Case 2: More and better jobs in Cabo Delgado province and Nampula province - harnessing the opportunities of the new economy in Mozambique

Contextual setting

The United Nations Joint Programme regarding more and better jobs in Cabo Delgado and Nampula province – harnessing the job opportunities in the new economy in Mozambique (figure 19) – sought to contribute to the improved articulation between stakeholders to promote sustainable livelihoods for young people and female-headed households (Sustainable Development Goals Fund, n.d.). The goal was to be achieved through adjusting economic policies and strategies to generate sustainable employment. It had been the UN's objective for several years to support the Mozambican government's Country Mining Vision policy approach to the extractive industries sector. The low impact of multinational enterprises (MNEs) in the natural resource extraction sector in Mozambique is the fundamental development challenge addressed by the Joint Programme (JP).

The JP consisted of three UN agencies: ILO, UNIDO and UNDP. Joint projects assure flexibility, coordination and funding as they bring UN agencies together through joint planning, implementation and coordination mechanisms to support nationally led and owned programmes. JP activities occurred in Nampula City and the municipality of Nacala, Nampula province and in Cabo Delgado province, in the provincial capital of Pemba as well as Palma, Mocimboa da Praia and Montepuez districts. The intended beneficiaries were SMEs, business owners and managers, local governments, communities and representatives of women and youth. The JP's focus on strengthening local government and agencies aligned well with the UNDP's decentralisation programmes, which are about strengthening local economic development planning capacities and promoting a development policy dialogue as a platform for civil society participation.

Figure 19: Location of Mozambique in Africa

Source: https://commons.wikimedia.org/wiki/Maps_of_Mozambique#/media/File:LocationMozambique.svg

During the period of the programme, the total population of Nampula and Cabo Delgado provinces was 6.74 million, with 4.88 million in Nampula and 1.86 million in Cabo Delgado. Women accounted for 51% of the population. The 2012 data suggested that the unemployment rate in Cabo Delgado and Nampula was 17.4% and 25.5%, respectively.

The UN argued that the opportunity of JP could be transformational and represent a unique chance for Mozambique to realise its development goals with its own resources (UNCT, 2014). Economic and structural transformation seeks to bring about increased agricultural productivity, an integrated economy and rising per capita economic growth rates. Within this framework, the JP used a multisectoral approach to facilitate structural transformation (Sustainable Development Goals Fund, n.d.):

- targeting the level of compliance of MNEs in the extractive industries with local content policies and sustainable business practices
- enhancing the readiness and increasing workforce employability with vocational skills and competencies
- facilitating more awareness of potential opportunities in the supply and value chains that service the extractive industries, along with greater participation by national and local SMEs

The proposal aimed to strengthen a sub-cluster of structural transformation processes and practices in the two target provinces of Nampula and Cabo Delgado by targeting the level of compliance of MNEs in the extractive industries with local content policies and sustainable business practices. The JP took a multisectoral approach operating at several levels seeking to improve overall system efficiency.

The JP defined four outcome goals:

- **Outcome 1:** MNEs in the extractive industries comply with local content policies and sustainable business practices, and apply gender- and age-sensitive policies to recruit nationals.
- **Outcome 2:** An improved and more egalitarian workforce with vocational skills and competencies have improved employability opportunities in extractive industry firms and in SMEs operating in value chains feeding into the extractive industry sector.
- **Outcome 3:** National and local SMEs capitalise on supply chain/value chain opportunities and provide environmentally sustainable services and products to the extractive industries.
- **Outcome 4:** Decision-makers, nationally and internationally, have better access to data for formulating job-creating measures and strategies in relation to extractive industries.

Strategy of the programme

The JP was participatory in nature and its focus complemented the national policy goal of ensuring that the revenues generated from the country's resource wealth contributed to the growth and enhancement of Mozambique's financial, human, social and physical capital stock. The Mineral Resource Development Policy and the Strategy Framework are anchored to the third national Poverty Reduction Action Plan (PARP) that sets out the country's development vision for 2025. The programme focused on ensuring deployment of local content policy, including MNEs' local purchasing of goods and services and environmentally friendly business practices in the case of the extractive industries, as well

as gender mainstreaming and women's empowerment. At the same time, it promoted vocational training for young people, supporting entrepreneurship, fostering of MNEs, improving the capacities of small business, and integration of MNEs in value chains (Sustainable Development Goals Fund, n.d.).

Results and impact of the programme

Through legislative action and measures aimed at enhancing the voice of civil society in extractive industry policy matters, the JP set the standard for future programmes in this area. The following key results were achieved at policy level: advocacy of the Extractive Industries Transparency Initiative, the elaboration of the Draft National Content Law and the National Employment Policy, and support in their implementation.

Young men and women received training and start-up kits to start their own businesses. This was achieved under the Training for Rural Empowerment approach. The focus of institutional capacity building was on local business service centres to help create linkages between local agribusiness and local companies. 472 company profiles were in the Subcontracting and Partnership Exchange Platform, with 129 matches made between buyers and suppliers, at the time of the final evaluation, including three domestic companies with South African buyers. In terms of environmental performance and promotion of resource-efficient and cleaner production, 80 national consultants were trained and 14 companies benefited from assessments. The performance of an additional 69 companies was benchmarked, allowing them to understand and improve their performance.

Challenges experienced

The JP was affected by the global slowdown in the oil and gas sector. This resulted in a delay in critical investments by MNEs, which were necessary to further the objectives and strategy of the programme. The ability of the JP to achieve the objectives was greatly affected by Anadarko and Italian MNE's decision to postpone the start of extractive industry activities. Construction work, identified as a significant creator of employment opportunities, did not start during the period, nor did production start in 2018 as originally

planned. The change influenced the JP's outcome of job creation from a demand-led employment to a supply-led approach (Sustainable Development Goals Fund, n.d.).

Lessons learnt

The programme was adjusted to comply with changes in the JP. These changes included modification of outcomes and output targets as well as activity patterns. The programme experienced delays. Although the changes would have been counter-effective, the programme's interventions were adjusted to manage the expectations of beneficiaries and participating communities. It was discovered that more needs to be done to promote gender mainstreaming women's economic empowerment to enable women to participate and benefit from opportunities in the extractive industries sector. It was challenging to engage women in the JP despite the analysis of the gender-sensitive skills gap and the provision of training in the extractive industries value chains. The following is a summary of the lessons learnt (Sustainable Development Goals Fund, n.d.):

- Strengthen the human resources for programme management, partner coordination and the management of programme tools through the recruitment of a full-time MNE officer attached to the leading JP manager.
- Improve risk analysis and include an exit strategy in programme planning and design, including agreeing on a roadmap for post-programme activities, implementation responsibilities, targets and funding.
- Include, plan and conduct follow-up measures in institutional capacity-building projects.
- Avoid defining over-optimistic targets.
- Avoid unplanned delays between activities directly aiming at target beneficiaries and make sure that agreed timetables for implementing the planned follow-up measures are respected.
- Design and implement institutional capacity measures on the back of a combined need and SWOT analysis of the respective national partner organisation in order to make sure that capacity building corresponds to the needs and the

responsibilities of the partner organisation, and agree on a plan on post-training follow-up measures.

- Explore all opportunities for enhancing the already existing JP inter-agency synergies.

Sustainability and possibility for replication

Technology transfer, institutional capacity building and improvement of the current skills can ensure the sustainability of results and skills. An evaluator considered the following practices to be beneficial for replication: Firstly, the basis of the JP strategic approach to existing experiences and comprehensive partnership methodology should address employment challenges. Secondly, local government and agencies were strengthened through capacity building. Due to the social and environmental impacts of extractive industries, local government, along with law enforcement and justice systems, were important in encouraging collaboration between public services and the private sector; state authority and citizens; and community participation and NGOs. Thus, the JP was aligned with government policy on local content and employment.

Supplementary resources

- Sustainable Development Goals Fund. [n.d.]. *More and better jobs in Cabo Delgado province and Nampula province - harnessing the opportunities of the new economy in Mozambique*. https://www.sdgfund.org/more-and-better-jobs-cabo-delgado-province-and-nampula-province-harnessing-opportunities-new-economy

5.2.3 Case 3: Culture, conflict and the efforts to preserve the Timbuktu Archive

Contextual setting

Target 11.4 of SDG 11 aims to “strengthen efforts to protect and safeguard the world’s cultural and natural heritage” (United Nations, 2024). This case study deals with efforts to protect and safeguard the manuscripts of Timbuktu, an important part of the cultural heritage of Mali, West Africa.

Before discussing efforts to protect culture or cultural artefacts, it would be prudent to supply a definition of culture. According to Mironenko and Sorokin (2018, p. 338), culture is “a multidimensional phenomenon that encompasses processes, products and results of human activity, material and spiritual, transmitted from generation to generation in a non-biological way”. Based on this definition, culture is a human activity, it can consist of both material and spiritual products and processes and it is transmissible over time. One way of transmitting culture is through written records, such as those found in the Timbuktu Archives. As such, it is worth protecting.

Timbuktu lies near the geographic centre of the West African country of Mali (figure 20). It has been a pivotal place for the collection, development and storing of cultural artefacts for generations, some believed to date back to the 13th century (Motsi, 2017). In 2012/2013 a significant threat to this treasure trove of historical and religious manuscripts emerged. Armed insurgents took over the city and instituted a strict form of Islamic rule. They also threatened to destroy, and in some instances actually did destroy, manuscripts housed in numerous large and small archives spread all over the city (Rasmussen, 2014).

After this period, efforts to digitise the archives were renewed with greater urgency. Due to the worldwide publicity of the importance of the archives after the insurgency and threat, funds were readily available and rapid progress was made. It is worth noting that efforts to digitise the Timbuktu archives predate the post-2013 efforts by many years, but that a newfound urgency existed after the insurgency and its impact on the archives (Motsi, 2017).

Susana Lliteras (2024), in her article “The dysfunctional copy: 'Mali Magic,' loss and the digital remake of the Timbuktu archive”, relates these efforts to ensure the sustainability of the manuscripts of Timbuktu. The evidence presented in this case study, as well as

other studies on the efforts to digitise the Timbuktu archives, was used as the basis for the discussion and analysis presented in the rest of this case study.

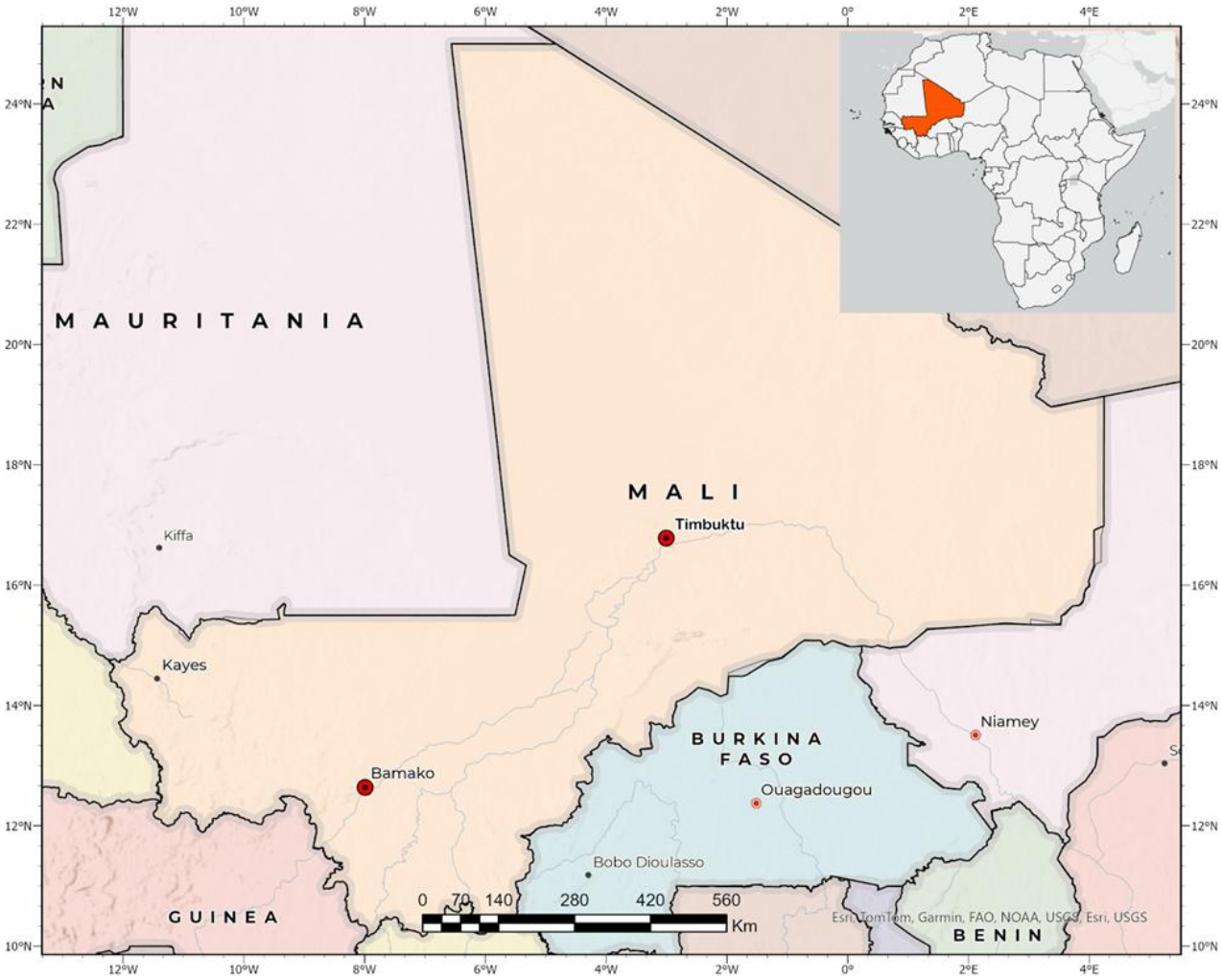

Figure 20: Location of Timbuktu in Mali (Map compiled by Dr SP Carow)

Strategy of the programme

The first efforts to preserve the Timbuktu manuscripts started before the insurgents reached the city. A significant number of manuscripts were removed from archives and transported to the capital city of Bamako. Here they were housed in secure spaces and later exhibited, making them available to a much wider audience than when they were in the much less accessible Timbuktu. Inside Timbuktu efforts to safeguard manuscripts

continued unabated during the occupation by the insurgents. Manuscripts were protected behind false walls, buried, or smuggled to areas outside of the city (Commisso, 2015).

After the insurgents were routed from the city, the drive to digitise the archives gathered momentum. Due to the vastly increased public awareness of the importance of the archives, money was made available from sources outside of Mali, making it possible to digitise large volumes of manuscripts. The result of some of these efforts was aired in 2022 by Google Arts and Culture as part of their digital collections. It was named, "*Mali Magic: The great legacy of Mali and the people's quest to preserve it*" (Lliteras, 2024, p. 44). Ironically, the threat posed by the insurgents caused this urgency to digitalise the manuscripts and the influx of money to preserve the archives, the diametrical opposite of the intention of the insurgents.

Results and impact of the programme

The first and most important impact of the programme of digitisation was the preservation of large portions of the historical record housed in the archives of Timbuktu. In that sense the programme was a huge success. The digitised content also introduced the Timbuktu archives to a varied global audience, something not possible prior to digitisation. The moving of manuscripts from Timbuktu to Bamako where they were secured and made accessible for viewing and research is another positive impact of the drive to protect and preserve the manuscripts.

Challenges experienced

Despite the successes of the efforts to protect the Timbuktu manuscripts, some challenges were highlighted by authors commenting on the various programmes. Lliteras (2024) identifies some of these. According to her, the title of the Google project, "Mali Magic", evokes images of witchcraft, myth and the supernatural, all contentious issues in African studies, thus emphasising certain narratives, while suppressing others. This may lead to a misunderstanding of the full significance of the manuscript libraries.

A second challenge is that the digital Google archive is not searchable, a major disadvantage to scholars. The lack of standardisation in the way digitising is done constitutes a third challenge (Lliteras, 2024).

A last challenge she highlights is the question of ownership of digitised material. Digitising unique documents and making them available to a wider audience, while ensuring preservation and sustainability, also raises issues of ownership and loss of income. Many of the manuscripts of Timbuktu are housed in family archives. This allows owners to negotiate for compensation when allowing access to the manuscripts. Digitisation may take away the necessity of travelling to Timbuktu and negatively impact a possible source of income for owners of archives (Lliteras, 2024).

Physical damage to valuable cultural artefacts is another challenge that can be experienced during digitisation. This is especially true when working with a small budget, or inexperienced staff (Watteeuw et al., 2019). Many of the challenges highlighted above are also identified by other researchers, with some stressing the need for guidelines to regulate the digitisation of cultural heritage (Zaagsma, 2023).

Lessons learnt

Digitising archival content is a valuable tool in the protection and safeguarding of cultural artefacts. The digital content can be stored securely in multiple locations, ensuring its sustainability, even when the original is damaged or destroyed.

A provision in the digitisation process is that it must be done with caution. A thorough investigation of all aspects concerning the content to be digitised should be carried out. This must ensure that the content is digitised in the best available way, considering all the nuances of cultural associations with the content.

During the digitisation process, all care should be taken not to damage the material that is digitised, and to adhere to all cultural and religious traditions in the handling of the material. The best way to ensure this is to involve the owners and local experts in all aspects of the process.

The digitised content should be approved by the owners and local experts before releasing it to the public. This should ensure that misinterpretation of the digitised content is prevented as far as possible. Issues of ownership and commercialisation of the digitised content should also be clearly identified before release.

A last lesson learnt is that digitised content should preferably be searchable and easily accessible, also to interested parties in the Global South.

Sustainability and possibility for replication

The digitisation of cultural objects is a highly sustainable practice that can be replicated anywhere. In its most simple form, it is available to anyone with a cellphone. As such, it is a powerful tool to help with reaching target 11.4, provided that the pitfalls and challenges highlighted above are considered.

Supplementary resources

- Lliteras, S. M. (2024). The dysfunctional copy: “Mali Magic,” loss and the digital remake of the Timbuktu archive. *Social Dynamics*, *50*(1), 43-59, doi: 10.1080/02533952.2024.2320551.
- Mironenko, I. A., & Sorokin, P. S. (2018). Seeking for the definition of “culture”: Current concerns and their implications. A comment on Gustav Jahoda’s article “Critical reflections on some recent definitions of 'culture’”. *Integrative Psychological and Behavioral Science, 52*, 331–340. https://doi.org/10.1007/s12124-018-9425-y
- Rasmussen, V. (2014). The manuscripts of Timbuktu: Armed conflict and the preservation of memory. Degree of Master of Library and Information Science. University of Hawai’i at Manoa, Hawai’i.

5.3 Europe

5.3.1 Case 1 - Climate action and sustainable development, Cascais, Portugal

Political and socio-economic context

Anthropogenic climate change, driven primarily by human activities, poses a significant global environmental challenge in the 21st century. Although its impacts are expected in the medium and long term, there are already observable changes in various socio-economic sectors and ecosystems. These changes are largely due to greenhouse gas emissions from human activities, particularly carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Among these, CO_2 has the greatest radiative impact and is caused mainly by the burning of fossil fuels and deforestation.

In Europe, the average temperature increased by 1.2 ºC from pre-industrial times (around 1870) to 2007, exceeding the global temperature rise of 0.8 ºC over the same period. In mainland Portugal, it should be noted that within the ten-year period (1976 to 2006) alone the temperatures rose by approximately 0.5 ºC. This increase was accompanied by changes in precipitation patterns, with some regions experiencing reduced rainfall and others more frequent extreme weather events, such as heatwaves and droughts. The sea-level rise, driven by thermal expansion and ice melt, was another significant consequence, rising by approximately 15 cm in mainland Portugal during the 20th century. If the 0.5 ºC increase experienced during 1976 to 2006 is maintained into the future, the consequences will be extreme over a shorter period of time

Looking ahead, climate models predict that these trends will worsen, with increasing temperatures, reduced rainfall, more frequent extreme weather events and rising sea levels.

Cascais' actions for sustainable development (SDG 11)

Cascais has made substantial efforts to mitigate the effects of climate change and promote sustainable development through various initiatives. The town has reduced its

energy consumption with a strong focus on renewable energy and resource efficiency. According to the Carbon Disclosure Project (CDP), Cascais is one of the four Portuguese cities ranked among the top 100 most energy-sustainable cities globally. The town sources 73% of its energy from renewables, with 52% from wind power and 13% from hydroelectric energy.

In line with the United Nations SDGs, particularly Goal 7 (affordable and clean energy), Cascais has focused on reducing greenhouse gas emissions and energy consumption. The MobiCascais mobility project, which encourages the use of public transportation, has played a significant role in lowering the carbon footprint. Other initiatives include decarbonising the municipal fleet, increasing the efficiency of urban cleaning, reducing water consumption in green spaces and cleaning operations, and forest fire prevention. Cascais aims to guarantee universal access to reliable and affordable energy, promote investment in clean energy technologies and improve energy efficiency by 2030.

In support of these efforts, Cascais has launched Portugal's first municipal Green Fund, which provides financial assistance to families to implement energy efficiency and transition measures in their buildings. The fund offers €3 million to support energy transition efforts, making the process accessible to lower-income families through an early transfer model. The fund covers a wide range of energy-efficient improvements, including better insulation, renewable energy heating systems and high-efficiency windows.

Results and impacts of the programme

Cascais' commitment to sustainability has been recognised with the Green Destination Platinum 2024 Award, which highlights the city's sustainable tourism efforts. Cascais' progress toward this recognition reflects its adherence to strict ethical guidelines in tourism management, with a focus on environmental, cultural and social sustainability.

Cascais has also made significant strides in mobility and transport, with improvements in cycle lanes, pedestrian crossings and accessible public transport. From 2021 to 2023, the municipality achieved a high success rate in mobility projects, contributing to the reduction of inequalities (SDG 10) and promoting sustainable cities (SDG 11). The

municipality's public transport system has expanded, with nearly 100% of Carcavelos and Parede's territory accessible by public transport.

The city is also conducting an impact study based on climate scenarios to understand how climate change will affect the local population and tourism. Projections suggest that Cascais will become more attractive in terms of its climate, benefiting from its coastal location compared to hotter inland areas. This could lead to increased national tourism and demand for second homes, as well as growth in the agricultural sector due to favourable climate conditions.

Sustainability and possibility for replication

Cascais' comprehensive actions and results in addressing climate change and promoting sustainable development offer a valuable model for replication in other cities. By adopting a multifaceted approach that integrates renewable energy, sustainable mobility, green spaces and climate resilience, Cascais showcases how municipalities can contribute to global sustainability efforts while addressing local challenges.

The city's focus on renewable energy, such as implementing solar panels on public buildings and encouraging energy-efficient practices, significantly reduces reliance on fossil fuels. These efforts align with SDG 7 (affordable and clean energy) and SDG 13 (climate action), offering a clear pathway for other cities to reduce their carbon footprints. The replication of these renewable energy strategies, combined with energy efficiency programmes, can support other cities in their transition towards cleaner, more sustainable energy systems.

Cascais' commitment to sustainable mobility is another key aspect of its approach. By prioritising electric vehicles, expanding public transportation options and improving pedestrian infrastructure, the city has created a transportation system that reduces congestion and pollution. This model could be replicated in cities with high levels of car dependency, promoting cleaner and more efficient alternatives. Moreover, cities could adapt Cascais' use of smart technology to optimise traffic flow and enhance public transport efficiency.

The creation of green spaces throughout the city not only promotes environmental sustainability, but also contributes to the health and well-being of the community. By investing in parks, tree planting and sustainable urban planning, Cascais has enhanced the resilience of its urban environment. Other cities could replicate this by integrating green spaces into urban planning to mitigate the effects of climate change, improve air quality and provide recreational areas for residents.

Finally, Cascais' climate resilience initiatives, which focus on both mitigating environmental impacts and preparing for future climate-related challenges, provide a framework for cities to enhance their adaptive capacity. Through the implementation of climate action plans, urban greening projects and disaster preparedness strategies, Cascais has demonstrated how cities can not only reduce their environmental impact, but also become more resilient to the impacts of climate change.

Links with SDG 11 targets and indicators

Cascais' actions towards sustainability and urban development strongly align with the objectives of SDG 11. The city's integrated approach to sustainable urban planning, climate resilience and accessibility highlights its commitment to creating a better urban environment that can serve as a model for other cities.

- **Target 11.1 (ensure access to adequate, safe and affordable housing and basic services):** Cascais has prioritised affordable housing and access to essential services, such as clean water, sanitation and public transportation, within its urban planning strategies. The city's efforts to integrate green spaces and renewable energy solutions into urban infrastructure contribute to creating safe, resilient and inclusive living conditions. These actions align with indicator 11.1.1, which tracks the proportion of urban populations living in slums or inadequate housing.
- **Target 11.3 (enhance inclusive and sustainable urbanisation):** The city's emphasis on participatory urban planning, particularly in the context of its Climate Action Plan and the 2030 Agenda for Sustainable Development, exemplifies its commitment to sustainable and inclusive urban growth. By engaging citizens and

stakeholders in the planning process, Cascais ensures that its growth is managed in a way that balances economic, social and environmental considerations. This approach directly supports indicator 11.3.2, which tracks the proportion of cities with a direct participation structure in the urban planning process.

- **Target 11.6 (reduce the adverse per capita environmental impact of cities):** Cascais has integrated environmental sustainability into its urban policies by focusing on reducing waste and improving air quality through sustainable mobility solutions and renewable energy initiatives. The city's efforts to reduce emissions from transportation and improve waste management practices align with indicator 11.6.2, which tracks the annual mean levels of particulate matter (PM2.5) in urban areas, contributing to cleaner, healthier urban environments.

In these ways, Cascais' commitment to sustainable urban development directly supports the achievement of SDG 11, ensuring that the city remains a model for inclusive, resilient and environmentally sustainable urban living.

5.3.2 Case 2 - Sustainable urban development and mobility, Copenhagen, Denmark

Political and socio-economic context

Denmark's Climate Act aims for national climate neutrality by 2045. Municipalities, including Copenhagen, have developed climate action plans aligned with the C40 Climate Action Planning Framework (CAPF). These plans, which include initiatives in urban development, energy efficiency, transport and social housing, are crucial in achieving the country's target of a 76% reduction in emissions by 2030 compared to 1990 levels. In terms of mobility, Copenhagen has made remarkable strides towards sustainable transport, with bicycles constituting 41% of work and study-related trips as of 2022, aiming for 50% by 2025.

The city continues to enhance its cycling infrastructure, spending 100 million Danish krone on cycling initiatives, including the development of cycle superlanes and pedestrian/cycle bridges across the harbour. To reach the 50% target by 2025, Copenhagen estimates an annual funding need of up to 260 million Danish krone. Copenhagen's commitment to sustainability is also evident in its Respecting Community plan, which focuses on creating sustainable social housing, improving urban spaces and engaging citizens in the city's development.

Copenhagen's actions for sustainable development (SDG 11)

Copenhagen has embraced several initiatives to achieve the targets outlined in the City of Copenhagen's Action Plan for SDG 11:

- **Sustainable mobility and cycling:** The city boasts over 390 km of dedicated cycling lanes, making it the Bicycle Capital of the World. Aiming for 50% of trips by bicycle by 2025, Copenhagen has invested heavily in infrastructure, including cycling superlanes and bike-friendly bridges, promoting healthier lifestyles while reducing carbon emissions.
- **People-centred urban design:** Copenhagen transformed its main boulevard, Strøget, into a pedestrian zone in 1962. This shift has resulted in increased pedestrian traffic and contributed to a more vibrant urban life. The city continues to prioritise people-focused design, increasing pedestrian zones and urban spaces for community interactions.
- **Innovative public spaces:** Copenhagen has revitalised waterfront areas like the Copenhagen Harbour Bath and Kalvebod Waves, offering citizens and tourists spaces for recreation and social interaction. These transformations are integral to enhancing the city's liveability and community cohesion.
- **Carbon neutrality and energy innovation:** With a 74% reduction in CO_2 emissions since 2005, Copenhagen is working towards becoming a carbon-neutral city by 2035. Projects like CopenHill, a waste-to-energy plant with a ski slope on its roof, showcase Copenhagen's innovative approach to sustainability and clean energy.

- **Developing sustainable neighbourhoods:** The Nordhavn district exemplifies Copenhagen's vision for sustainable urban development. This former industrial area has been transformed into a 'five-minute city' where residents can access essential services within walking or cycling distance. The district integrates green spaces, sustainable buildings and active mobility, although challenges like affordability and transport infrastructure remain.

In short, Copenhagen has implemented urban and mobility planning that prioritises the well-being of its inhabitants and sustainability. Through safe cycling infrastructure, people-centred urban design, revitalised public spaces and a strong commitment to carbon neutrality, the city has positioned itself as a global benchmark for sustainable urban development.

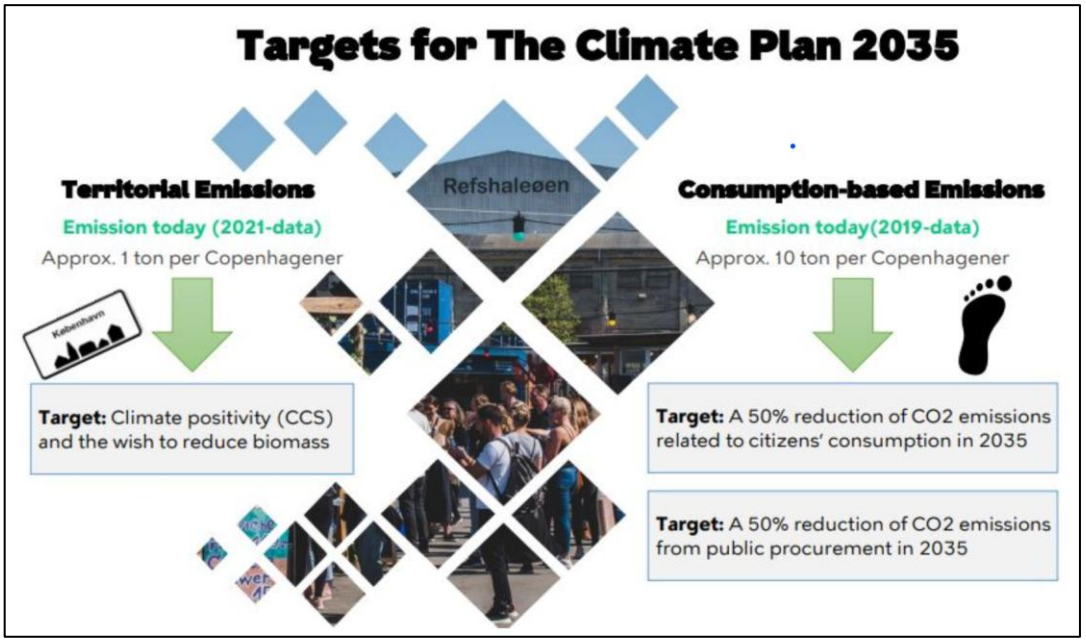

Figure 21: Targets for the Climate Plan 2035

Source: Futura Mobility (2024a)

Results and impacts of the programme

The application of economist Kate Raworth's donut model of sustainable development offers an integrated perspective on ecological and social dimensions. A study by Futura

Mobility in collaboration with Junior Consulting Louvain analysed the mobility sector's impact on planetary boundaries and social well-being, revealing the significant effects of transport on climate change, biodiversity, air pollution and human health. Key findings highlight the interdependencies between ecological and social dimensions, pointing to the importance of sustainable mobility strategies in mitigating environmental damage and promoting social equity.

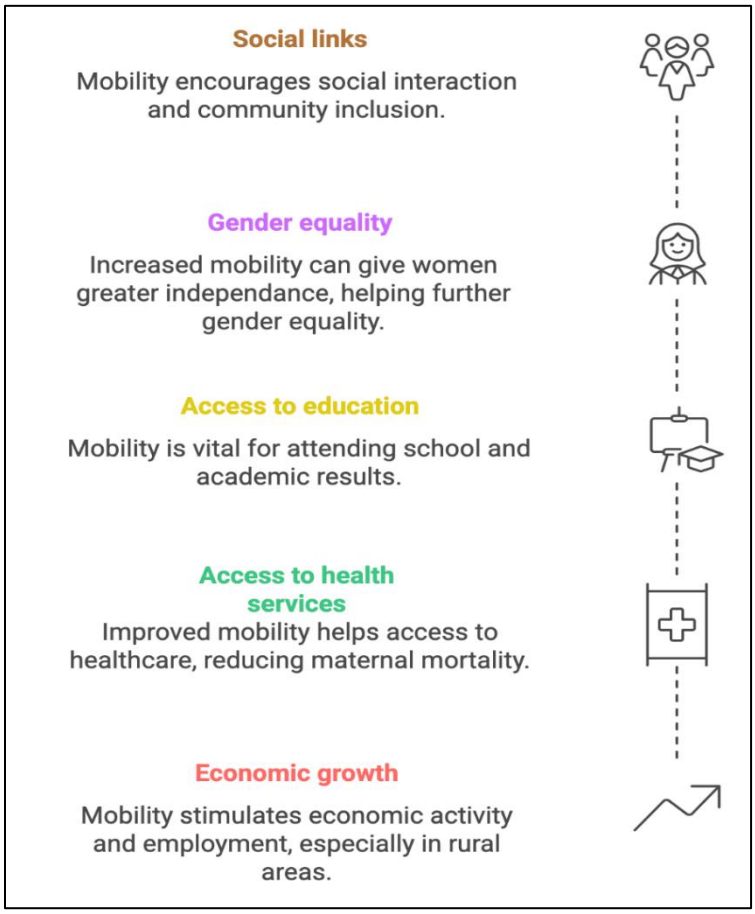

Figure 22: Improving societal well-being through mobility

Source: Futura Mobility (2024b)

Sustainability and possibility for replication

Copenhagen's model of sustainable urban development, which places a high priority on citizen engagement and green technologies, offers valuable lessons for other cities

worldwide. Key to this model is investment in education and the transition to fossil-fuel-free industries. The Holmene project, which will create an archipelago of islands focused on energy, green technology and biodiversity, is a prime example of innovative urban expansion. This project, aimed at protecting the coastline and enhancing the city's resilience to climate change, underscores the potential for sustainable development that combines environmental, social and economic considerations.

Links with SDG 11 targets and indicators

Copenhagen's efforts towards achieving sustainable urban development align closely with several targets and indicators of SDG 11. The city's initiatives in urban planning, climate resilience and sustainable mobility are directly linked to SDG 11's core targets.

- **Target 11.4 (strengthen efforts to protect and safeguard the world's cultural and natural heritage):** The city of Copenhagen is dedicated to preserving its cultural and natural heritage through initiatives like revitalising public spaces. The transformation of the waterfront into a recreational area, the development of urban parks and the protection of green spaces all contribute to safeguarding the city's environmental and cultural assets. These actions enhance the quality of life for citizens while preserving the natural and cultural landscapes for future generations.
- **Target 11.6 (reduce the adverse per capita environmental impact of cities):** Copenhagen is actively working to reduce the environmental impact of urban living, focusing on measures to decrease air pollution, enhance waste management and promote green urban environments. The city has made significant strides in reducing CO_2 emissions, with a 74% reduction from 2005 to 2024, and continues its efforts to achieve full carbon neutrality by 2035. Additionally, sustainable mobility measures, such as the expansion of cycling infrastructure and efforts to reduce car use, help mitigate the adverse environmental impact associated with urban transportation.
- **Target 11.7 (provide universal access to safe, inclusive and accessible green and public spaces):** Copenhagen is committed to creating accessible and inclusive public spaces for all residents. Through the redesign of urban areas, such as the creation of green public spaces and recreational facilities like the Copenhagen Harbour Bath, the city ensures that its citizens, including vulnerable groups, can enjoy

outdoor activities in a safe and inclusive environment. This is aligned with SDG 11.7, aiming to provide universal access to green spaces and promote social integration through shared public areas.

By aligning its initiatives with these SDG 11 targets, Copenhagen is not only contributing to the global sustainability agenda, but also setting an example of how urban planning and climate resilience can enhance the quality of life for residents while addressing environmental challenges.

5.3.3 Case 3 - Supermanzanas, Barcelona, Spain

Political and socio-economic context

Barcelona has gained international recognition for its sustainability management, earning the European Union's Mission label. This prestigious label is awarded to 23 cities recognised for their commitment to decarbonisation and achieving climate neutrality. As part of this initiative, Barcelona is working towards net-zero emissions by 2030. Receiving the Mission label also allows the city to access funding from the European Union, which is managed by the European Commission and the European Investment Bank. A €19,000,000 fund is allocated among the Mission cities to support local energy services and joint initiatives.

Geographically, Barcelona is uniquely situated between the Litoral mountain range, the Mediterranean Sea, the Besòs River and Montjuïc. This coastal city has a high population density, with 1.6 million inhabitants spread across 101.3 km², making it one of the most densely populated cities in Europe. Its metropolitan area, which houses over 3.2 million people, underscores its economic and demographic significance.

The city is characterised by its Mediterranean climate, which, alongside its location, has shaped its identity as both a tourist destination and a hub for global trade, particularly through its prominent port, one of the busiest in Europe. Over the past century, Barcelona has transitioned from an industrial economy to a service-oriented one, with tourism

playing a central role. This transformation has seen visitor numbers double in the last decade, positioning Barcelona as an economic powerhouse not only within its metropolitan area, but also throughout Catalonia.

Barcelona's actions for sustainable development (SDG 11)

In line with the City Council's Climate Action Plan 2030, several actions have been initiated to align with SDG 11, focusing on transforming Barcelona into a more sustainable, resilient and liveable city:

- **Urban transformation with a climate focus:** The transformation of urban spaces is a core initiative under Barcelona's SDG 11 framework. The Supermanzanas (Superblocks) project plays a crucial role in this transformation. It aims to enhance environmental and public health conditions by reducing private vehicle use and reclaiming space for social and community purposes. The urban design, which includes both public space and building infrastructure, is vital in reducing greenhouse gas emissions and adapting to climate change. This approach requires the implementation of comprehensive structural measures to make a lasting impact on the urban environment.

Figure 23: Urban transformation

Source: Ajuntament de Barcelona (n.d.)

- **Increasing green spaces:** The goal of this initiative is to expand the city's green areas by 1.6 km² while preserving species vulnerable to climate change. Measures have been implemented to conserve biodiversity, but they are still considered insufficient due to rising temperatures and humidity changes. These variations can negatively impact insect populations and increase the risk of vector-borne diseases, such as dengue, Zika and yellow fever. Barcelona is home to several species particularly vulnerable to climate change, including amphibians, butterflies, bats and birds. These species are prioritised for conservation to ensure ecological balance.

- **Water conservation and management:** Under the Ni una gota perdida (Not a Drop Lost) initiative, Barcelona seeks to reduce the use of drinking water by replacing it with alternative sources such as rainwater, groundwater and regenerated water. Additionally, the city promotes the infiltration of water into the subsoil to enhance permeability and reduce flood risks. Barcelona's sewer system covers 25% of its surface area with a saturated network, posing risks during heavy rainfall. Therefore, improving sustainable urban drainage systems, implementing cisterns and expanding permeable green spaces are key actions to mitigate urban flooding.

- **Renewable energy in public spaces:** The Energías renovables en el espacio público (Renewable Energy in Public Spaces) initiative focuses on incorporating solar energy generation in urban spaces. This includes the installation of solar panels on pergolas, dividing walls and even pavements. The Solar Energy Promotion Programme in Barcelona encourages both public and private investment to install solar generation systems across the city. Notable projects include energy-generating pergolas and converting existing structures into energy-producing elements.

- **Sustainable mobility:** The Movámonos bien (Let's Move Well) action aims to reduce reliance on private motorised vehicles and promote sustainable mobility options. The priority is to offer more public transportation options and integrate alternative means of mobility such as car-sharing services. By reducing car usage, the city reclaims

public space for pedestrians, greenery and better stormwater drainage. These changes not only promote a healthier urban environment, but also enhance the overall quality of life by increasing the availability of safe, walkable public spaces.

- **Protecting the coastline and rivers:** This initiative focuses on preserving the ecosystem services provided by Barcelona's coastline and rivers. The oceans play a crucial role in mitigating climate change by sequestering more than a quarter of global CO_2 emissions. However, increased greenhouse gas emissions threaten this vital system's effectiveness. Barcelona's coastline also provides critical services such as climate regulation, infrastructure protection and recreational spaces. To maintain the integrity of these ecosystems, the city has implemented several projects, including the transfer of sand from marina structures to beaches and annual dredging at the mouth of the Olympic Port to maintain beach stability.

These actions collectively represent Barcelona's commitment to enhancing its urban resilience, promoting sustainable development and ensuring that its growth is in harmony with the principles of SDG 11.

Results and impacts of the programme

The Supermanzanas project has transformed public spaces in Barcelona considerably, leading to the reduction of private vehicle use and a notable decrease in greenhouse gas emissions. This initiative has not only enhanced the environmental quality of the city, but has also increased the availability of green spaces, directly improving public health and well-being. The redesign of the streets has prioritised accessibility and safety, with spaces that foster social cohesion, particularly those with recreational facilities for children and fitness areas for the elderly. Furthermore, urban beaches have been incorporated, providing residents with cooling areas. These transformations have required modifications to the city's General Metropolitan Plan, ensuring that the city's layout supports sustainable and climate-resilient urban development.

Barcelona's biodiversity efforts are also notable. Through initiatives such as the Tree Master Plan, the city is working towards a 5% increase in tree cover by 2037, focusing on species selection that adapts to the urban ecosystem and climate. The city has

implemented urban biodiversity measures, ensuring the preservation of species vulnerable to climate change, such as amphibians, butterflies and bats. However, the challenges posed by rising temperatures and changing humidity levels continue to affect the city's ecosystems, necessitating continued surveillance and intervention.

The city's commitment to renewable energy in public spaces is evidenced by the installation of energy-generating pergolas. Since 2016, these structures have been dispersed throughout the city, providing sustainable energy while enhancing public spaces. The city's ongoing efforts to expand these installations are part of a broader strategy to reduce dependence on non-renewable energy sources, further embedding sustainability into urban infrastructure.

Coastal and river protection is another significant focus. Barcelona's coastline plays a crucial role in mitigating climate change by sequestering CO_2. To maintain and enhance this function, the city has implemented measures to ensure sediment balance on its beaches, safeguarding the ecosystem and supporting the resilience of the city's natural defences. Regular dredging activities ensure that beaches like Somorrostro and Barceloneta retain the necessary sand to maintain their environmental and protective roles.

Sustainability and possibility for replication

Barcelona's approach to sustainable urban development, particularly through the Supermanzanas project, offers a promising model for replication in other cities worldwide. The project prioritises sustainable mobility, green space expansion and climate adaptation, creating a more liveable and resilient urban environment. By reducing vehicle emissions, enhancing public spaces and improving air quality, Barcelona's model demonstrates how cities can integrate sustainability into their infrastructure and urban planning. The success of this initiative showcases the potential for other cities to replicate similar strategies to address urban congestion, environmental degradation and climate change while fostering a better quality of life for their residents.

Links with SDG 11 targets and indicators

Barcelona's urban initiatives align closely with several targets and indicators of SDG 11. The city's emphasis on sustainable mobility, green space development and climate resilience are in direct support of SDG 11's key targets.

- **Target 11.1 (ensure access to adequate, safe and affordable housing and basic services):** Barcelona's Supermanzanas project is reshaping urban spaces to improve public services and access to safe, affordable spaces. The project contributes to the creation of more sustainable and equitable public spaces, prioritising pedestrians and cyclists, which is essential in creating urban environments that support diverse populations. This focus on accessibility directly supports the achievement of target 11.1 by making urban life more inclusive.
- **Target 11.3 (enhance inclusive and sustainable urbanisation):** The Supermanzanas project exemplifies Barcelona's commitment to participatory urban planning. The model integrates sustainability into the city's design by creating pedestrian-friendly zones, reducing car dependency and enhancing public transportation. These efforts reflect the city's broader vision for sustainable and integrated urban growth, encouraging citizens to be actively involved in the planning process.
- **Target 11.6 (reduce the adverse per capita environmental impact of cities):** Barcelona's initiatives are contributing directly to the reduction of environmental impacts in urban settings. By limiting car use, expanding green spaces and improving waste management, the city has made significant strides in reducing air pollution and carbon emissions. The Supermanzanas project is a key element of this effort, significantly lowering greenhouse gas emissions and improving the city's environmental quality, supporting target 11.6.

By aligning with these SDG 11 targets, Barcelona is setting a standard for cities worldwide, demonstrating how integrated, sustainable urban development can improve both environmental outcomes and quality of life for urban residents.

Examples of assessment questions

Case studies and best practices

- List some good practices that target the implementation of SDG 11.
- What could be your own contribution to SDG 11?
- Select a case study in your country that reflects a best practice in terms of achieving the SDG 11 targets. Briefly explain this case study and explore how the best practice can contribute towards achieving the goal.

Sources consulted

Ajuntament de Barcelona. [n.d.]. *Supermanzanas en Eixample*. https://ajuntament.barcelona.cat/superilles/es/superilla/eixample

Ajuntament de Barcelona. (2025a). *Plan de acción por la emergencia climática 2030*. https://bcnroc.ajuntament.barcelona.cat/jspui/bitstream/11703/123711/1/Plan_accion_emergencia_climatica_2030_esp.pdf [Accessed 20 February 2025].

Ajuntament de Barcelona. (2025b). *Superislas tienen efectos positivos para la salud y el bienestar*. https://www.barcelona.cat/infobarcelona/es/tema/urbanismo-e-infraestructuras/las-superislas-tienen-efectos-positivos-para-la-salud-y-el-bienestar_1097262.html [Accessed 23 February 2025].

C40 Knowledge. [n.d.]. *Climate action planning framework*. https://www.c40knowledgehub.org/s/guide-home?language=en_US&guideId=a3t1Q0000007IEWQAY

C40 Knowledge. (2020). *Climate action planning guide*. https://www.c40knowledgehub.org/s/article/Climate-Action-Planning-Framework?language=en_US [Accessed 21 February 2020].

Câmara Cascais. [n.d.(a)]. *Agenda 2030.* https://www.cascais.pt/cascais2030

Câmara Cascais. [n.d.(b)]. *Plano Estratégico de Cascais face às Alterações Climáticas: Brochura Institucional.* ag21_plano_estrategico_cc_alteracoes_climaticas.pdf

Cascais. (2024). *Cascais and the 2030 Agenda for Sustainable Development: Voluntary local review of progress towards the Sustainable Development Goals in Cascais*. https://www.cascais.pt/sites/default/files/anexos/gerais/new/2024_comunicacao_agenda_2030_ods_doc_en.cleaned_1.pdf [Accessed 11 February 2025].

Cascais. (2025). *Cascais 2030: Objetivo Desenvolvimento Sustentável*. https://gold.uclg.org/sites/default/files/field-document/cascais_2020.pdf [Accessed 10 February 2025].

CDP. (2021). *Cities on the road to 2030: Creating a resilient, zero-emission planet for everyone*. https://cdn.cdp.net/cdp-production/cms/reports/documents/000/005/826/original/BBG_SP_V2.pdf [Accessed 21 February 2021].

City of Copenhagen. (2022). *The city of Copenhagen's action plan for the sustainable development goals.* https://international.kk.dk/sites/default/files/2022-01/Verdensma%CC%8Al_UK_WEB_FIN.pdf

Commisso, C. (2015). The literary refugees of Timbuktu: How a group of unlikely allies thwarted Al Qaeda and organized one of the most brazen cultural heritage evacuations ever attempted. *Preservation, Digital Technology & Culture, 44*(2), 69-77. doi: 10.1515/pdtc-2015-0012.

Connected Smart Cities. (2024). *São Paulo conquista terceira posição entre as cidades mais inteligentes e conectadas do país*. https://portal.connectedsmartcities.com.br/2024/09/03/sao-paulo-conquista-terceira-posicao-entre-as-cidades-mais-inteligentes-e-conectadas-do-pais-3/ [Accessed 28 January 2025].

Department of Cooperative Governance, RSA. (2021). *A South African Smart Cities Framework: A decision-making framework to guide the development of smart cities in South Africa*. https://www.cogta.gov.za/cgta_2016/wp-content/uploads/2023/01/Annexure-A-DCoG_Smart-Cities-Framework.pdf

Du Toit, B. R. & Stimie, J. E. (2023). Towards smart cities in South Africa: Evolution, definitions, and future cities. *South African Journal of Industrial Engineering*, *34*(1), 85-96. http://dx.doi.org//10.7166/34-1-2839

European Commission. (2025a). *GrowSmarter site Barcelona*. https://smart-cities-marketplace.ec.europa.eu/projects-and-sites/projects/growsmarter/growsmarter-site-barcelona [Accessed 1 March 2025].

European Commission. (2025b). *Smart Cities Projects: Eultimate demo site Barcelona.* https://smart-cities-marketplace.ec.europa.eu/projects-and-sites/projects/eultimate/eultimate-demo-site-barcelona#details [Accessed 20 February 2025].

Fataar, R. (2020). Unpacking smart city development in Cape Town and Johannesburg. In *Smart Cities Network (2020) Smart Cities Paper Series: Smart Governance in South African Cities*, 29-36. https://www.sacities.net/publication/smart-cities-paper-series/

Futura Mobility. (2024a). *Futura mobility Copenhagen*. https://futuramobility-org.translate.goog/en/%F0%9F%93%8C-in-copenhagen-the-well-being-of-residents-and-sustainability-guide-mobility-and-urban-planning/?_x_tr_sl=en&_x_tr_tl=es&_x_tr_hl=es&_x_tr_pto=rq:~:text=Renowned%20for%20its%20quality%20of,%2C%20and%20energy%2Defficient%20buildings [Accessed 23 February 2024].

Futura Mobility. (2024b). *The impact of mobility on the donut model*. https://futuramobility.org/en/%f0%9f%8d%a9-the-impact-of-mobility-on-kate-raworths-donut-model/ [Accessed 22 February 2024].

Lliteras, S. M. (2024). The dysfunctional copy: “Mali Magic,” loss and the digital remake of the Timbuktu archive. *Social Dynamics,* *50*(1), 43-59, doi: 10.1080/02533952.2024.2320551

Mironenko, I. A., & Sorokin, P. S. 2018. Seeking for the definition of “culture”: Current concerns and their implications. A comment on Gustav Jahoda’s article “Critical

reflections on some recent definitions of 'culture'". *Integrative Psychological and Behavioral Science, 52*, 331–340. doi: 10.1007/s12124-018-9425-y.

Motsi, A. (2017). Preservation of endangered archives: A case of Timbuktu manuscripts. Degree of Master of Science in Archives and Records Management. University of Dundee, Scotland.

Neighbourhood Guidelines. [n.d.]. *Social and urban integration in Barrio Mugica*. https://www.neighbourhoodguidelines.org/social-and-urban-integration-in-barrio-mugica [Accessed 11 November 2024].

Nossas São Paulo. (2024). *Tempo de deslocamento por transporte público aumenta em São Paulo e chega a 2h47 por dia*. https://www.nossasaopaulo.org.br/2024/09/19/tempo-de-deslocamento-por-transporte-publico-aumenta-em-sao-paulo-e-chega-a-2h47-por-dia/ [Accessed 28 January 2025].

Observatory on Participatory Democracy (OIDP). [n.d.(a)]. *15th "Best Practice in Citizens' Participation" Award*. https://www.oidp.net/docs/repo/doc1221.pdf [Accessed 11 November 2024].

Observatory on Participatory Democracy (OIDP). [n.d.(b)]. *Planning and Transforming Iztapalapa*. https://oidp.net/en/practice.php?id=1370 [Accessed 11 November 2024].

OECD. (2024). *Improving housing and urban development policies in Mexico*. Organisation for Economic Co-operation and Development. https://www.oecd.org/content/dam/oecd/en/publications/reports/2024/05/improving-housing-and-urban-development-policies-in-mexico_a5e81d35/c2229c19-en.pdf [Accessed 11 November 2024].

ONU. (2022). *Report of the Secretary-General. Progress in the implementation of the New Urban Agenda (A/76/639–E/2022/10).* https://onu-habitat.org/index.php/nueva-agenda-urbana [Accessed 7 March 2022].

ONU-HABITAT. [n.d.]. *Habitat III. New Urban Agenda*. https://onu-habitat.org/index.php/nueva-agenda-urbana

Pan American Health Organization (PAHO). [n.d.]. *Utopias of Iztapalapa: Spaces for inclusion and community health in Mexico City*. https://www.paho.org/en/stories/utopias-iztapalapa-spaces-inclusion-and-community-health-mexico-city [Accessed 11 November 2024].

Prefeitura de São Paulo. [n.d.]. *PlanMob São Paulo: Plano de Mobilidade Urbana Sustentável.* https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/chamadas/planmobsp_v072 1455546429.pdf [Accessed 28 January 2025].

Rasmussen, V. 2014. The manuscripts of Timbuktu: Armed conflict and the preservation of memory. Degree of Master of Library and Information Science. University of Hawai'i at Manoa, Hawai'i.

Sustainable Development Goals Fund. [n.d.]. *More and better jobs in Cabo Delgado province and Nampula province - harnessing the opportunities of the new economy in Mozambique*. https://www.sdgfund.org/more-and-better-jobs-cabo-delgado-province-and-nampula-province-harnessing-opportunities-new-economy

UNCT. (2014). *Guidance note on UN country team conduct and working arrangements.* United Nations Development Group. https://unsdg.un.org/sites/default/files/Approved-Guidance-Note-on-UNCT-Conduct-and-Working-Arrangements.pdf [Accessed 1 May 2025].

United Nations. (2019). *The future is now: Science for achieving sustainable development (GSDR 2019).* https://sdgs.un.org/publications/future-now-science-achieving-sustainable-development-gsdr-2019-24576

United Nations. (2024). *Sustainable Development Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable. A guide to assist national and local governments to monitor and report on SDG 11+ indicators*. https://www.local2030.org/library/60/SDG-Goal-11-Monitoring-Framework-A-guide-to-

assist-national-and-local-governments-to-monitor-and-report-on-SDG-goal-11-indicators.pdf

Urban Agenda Platform. [n.d.]. *Transforming Barrio Mugica: Reintegrating a socially excluded community*. https://www.urbanagendaplatform.org/best-practice/transforming-barrio-mugica-reintegrating-socially-excluded-community [Accessed 11 November 2024].

Watteeuw, G., Korthagen, I., Prinsen, F., & Vandermeulen, B. (2019). *Checklist for digitisation of manuscripts 2.0.* Metamorfoze Nieuws.

Wonderful Copenhagen. (2025). *Meet the locals – Community-minded travel in Copenhagen.* https://www.wonderfulcopenhagen.com/wonderful-copenhagen/international-press/international-press/meet-locals-community-minded-travel-copenhagen [Accessed 21 February 2025].

Wright, C., Primo, N., Delbridge, V. & Fortuin, K. (2022). *Cities that work: Case study. Data and research as key enablers of city outcomes: A case study of the City of Cape Town (2000 - 2022).* International Growth Centre. https://www.theigc.org/publications/data-and-research-key-enablers-city-outcomes-case-study-city-cape-town-2000-2022

Zaagsma, G. (2023). Digital history and the politics of digitization. *Digital Scholarship in the Humanities, 38*, 830–851. doi: 10.1093/llc/fqac050.

6. Exercises and assessment

Based on the SDG 11 targets and concepts, this section of the manual firstly provides a set of exercises that users (professors, lecturers and teachers) can use with their students to foster ideas, solutions and new initiatives for sustainable development. The level of detail and complexity of these exercises can be regulated according to the educational level of the students. Secondly, a set of shorter assessment questions is also included. These questions cover all the sections in this manual, and require shorter, more to the point answers. For both the exercises and the assessments, you can decide if you want to use them as provided, adapt them according to your own local contexts and needs or use them as examples and rather develop your own exercises and assessments accordingly.

6.1 Exercises

Case study analysis: Either provide students with real-world case studies (some examples are available on the Urban Sustainability Exchange website, and additional resources can be accessed in the Springer Nature website) related to SDG 11, or ask students to look for cases and bring them to class. Students can analyse these cases, identify the challenges and opportunities related to SDG 11 and propose sustainable solutions.

Group discussions and debates: You can organise group discussions and debates on various aspects of SDG 11, such as the role of resilience, innovation and technology. The discussions could include the interconnection of SDG 11 with the other Goals, and promote the analysis of different perspectives.

Guest lectures: Students can be challenged to bring guest lecturers to class, i.e. guest speakers from relevant industries, innovation agencies, or government agencies to share their experiences and insights on practical knowledge related to SDG 11.

Good practices: Choose one practice on the platform good practices (https://sustainabledevelopment.un.org/partnerships/goodpractices), present and discuss with colleagues: what are the lessons learnt and how can the good practice be replicated in other contexts? Compare and discuss the data of sustainable cities from Latin America, Africa and Europe along the years.

6.2 Assessment

1. Introduction to the SDGs

- Name the five areas of critical importance to which the 17 SDGs are linked and explain why these are referred to as the 5 Ps.
- Explain the link between the MDGs and the SDGs.
- Explain how the SDGs differ from the MDGs.

2.1 Defining SDG 11

- What are the main aspects of SDG 11?
- What is the focus of the first seven targets of SDG 11?
- What is the focus of the last three targets of SDG 11?

2.2 Significance of SDG 11

- What is the status of the progress in achieving SDG 11 by 2030?
- Explain the main characteristics of the key aspects of SDG 11: resilience and cities footprint.

2.3 Interdependencies of SDG 11

- How is SDG 11 interconnected with the other SDGs? What other Goals do you think will be most affected if SDG 11 is not achieved?
- Select any three SDGs and briefly explain how they interact with SDG 11. Use examples from your region to illustrate your explanation.

2.4 Advantages of SDG 11

- What will the main advantages be for the world if SDG 11 is achieved?
- Select any two of the targets of SDG 11 and explain the specific advantages which will result with these targets being achieved. Link these to advantages for your specific region.

2.5 Challenges in the implementation of SDG 11

- What are the difficulties in implementing SDG 11 in your country? Which are the main barriers? How can they be overcome?

3.1 Overview of global crises that have negatively impacted the achievement of SDG 11

- Name at least three global crises that affect the achievement of the SDG 11 targets.

3.2 Climate change

- How has climate change negatively impacted the progress in making cities more sustainable?

- How are these impacts perceived in your region?

3.3 COVID-19

- What are the effects of the COVID-19 pandemic on the SDG 11 targets?
- How are these effects perceived in your region?

3.4 Conflict

- Explain how conflicts negatively impact the efforts to achieve SDG 11.
- How are these impacts perceived in your region?

4.1 Progress towards the achievement of SDG 11 by 2030

- How does your current life pattern affect the achievement of the SDG 11 targets?

4.2 Regional progress in Latin America

- In your opinion, will the countries in Latin America be able to achieve the SDG 11 targets by 2030?
- What are the main obstacles to achieving SDG 11 in your region/country?

4.3 Regional progress in Africa

- In your opinion, will the countries in Africa be able to achieve the SDG 11 targets by 2030?
- What are the main obstacles to achieving SDG 11 in your region/country?

4.4 Regional progress in Europe

- In your opinion, will the countries in Europe be able to achieve the SDG 11 targets by 2030?
- What are the main obstacles to achieving SDG 11 in your region/country?

5. Case studies and best practices

- List some good practices that target the implementation of SDG 11.
- What could be your own contribution to SDG 11?

- Select a case study in your country that reflects a best practice in terms of achieving the SDG 11 targets. Briefly explain this case study and explore how the best practice can contribute towards achieving the Goal.

7. Concluding remarks

This manual was aimed at providing an introduction to the main aspects of SDG 11 – sustainable cities and communities – while also covering the impacts of various crises on achieving this Goal and the regional contexts and progress of Latin America, Africa and Europe. Case studies and good practices were included to support teaching with examples on different strategies being used worldwide and in the studied regions to support urban inclusivity, resilience, cultural and natural heritage, sustainable transport, reduced environmental impacts and policy implementation. Finally, exercises and assessment questions were suggested.

The module can be used as a whole or adapted according to your needs as teaching staff interested in applying it in your course/class. The variety of targets, challenges and resources related to sustainable cities, as well as their connection with other Goals, reinforce the importance of this module for all study areas. We recommend that you encourage students to reflect on their own perceptions and experiences on the topic and explore the role of different sectors and actors in contributing to SDG 11 and to the overall aims of the 2030 Agenda.