SDG 11 - Sustainable Cities and Communities

Make cities inclusive, safe, resilient and sustainable

Digital introduction of the Sustainable Development Goals into Higher Education Teaching

Regional aspects in implementing the SDGs from Brazil and South Africa

This project is funded by the German Academic Exchange Service
(DAAD, its acronym in English)

Line up:

1. Introduction to the SDGs
2. Definition SDG 11
   Interdependencies
   Advantages and challenges
3. Overview of global crises that have negatively impacted the achievement of SDG 11
4. Progress towards achieving SDG 11 by 2030
5. Case studies
6. Exercises
7. Final Considerations

11.1 Safe and **affordable housing**;

11.2 Affordable and **sustainable transport** systems;

11.3 Inclusive and **sustainable urbanization**;

11.4 Protect the world's cultural and natural **heritage**;

11.5 Reduce the adverse effects of **natural disasters.**

11.6 Reduce the environmental **impact of cities**;

11.7 Provide access to safe and inclusive **green and public spaces**;

11.a Strong national and regional **development planning**;

11.b Implement policies for inclusion, resource efficiency and disaster risk reduction;

11.c Support least developed **countries** in **sustainable and resilient building**.

2. Definition SDG 11

Today over 50% of the world population already live in cities & urban areas; expected to be more than 68% by 2050;

700 million people live in slums today and the number keeps rising;

The world's cities occupy just 3% of the Earth's land, but account for approx. 75% of energy consumption, 75% GHG emissions, 80% of global GDP, consume 70% of all resources, generate 70% of global waste.

2. Significance

Urban inclusivity	Natural disasters and resilience	Cultural and natural heritage
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.

2.1 Interdependencies of SDG 11



Adapted from Kabisch et al. (2019)

Advantages

- Improved quality of life

- Economic Opportunities and Development

- Enhanced Environmental Sustainability

- Resilience to Climate Change and Disasters

- Reduce urban inequalities

- Strengthened Social Cohesion and Inclusion

- Improved Mobility and Connectivity

- Advancements in Innovation and Technology.

Challenges
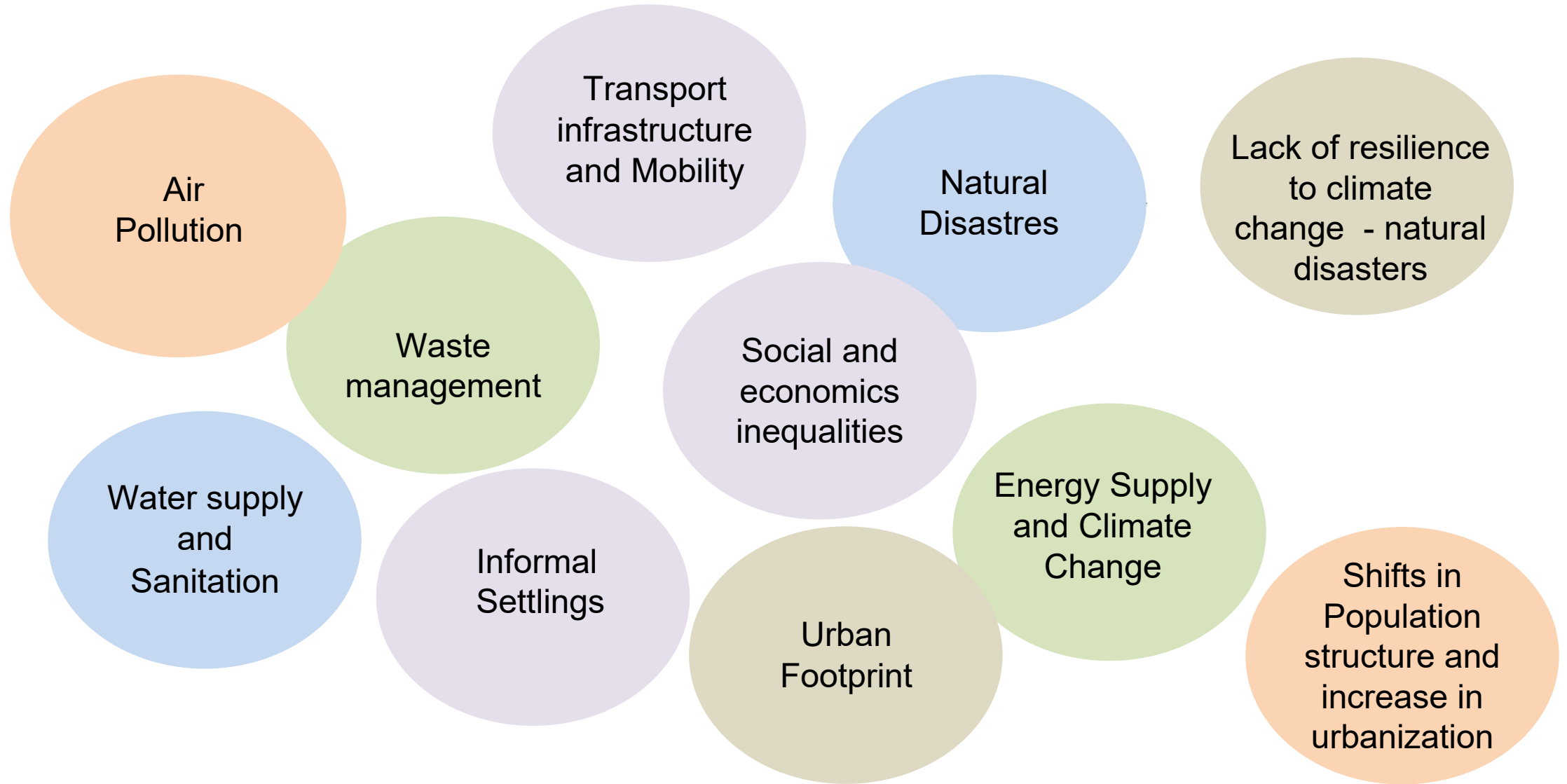
3. Overview of global crises

3.1 Climate change

3.2 COVID-19 pandemic

3.3 Conflicts

Climate change

- **Cities are the cause and the solution**

- Extreme events like floods and heatwaves disproportionately impact vulnerable populations, particularly in coastal areas and informal settlements.

- Climate change-driven migration and displacement challenge the inclusivity and sustainability of urban areas. These lead to additional pressure on housing, jobs, and social services.

55%
of the global population lives in cities.

75%
of global greenhouse gas emissions derive from cities.

70%
of cities are already dealing with the effects of climate change, and nearly all are at risk.

Climate change in Latin America

- In 2024, Southern Brazil was hit by its worst flood in over 80 years
- The floods affected nearly 2.4 million people, resulting in 183 deaths and widespread damage across 478 municipalities in the state
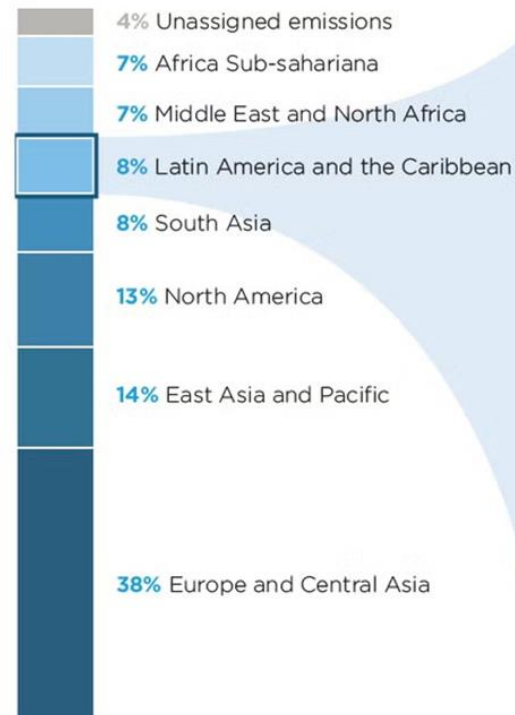- 600,000 people displaced

Climate change in Latin America
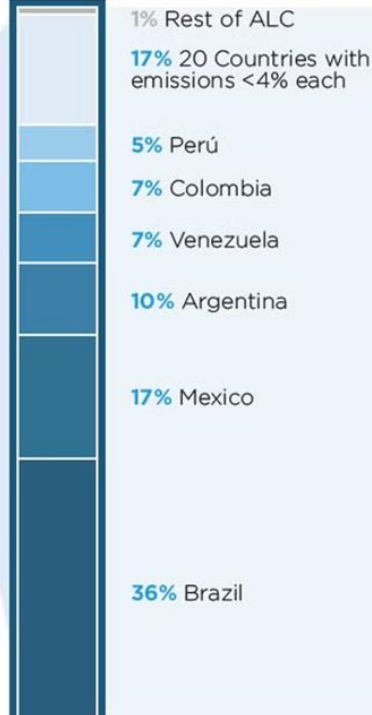

Distribution of Greenhouse Gas (GHG) emissions in 2019
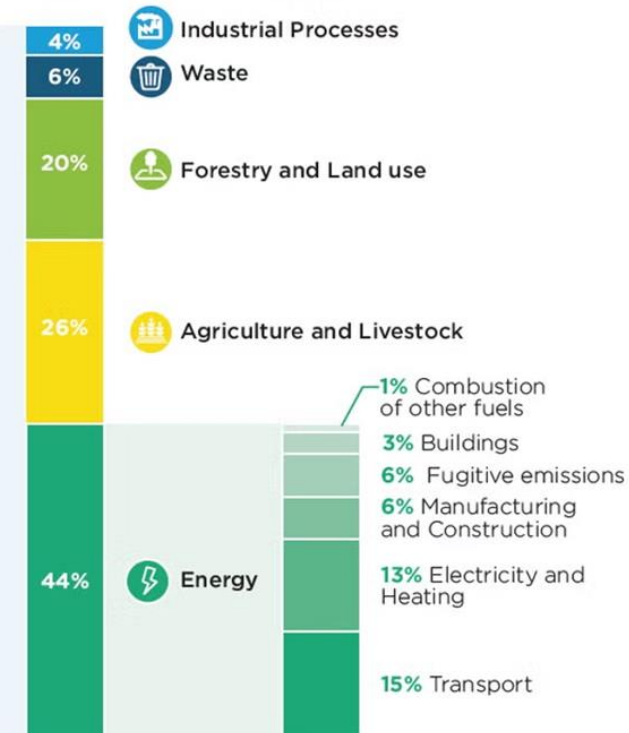
Climate change in Africa

- Floods affect both developed and developing countries, causing casualties and major social and economic losses.
- UN guidelines (2004) emphasise a shift from post-disaster response to proactive risk mitigation.
- Key measures include preparedness before, during and after disasters, resilient infrastructure, floodplain policies, land-use planning, forecasting, early warning systems and effective response mechanisms.
- Poor land-use planning and rapid urbanisation increase flood vulnerability and damage to infrastructure.
- Floods in less developed countries can reverse decades of development, destroy infrastructure and trigger health crises.
- Africa contributes least to anthropogenic climate change but is highly vulnerable to extreme climate variability.

Climate change in Africa

- The frequency and intensity of floods, droughts and heatwaves have increased over the past 50 years.
- Flooding significantly undermines social and economic development in African countries.
- Weak urban development, governance, resource allocation and service provision intensify disaster impacts.
- Limited adaptation policies and disaster response capacity hinder progress towards the SDGs, particularly SDG 11.5.
- Africa is rapidly urbanising, with urban populations projected to reach nearly 60% by 2050.
- Unmanaged urbanisation leads to inequality, overburdened infrastructure, pollution and urban sprawl.
- Extreme weather events have caused thousands of deaths and affected millions across Africa.
- Floods and droughts have reduced GDP and caused billions of dollars in annual economic losses.

Climate change in Europe

- Climate change threatens the achievement of SDG 11 in Europe, affecting cities' inclusiveness, safety, resilience and sustainability.
- Urban areas are increasingly exposed to extreme weather events, sea-level rise and changing precipitation patterns, endangering infrastructure, public health and economic stability.
- Adaptive urban planning is essential to address climate risks while supporting sustainable urban growth.
- Heatwaves are among the most significant climate impacts on European cities, with increasing frequency and intensity, especially in southern Europe.
- Cities such as Athens and Rome have experienced record temperatures, leading to higher mortality among vulnerable populations.
- Urban heat island effects intensify heat stress, particularly in low-income neighbourhoods with limited green spaces.
- Climate projections indicate substantial temperature increases under high-emission scenarios, with rises of up to 9 °C by 2100.

Climate change in Europe

- Extreme warming could intensify heatwaves, increase energy demand and worsen water scarcity.
- Lower-emission pathways show more moderate warming, highlighting the importance of climate mitigation in line with SDG target 11.6.
- Flooding poses major risks to European cities, especially in coastal and low-lying areas.
- Cities such as Venice, Hamburg and Copenhagen face increased threats from sea-level rise, heavy rainfall and storm surges.
- Water scarcity is intensifying due to reduced rainfall and prolonged droughts in cities like Lisbon and Madrid.
- Efficient water management strategies, including rainwater harvesting and wastewater reuse, are crucial for urban resilience.
- Wildfires are increasingly affecting southern European cities, threatening lives, infrastructure, air quality and biodiversity.

Climate change in Europe
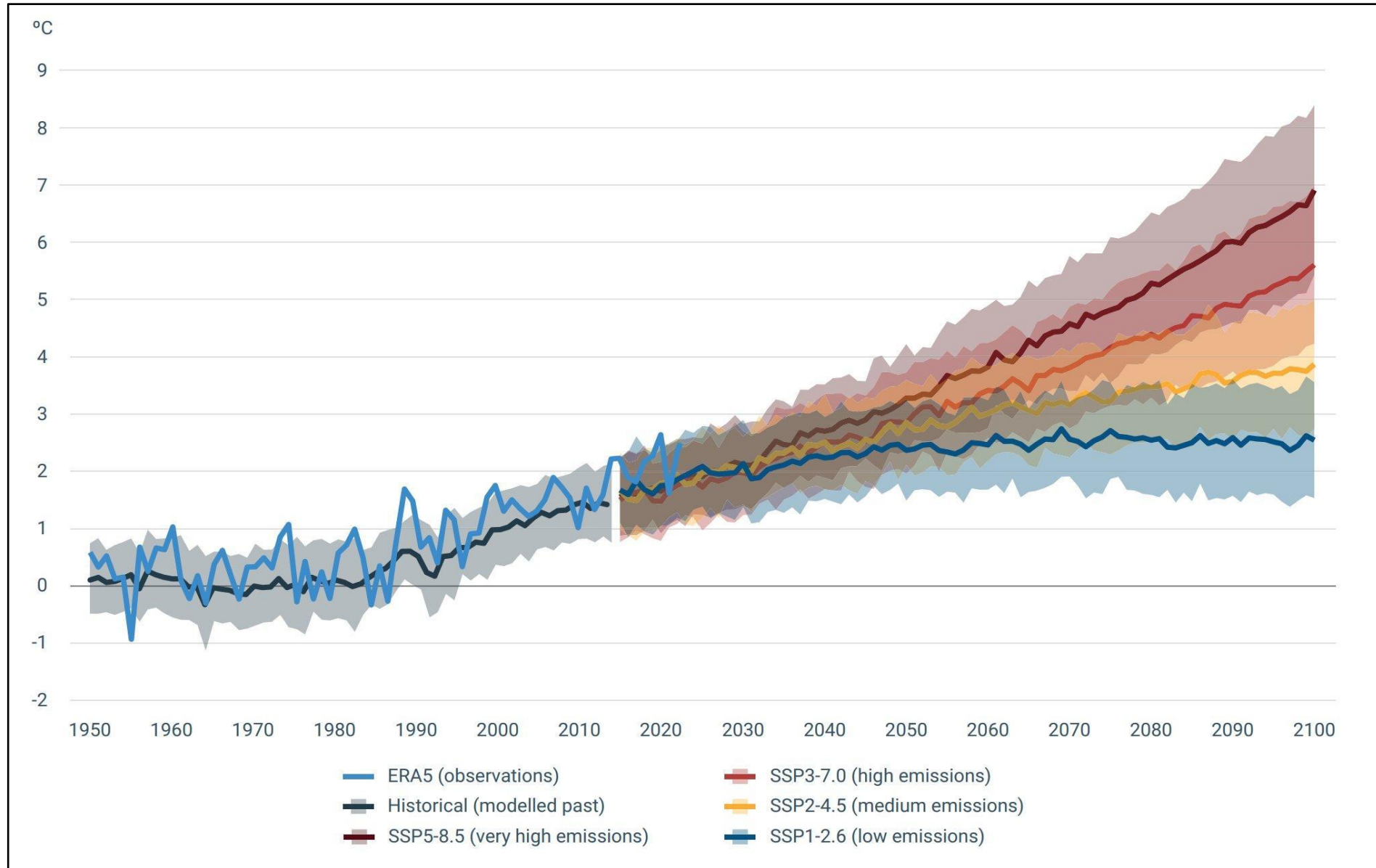
COVID-19 Pandemic

- It exposed and amplified existing vulnerabilities in urban systems and infrastructure

- Lockdowns, economic downturns, and prioritisation of healthcare systems have highlighted the need for resilient cities that can recover from crises

- Many urban areas experienced a surge in poverty and inequality, leading to an increase in homelessness and informal settlements, placing additional stress on essential urban services like sanitation and healthcare.

COVID-19 Pandemic in Latin America

Reported coronavirus deaths per 100,000 people in Latin America

Deaths per 100,000 people
- 0
- 8
- 16
- 24
- 32
- 40
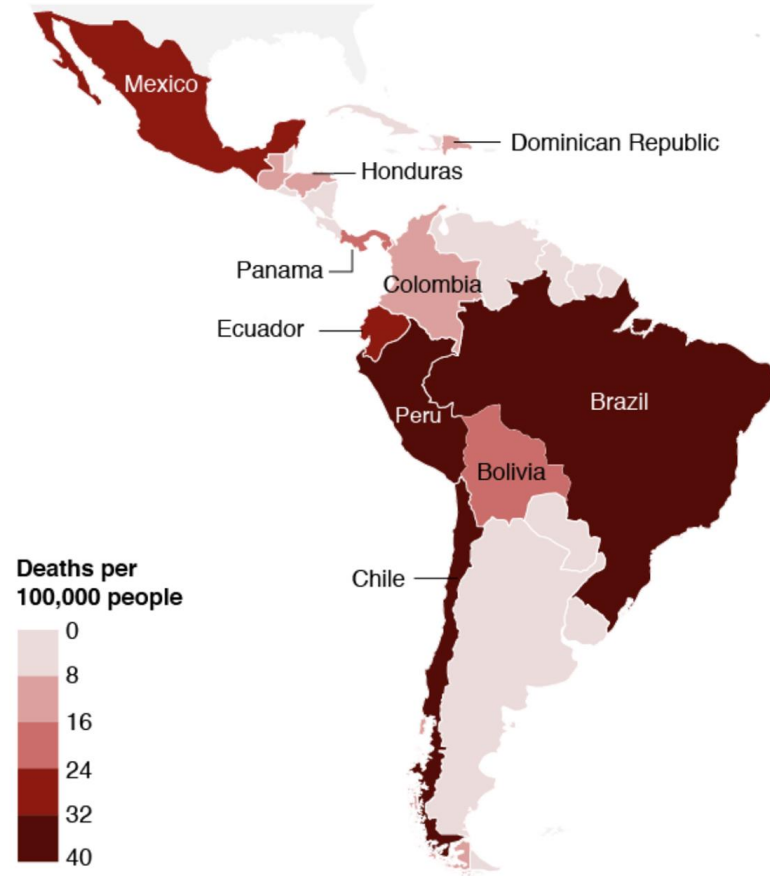
Source: Johns Hopkins University. Data as of 16 July

BBC

Global movements in economic growth have defined recent decades, impacting LAC economies forcefully

GDP Growth Rate (%)
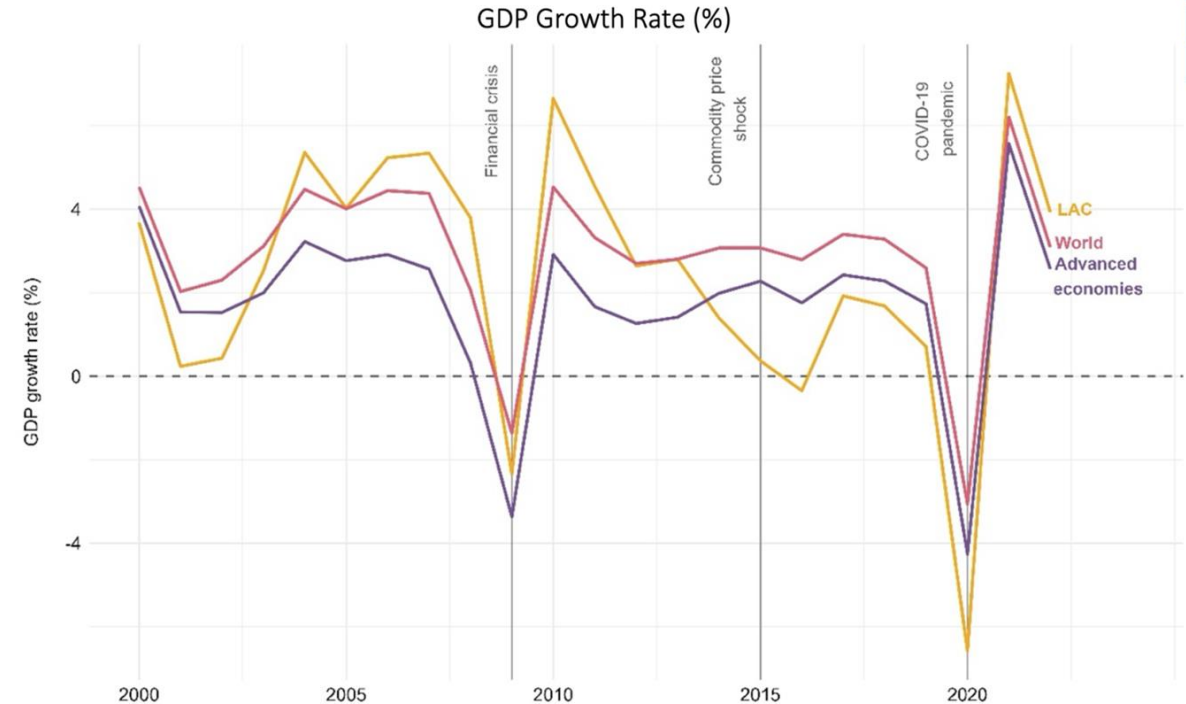
Source: The World Bank national accounts data (2023) and UNDP's calculations.

GRAPH FOR THOUGHT

COVID-19 Pandemic in Africa

- The pandemic increased unemployment, strained urban services and exposed cities as hotspots of public health and disaster risks.
- Its impacts were most severe in the Global South, exacerbating existing inequalities and affecting vulnerable urban groups, particularly those dependent on the informal sector.
- Rapid urban growth in Africa strengthens the link between achieving SDG 11 and the success of the 2030 Agenda.
- SDG 11 targets on disaster risk reduction (11.5 and 11.9) became especially relevant, as most COVID-19 cases occurred in cities.
- Informal settlements and informality intersect with key SDG 11 targets, highlighting the need for inclusive urban planning.
- Upgrading informal settlements, improving basic services and ensuring access to green and public spaces are essential to build resilient, healthy and equitable African cities.
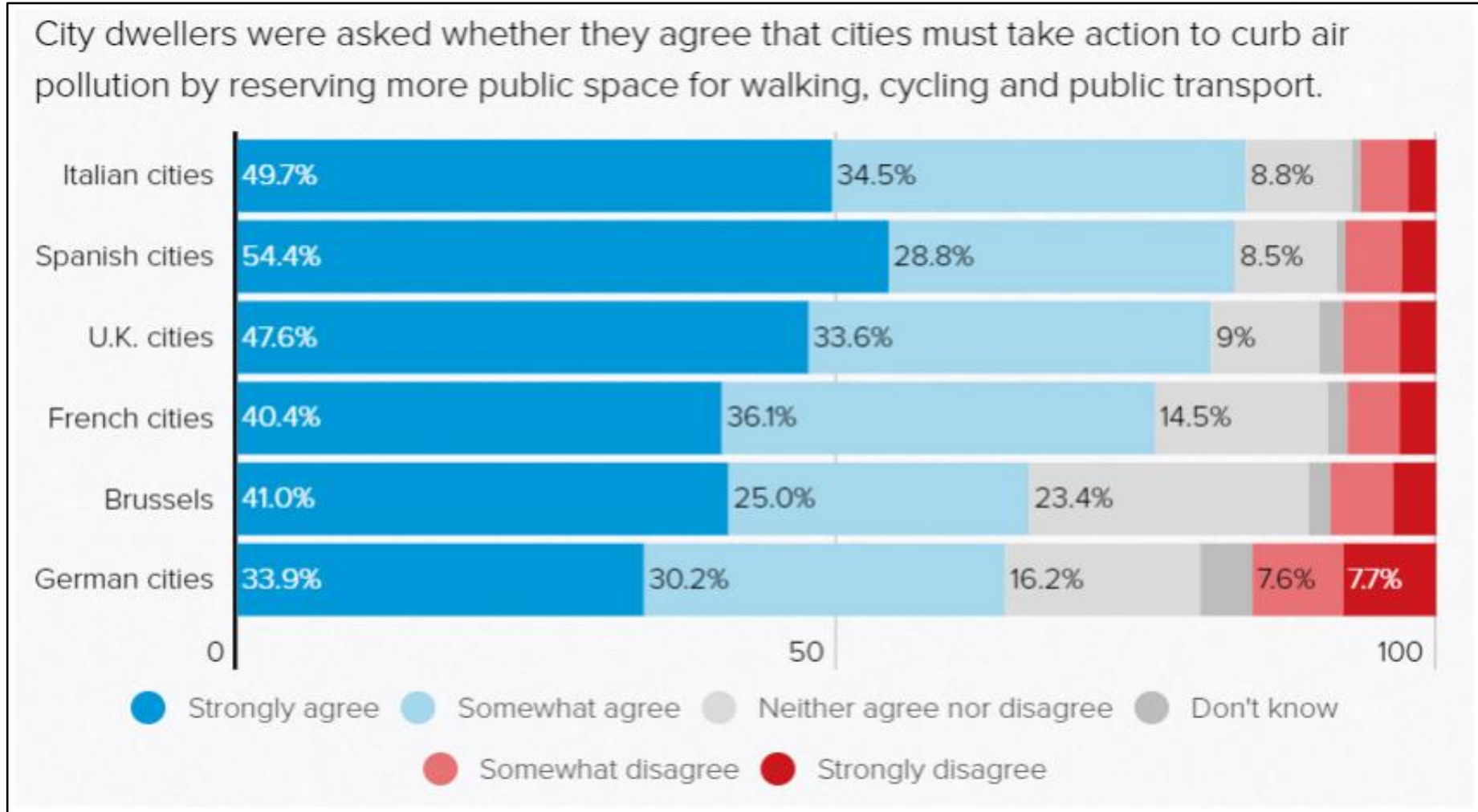
COVID-19 Pandemic in Europe

City dwellers were asked whether they agree that cities must take action to curb air pollution by reserving more public space for walking, cycling and public transport.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Italian cities	49.7%	34.5%	8.8%		
Spanish cities	54.4%	28.8%	8.5%		
U.K. cities	47.6%	33.6%	9%		
French cities	40.4%	36.1%	14.5%		
Brussels	41.0%	25.0%	23.4%		
German cities	33.9%	30.2%	16.2%	7.6%	7.7%

Figure: Urban sustainability perceptions post-COVID-19. Source: European Parliament (2020)

COVID-19 Pandemic in Europe

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: Urban dynamics, changes and SDG 11 targets

Conflicts

•Armed conflicts lead to infrastructure destruction, displacement, and strain on urban services, especially in neighboring cities absorbing refugees.

• Global disruptions like the Russia-Ukraine conflict raise food and energy prices, further straining urban populations and limiting investments in urban development.

Conflicts in Latin America

- The migration crisis from Venezuela has overwhelmed neighboring countries, leading to housing shortages and overcrowded informal settlements.
- Inflation diverts government resources, limiting investments in urban infrastructure, housing, and sustainability initiatives.
- Global supply chain disruptions and delays in the energy transition hinder urban resilience and the development of sustainable cities

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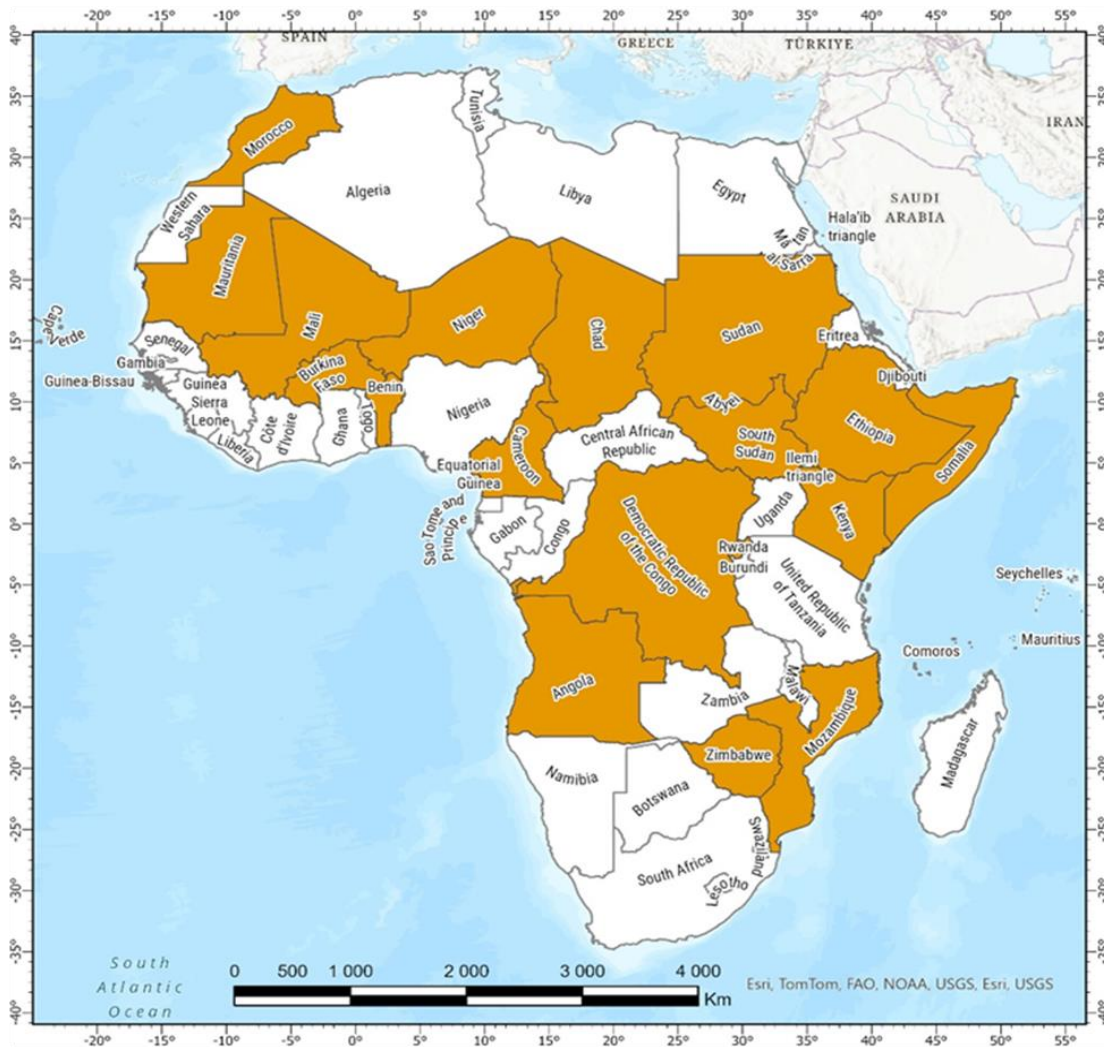
Figure: Conflict map of Africa: 1 January to 31 July 2024 (Compiled by Dr SP Carow using data from Armed Conflict Location and Event Data (ACLED), 2024)

- Africa's rapidly growing urban population increases the risk of cities failing to meet SDG 11 objectives.
- Armed conflict is a major driver of urban vulnerability, compounding poverty, unemployment and political instability. Conflict directly damages infrastructure, livelihoods and economic activity, increasing risks for urban populations.
- Indirectly, it diverts scarce resources away from sustainable urban development. Cultural heritage (SDG 11.4) is particularly threatened during conflicts, as shown by the Timbuktu libraries in Mali.
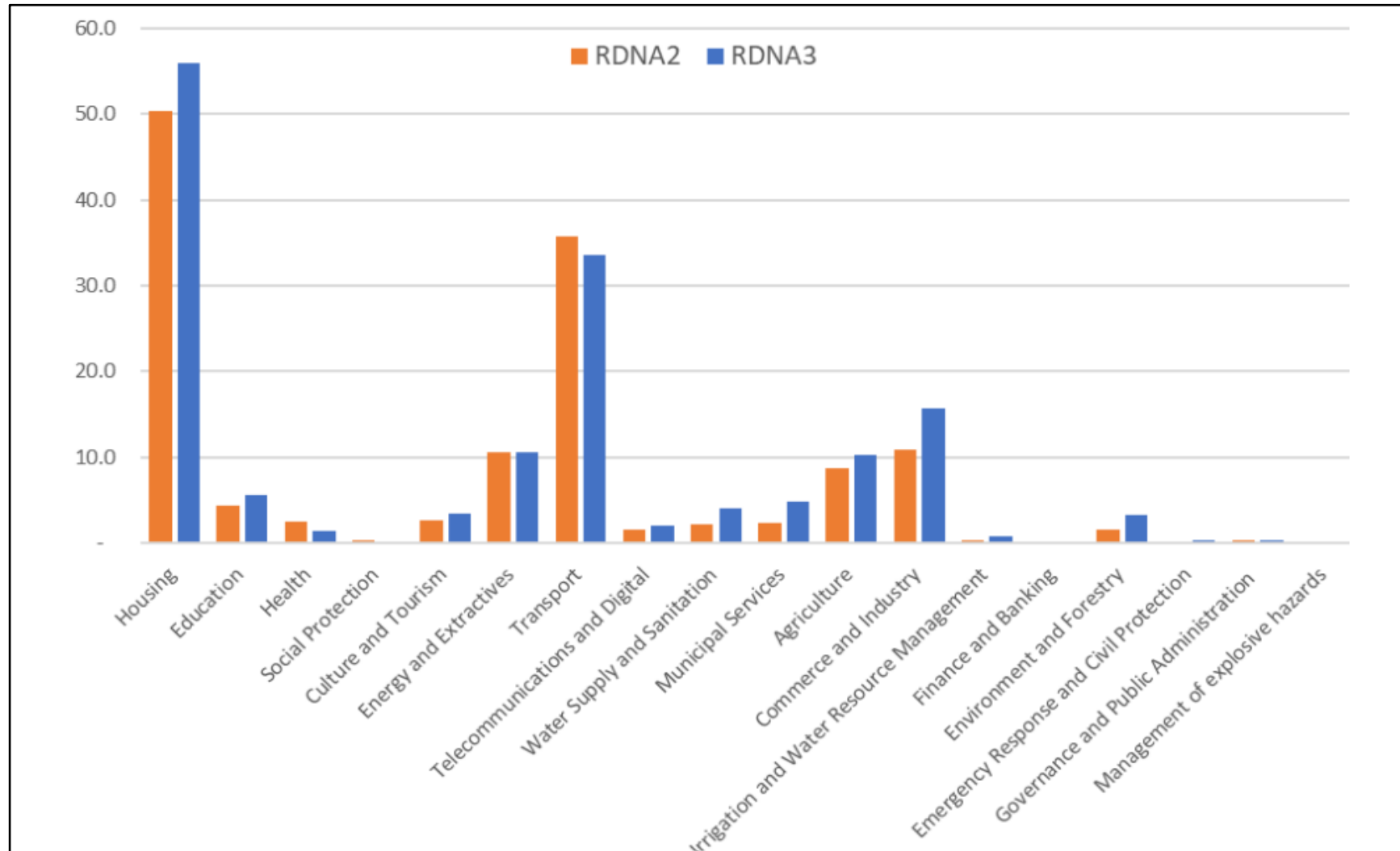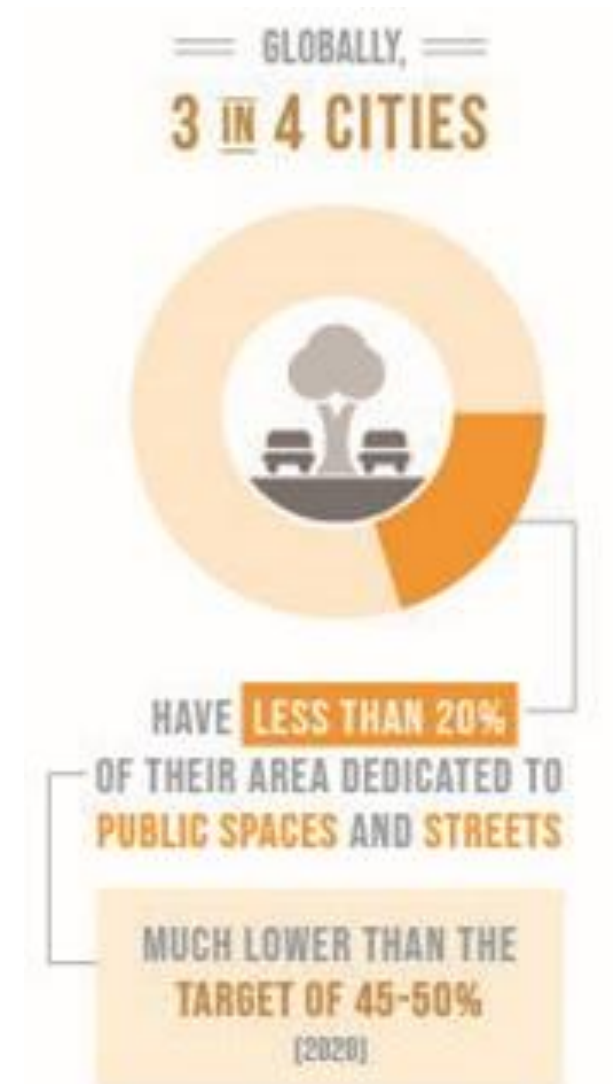
Conflicts in Europe

Figure: Sectoral damage in Ukraine in US$ billion (2022–2023). Source: World Bank (2023)

Conflicts in Europe

- Conflicts in Europe undermine progress towards SDG 11 by damaging housing, infrastructure and urban services.

- The Russia–Ukraine war has severely affected cities, particularly housing (SDG 11.1) and transport systems (SDG 11.2).

- Prolonged conflict increases long-term urban vulnerability and slows recovery.

- Socio-political tensions and migration linked to external conflicts strain urban housing, transport and services across Europe.

4. Progress towards achieving SDG 11

SLUMS ON THE RISE

1.1 BILLION URBAN RESIDENTS ARE LIVING IN SLUMS (2020)

2 BILLION MORE ARE EXPECTED IN THE NEXT 30 YEARS

IN THE DEVELOPING WORLD 1 BILLION PEOPLE LACK ACCESS TO ALL-WEATHER ROADS (2022)

AIR POLLUTION IS NO LONGER AN EXCLUSIVELY URBAN PROBLEM

TOWNS EXPERIENCE POORER AIR QUALITY THAN CITIES IN EASTERN AND SOUTH-EASTERN ASIA (2019)

GLOBALLY, ONLY ONE IN TWO URBAN RESIDENTS HAVE CONVENIENT ACCESS TO PUBLIC TRANSPORT (2022)

GLOBALLY, 3 IN 4 CITIES

HAVE LESS THAN 20% OF THEIR AREA DEDICATED TO PUBLIC SPACES AND STREETS

MUCH LOWER THAN THE TARGET OF 45-50% (2020)

Source: United Nations (2024) https://sdgs.un.org/goals/goal11 Accessed 20 Nov 2024.

Regional progress in Latin America

Figure: Progress of Goal 11 indicators in Latin America and the Caribbean. Source: UN-Habitat (2023)
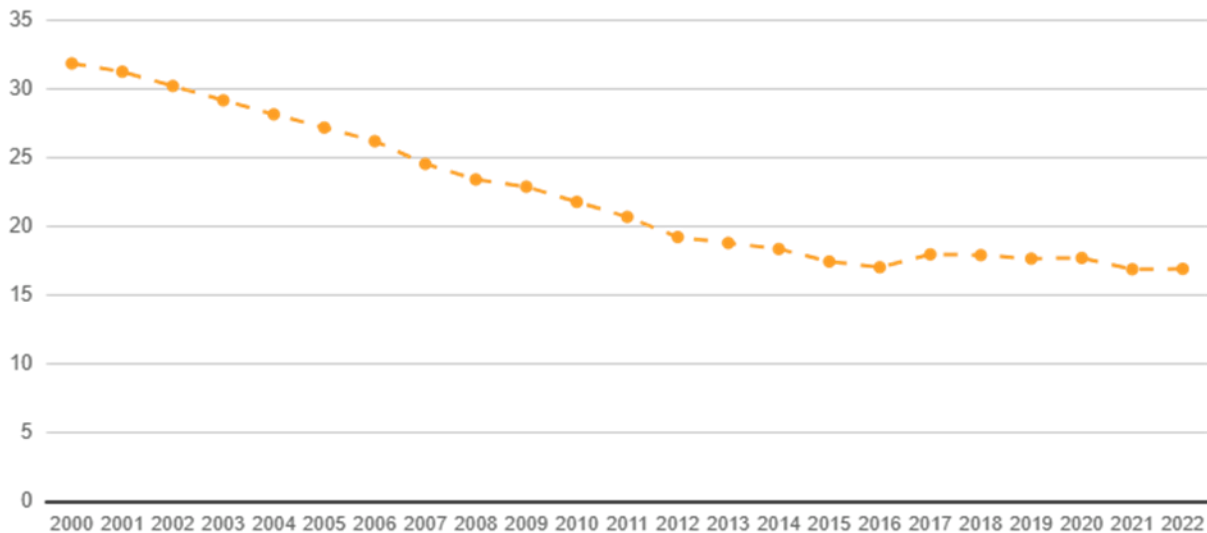
Figure: Proportion of urban population living in slums (%)
Source: ECLAC (2024a)

Regional progress in Africa

Figure: States in Africa progress in 2020 towards achieving SDG 11
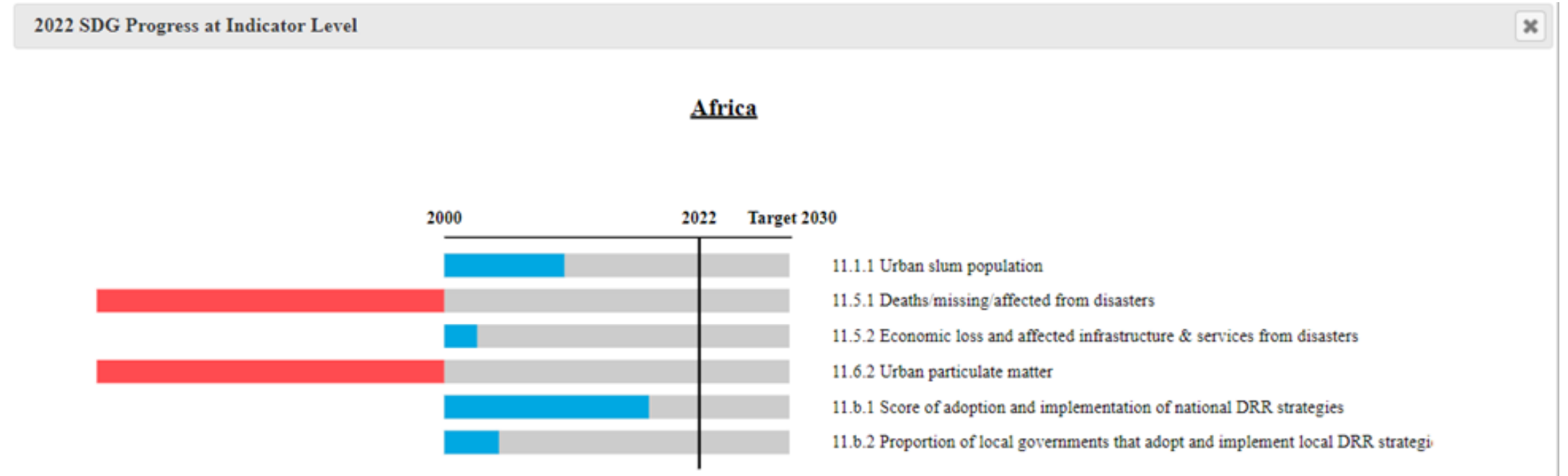Source: https://countries.africasdgindex.org/#/

Regional progress in Africa

Figure: Africa progress in 2022 towards achieving SDG 11
Source: https://ecastats.uneca.org/unsdgsafrica/SDGs/SDG-progress-2023

Regional progress in Europe

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).

Regional progress in Europe

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).

5. Case Studies
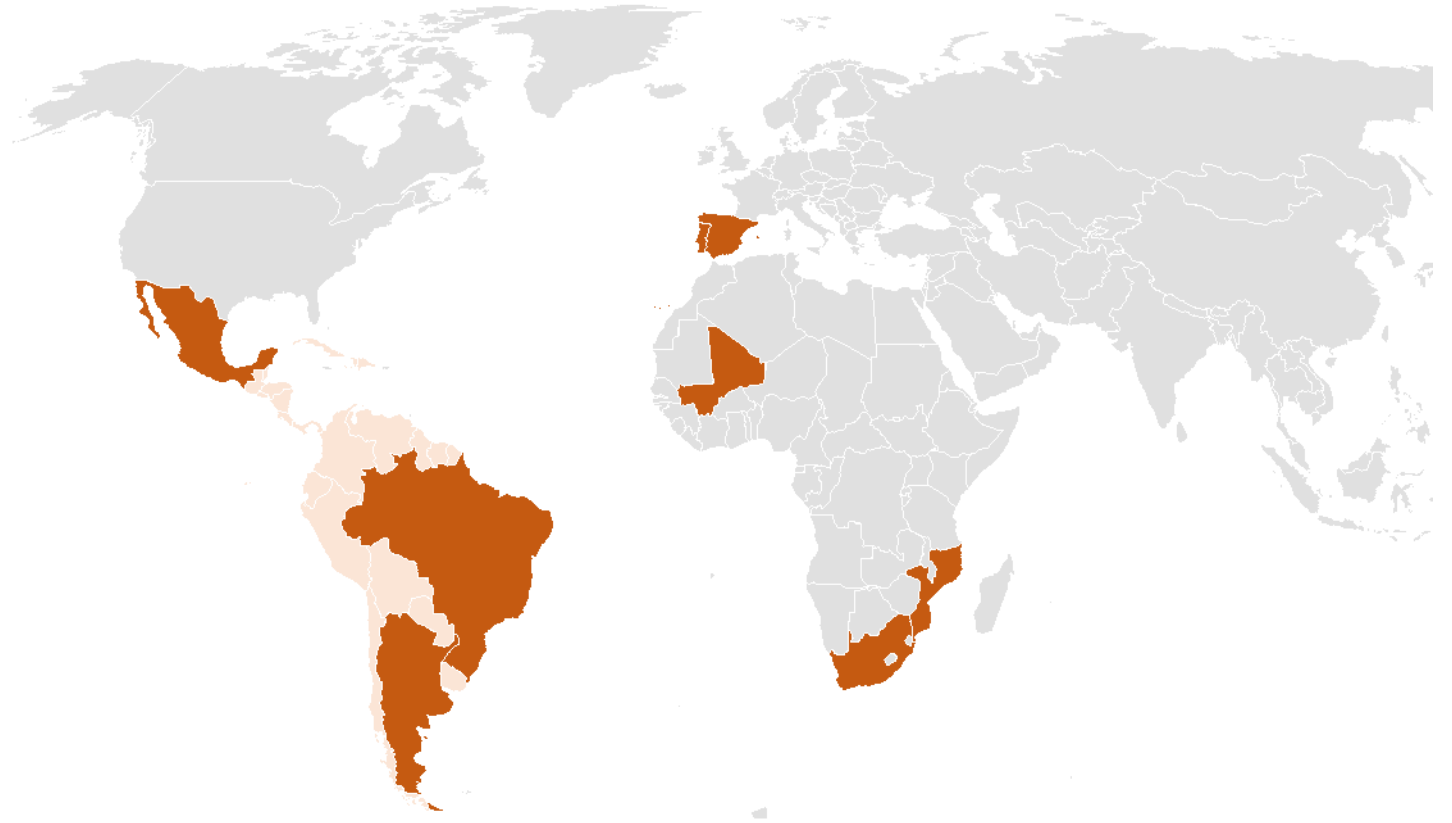
5.1 São Paulo Mobility Plan (PlanMob/SP)
São Paulo, Brazil

- Population of 11,451,999
- Country's primary economic and financial hub
- 7.6% of Brazil's total GDP

- In 2024, São Paulo was awarded **third place** among the **most intelligent and connected cities in the country**
- Area of mobility, standing out particularly for its diverse modes of transport
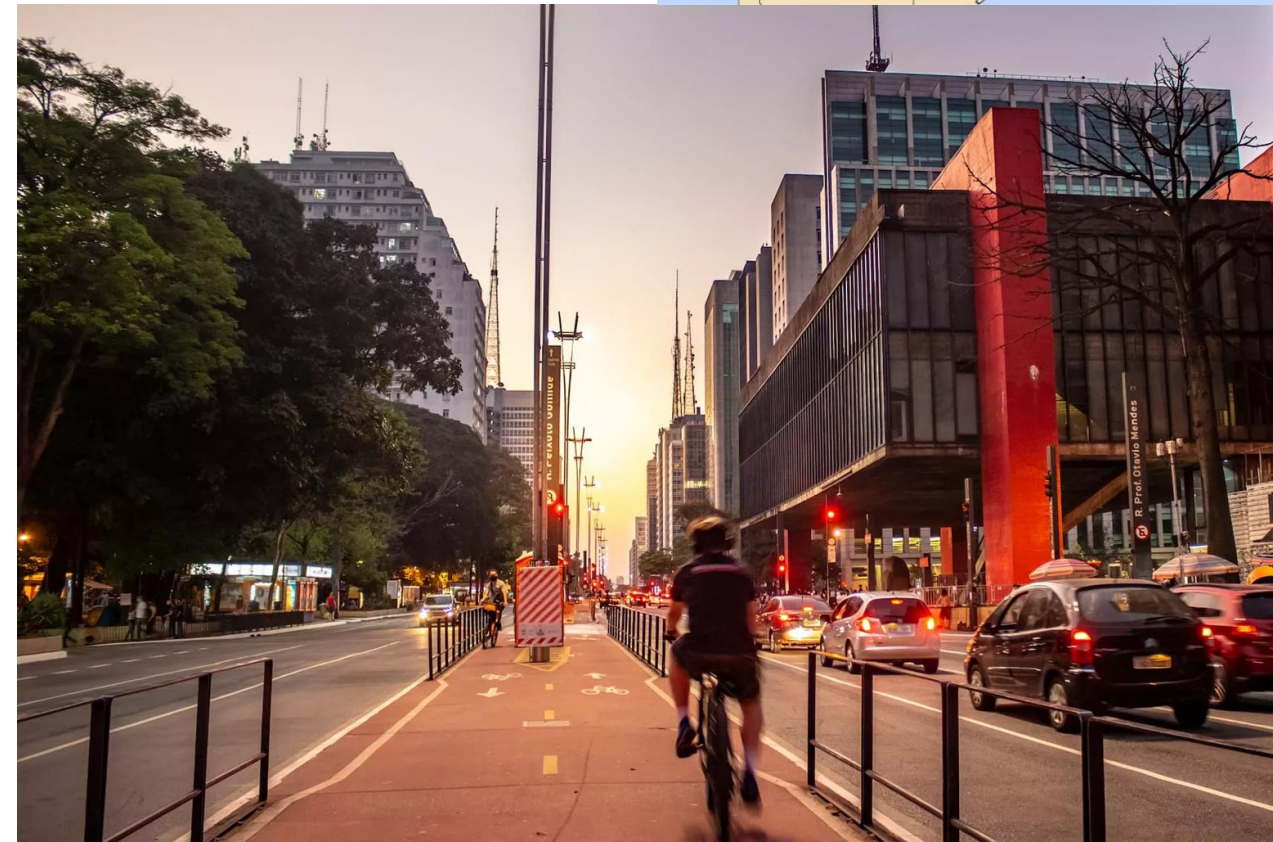
5.1 São Paulo Mobility Plan PlanMob/SP)

São Paulo, Brazil

Developed 2013-2015;

The planning process is ongoing, incorporating new technologies, data, and research.

comprehensive transportation network strategy, focusing on **collective and active transportation modes**, and defines **principles, objectives, and guidelines for a more sustainable urban mobility policy**.

5.1 São Paulo Mobility Plan (PlanMob/SP)

São Paulo, Brazil

Results and Impact

- First Brazilian cities to implement an **electronic ticketing system** for public transportation
- One of the pioneers in deploying **intelligent traffic lights** to improve traffic flow
- **Over 600 km of bike lanes** = 6.48 kilometers of bike lanes per inhabitant
- 1st **Long-Distance Cycle Path** on a Highway in Brazil covering approximately 57 kilometres.

5.1 São Paulo Mobility Plan (PlanMob/SP)

São Paulo, Brazil

bus is the **most commonly used** means of transportation by the population
number of people using **public transport increasing** year by year
number of users of **private/individual transportation decreasing** each year

5.2 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

- Various governments attempted to remove the settlement

- **Secretariat of Social and Urban Integration - 2016 - Barrio Mugica Integration Plan**

5.2 Urban Regeneration in Villa 31

Buenos Aires, Argentina

Main **goals** of the project:

Urban integration: ensure 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: formalize local businesses and support innovation.

Regulations under City Law 6,129 **formalizes property ownership and regularizes public services** like water and electricity.

5.2 Urban Regeneration in Villa 31

Buenos Aires, Argentina

Housing and infrastructure

- 17,700 meters of **infrastructure** were built - basic services.
- 2,225 people were resettled to **new homes** within the neighborhood, each receiving a **property title**.
- 1,154 new **housing units** were constructed.
- 1,732 **homes** underwent **improvements**.
- 27 **public spaces** were upgraded.

5.2 Urban Regeneration in Villa 31

Buenos Aires, Argentina

Results and Impact

Social Integration

- 3 new **schools** built and 1 improved.
- New Ministry of Education **headquarters** was inaugurated in Jan 2020.

- 2 new **health centers** and 1 was renovated - all have access 15 min walk.
- 20,386 residents engaged in **cultural activities**.
- Over 5,000 residents participated in **gender equity and empowerment programs**.
- More than 4,000 participatory **meetings** were held.

5.2 Urban Regeneration in Villa 31

Buenos Aires, Argentina

Economic Development

- 63% of the labor 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 **business owners** received training, empowerment, and mentoring.
- 180 **enterprises** were **granted** microcredits to enhance their businesses.

CeDEL: Centre for Innovation and Labour Development

5.3"Planning and Transforming Iztapalapa"
Mexico City, Mexico

- Capital and largest city of Mexico
- Iztapalapa is one of Mexico City's 16 territorial divisions, within its metropolitan area.
- 1,835,486 residents

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.

5.3"Planning and Transforming Iztapalapa"

Mexico City, Mexico

Planning Collectives and active participation in Community Assemblies:

Local Agendas for Community Development, which capture the community's vision, strategies, and priority actions.

Right to the City across **48 neighbourhoods in Iztapalapa**, benefitting nearly **400,000 residents**

5.3"Planning and Transforming Iztapalapa"

Mexico City, Mexico

- **Planning Collective:** 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.

Needs: creation of **cooperatives, business incubators, and urban gardens**, as well as women's empowerment initiatives and the recovery of public spaces.

Projects on this topic account for **34% of the total**, focusing on improving local organisation, citizen training, and management capacities.

5.3 "Planning and Transforming Iztapalapa"

Mexico City, Mexico

Results and Impact

Of the 123 prioritized neighborhoods: **planning initiatives** are currently underway in **48 areas**, at various stages of progress.

PUEBLO DE SANTA MARÍA AZTAHUACAN

COLONIA EJIDOS DE SANTA MARÍA AZTAHUACAN

PUEBLO DE SAN JUANICO NEXTIPAC

This represents a quantitative **advancement** of nearly **40%**, **impacting around** 384,468 people or **20.9% of the municipality's total population**.

5.3"Planning and Transforming Iztapalapa"

Mexico City, Mexico

Results and Impact

Planning groups: **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%).

At least **80** actions have already been implemented through **partnerships** between Planning Collectives and various departments within the **Mayor's Office**.

5.4 Cape Town: Africa's smart city

South Africa

Cape Town is regarded as one of the leading smart cities in Africa and is considered the pioneer of this strategy on the continent.
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.

Cape Town

5.4 Cape Town: Africa's smart city

South Africa

- Implemented through the Smart City Steering Group and Smart City Working Group.
- Built around five pillars: well-run, opportunity-driven, safe, caring and inclusive city.Focuses on digital governance, digital citizens, digital infrastructure and digital inclusion.
- Aligned with South Africa's Smart City Framework, emphasising inclusivity, local context, sustainability and technology as an enabler.
- Universal Broadband Access Programme expanded fibre-optic infrastructure across public facilities.
- Public WiFi Access and SmartCape initiatives improved internet access in transport hubs and public spaces.
- Open Data Policy promotes transparency and free access to selected datasets.
- Mobile and online e-Services platforms enable residents to access municipal services, report faults and manage accounts efficiently.

5.4 Cape Town: Africa's smart city

South Africa

Two major successes of Cape Town's smart city initiatives were demonstrated during the 2017/18 drought and the COVID-19 pandemic.

During the 2017/18 drought:

- **Shared data enabled the #DayZero campaign** and informed government planning and decision-making.

- **Water dashboards and usage maps** increased transparency and public awareness.

- These tools contributed to significant **reductions in city-wide water consumption.**

5.4 Cape Town: Africa's smart city

South Africa

During the COVID-19 pandemic:

- A COVID-19 Coordination Committee led by the Chief Data Officer supported **data-driven planning**.

- **Data tools informed service** delivery and emergency responses.

- **Dashboards and spatial mapping** helped identify vulnerable populations and areas, strengthening targeted interventions.

5.5 More and better jobs in Cabo Delgado province and Nampula province - harnessing the opportunities of the new economy in Mozambique

- The UN Joint Programme aimed to promote more and better jobs in Cabo Delgado and Nampula provinces by harnessing opportunities in the new economy.
- It focused on improving coordination among stakeholders to support sustainable livelihoods, particularly for young people and female-headed households.
- It aligned with the UN's long-term support for Mozambique's Country Mining Vision, targeting improved outcomes from the extractive industries sector.

5.5 More and better jobs in Cabo Delgado province and Nampula province - harnessing the opportunities of the new economy in Mozambique

Strategy of the programme

- The Joint Programme adopted a participatory approach aligned with national development priorities.
- It supported Mozambique's goal of using resource revenues to strengthen financial, human, social and physical capital.
- The programme aligned with the Mineral Resource Development Policy and Strategy Framework under the Poverty Reduction Action Plan (PARP) for 2025.
- It promoted local content policies, including local procurement by multinational enterprises and environmentally responsible practices.
- Gender mainstreaming and women's empowerment were core components.
- The programme supported vocational training for youth, entrepreneurship, capacity-building for small businesses and the integration of MNEs into local value chains.

5.5 More and better jobs in Cabo Delgado province and Nampula province - harnessing the opportunities of the new economy in Mozambique

- Strengthened policy and governance through legislative action and increased **civil society participation in extractive industry decision-making**.
- Promoted transparency and accountability via advocacy of the **Extractive Industries Transparency Initiative**.
- Contributed to the development and implementation of the **Draft National Content Law and the National Employment Policy.**
- Supported youth and women through vocational training and start-up kits under the **Training for Rural Empowerment** approach.
- Built institutional capacity by strengthening local business service centres and **linking local agribusinesses with companies**.

5.5 More and better jobs in Cabo Delgado province and Nampula province - harnessing the opportunities of the new economy in Mozambique

Results and impact of the programme

- Established 472 company profiles on the **Subcontracting and Partnership Exchange Platform**, resulting in 129 buyer–supplier matches, including international linkages.

- Enhanced **environmental performance** by training 80 national consultants in resource-efficient and cleaner production.

- Conducted assessments for 14 companies and benchmarked an additional 69 companies to support **performance improvement**.

5.6 Culture, conflict and the efforts to preserve the Timbuktu Archive

- Timbuktu, located in central Mali, has been a key centre for cultural and religious manuscripts since the 13th century.
- In 2012/2013, armed insurgents occupied the city and threatened or destroyed parts of its manuscript collections.
- The conflict exposed the vulnerability of cultural heritage during armed conflict.
- Following the insurgency, efforts to digitise the Timbuktu archives intensified due to increased international attention and funding.
- These digitisation efforts aim to preserve the manuscripts and enhance their long-term sustainability.
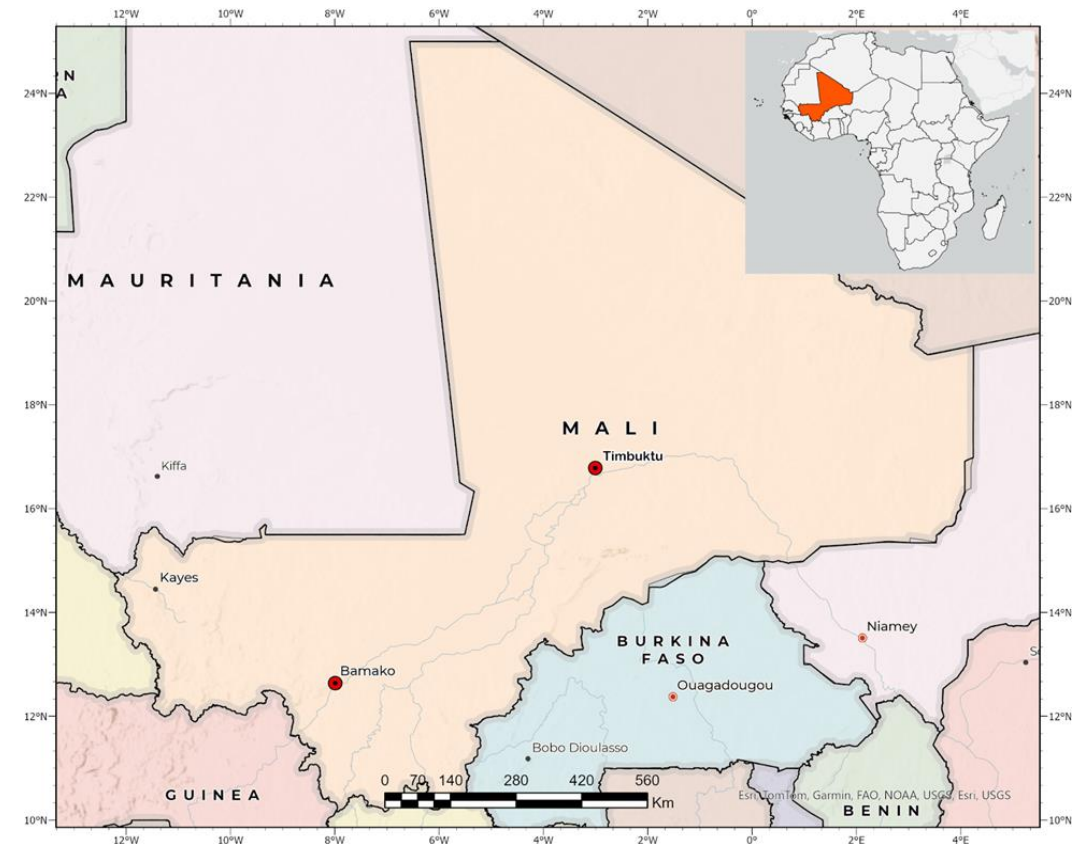
5.6 Culture, conflict and the efforts to preserve the Timbuktu Archive

Strategy of the programme

- Preservation efforts began before insurgents reached Timbuktu, with many manuscripts relocated to Bamako for safekeeping and public exhibition.
- During the occupation, local communities continued protecting manuscripts by hiding, burying or smuggling them out of the city.
- After the insurgents were expelled, digitisation efforts accelerated significantly.
- Increased international awareness enabled external funding to support large-scale digitisation.
- The manuscripts were later featured in Google Arts and Culture's 2022 collection "Mali Magic".
- Ironically, the threat of destruction created the urgency and resources that strengthened the long-term preservation of the archives.

5.6 Culture, conflict and the efforts to preserve the Timbuktu Archive

Results and impact

- Successfully **preserved** large portions of Timbuktu's **historical manuscripts, safeguarding** an invaluable cultural record.

- Enabled **global access** to the archives through digitised collections, greatly expanding their audience.

- **Improved security and accessibility** by relocating manuscripts to Bamako for preservation, viewing and research.

5.7 Climate action and sustainable development, Cascais, Portugal

Political and socio-economic context

- Climate change is driven mainly by human greenhouse gas emissions, especially CO_2.
- Europe and Portugal have already experienced significant temperature increases.
- Impacts include altered rainfall, more heatwaves and droughts, and rising sea levels.
- Climate models predict these impacts will intensify in the future.

5.7 Climate action and sustainable development, Cascais, Portugal

Cascais' actions for sustainable development

- Cascais promotes sustainable development through strong climate and energy actions (SDG 11).
- Ranked among the **top 100 most energy-sustainable cities** globally (CDP).
- 73% of energy comes from renewables, mainly wind and hydropower.
- Focus on reducing emissions via clean energy and energy efficiency (SDG 7).
- MobiCascais promotes **public transport and low-carbon mobility**.
- Actions include fleet decarbonisation, water efficiency, urban cleaning, and fire prevention.
- Launched Portugal's first municipal **Green Fund** to support household energy efficiency.

5.7 Climate action and sustainable development, Cascais, Portugal

Results and impacts of the programme

- Awarded Green Destination Platinum 2024 for sustainable tourism. Strong ethical approach to tourism, integrating environmental, cultural and social sustainability.
- Major improvements in **mobility**: cycle lanes, pedestrian crossings and accessible public transport.
- High success rate of mobility projects (2021–2023), supporting SDG 10 and 11.
- Nearly 100% of Carcavelos and Parede covered by **public transport.**
- Ongoing **climate impact study** to assess effects on residents and tourism.
- Climate projections suggest increased attractiveness, boosting tourism, second-home demand and agriculture.

5.8 Sustainable urban development and mobility, Copenhagen, Denmark

Political and socio-economic context

- Denmark's Climate Act targets climate neutrality by 2045.
- Municipal climate plans align with the C40 Climate Action Planning Framework.
- National goal: 76% emission reduction by 2030 (vs. 1990).
- Copenhagen focuses on urban development, energy efficiency, transport and social housing.
- 41% of trips by bicycle (2022); target 50% by 2025.
- Strong investment in cycling infrastructure (DKK 100 million so far).
- Estimated DKK 260 million/year needed to meet cycling targets.
- Respecting Community Plan promotes sustainable housing, better urban spaces and citizen engagement.

5.8 Sustainable urban development and mobility, Copenhagen, Denmark

Copenhagen's actions for sustainable development

Sustainable mobility:
390+ km of cycling lanes
Target: 50% of trips by bicycle by 2025
Investment in superlanes and bike bridges
People-centred urban design:
Early pedestrianisation (Strøget, 1962)
Expansion of pedestrian zones and public spaces
Innovative public spaces:
Revitalised waterfronts (Harbour Bath, Kalvebod Waves)
Spaces for recreation and social interaction

5.8 Sustainable urban development and mobility, Copenhagen, Denmark

Copenhagen's actions for sustainable development

Carbon neutrality & energy innovation:
74% CO_2 reduction since 2005
Target: carbon-neutral by 2035
Flagship project: CopenHill waste-to-energy plant
Sustainable neighbourhoods:
Nordhavn as a "five-minute city"
Mixed-use, green spaces, active mobility
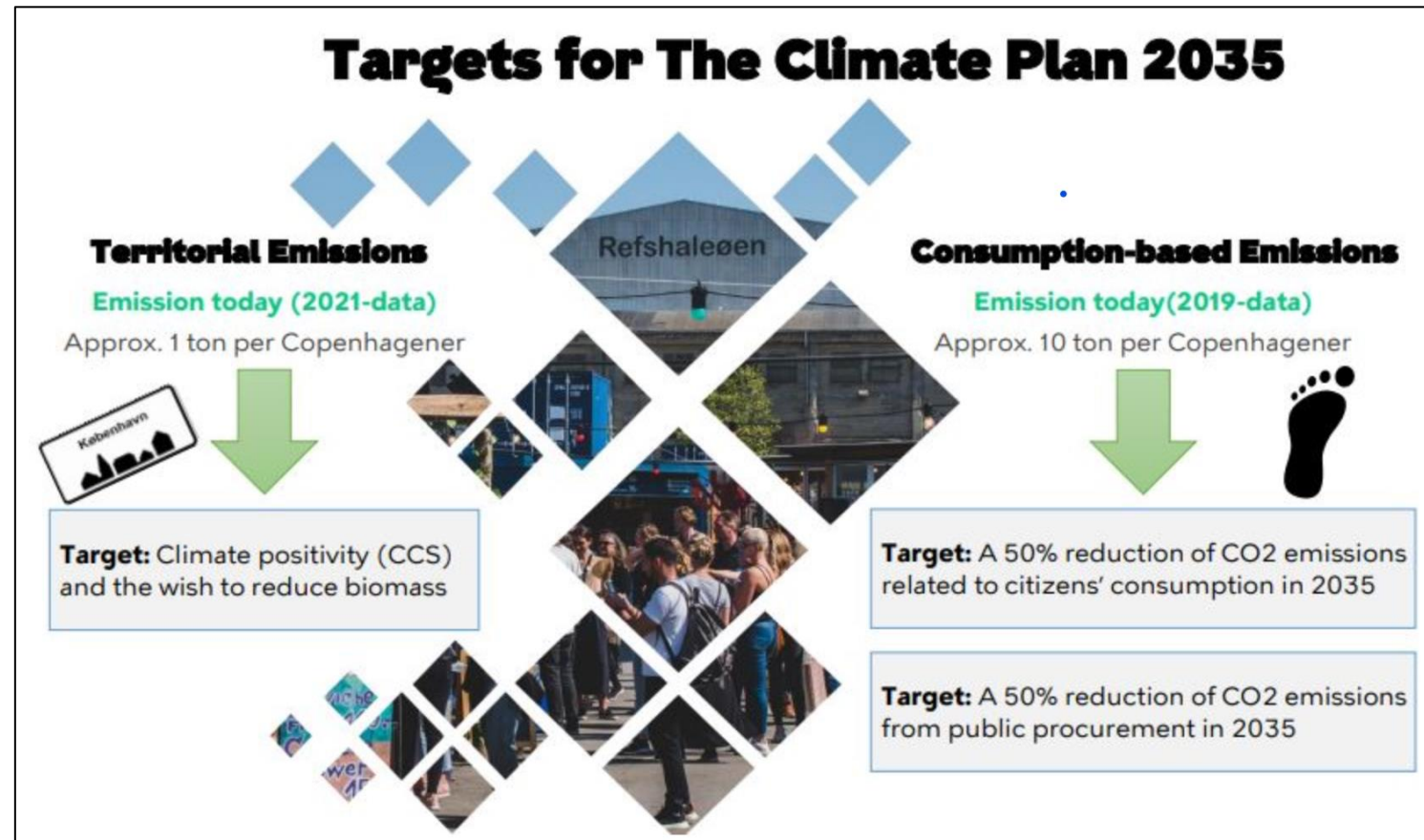Ongoing challenges: affordability and transport
Overall impact:
High liveability
Global benchmark for sustainable urban development

5.8 Sustainable urban development and mobility, Copenhagen, Denmark

Copenhagen's actions for sustainable development

Targets for The Climate Plan 2035

Territorial Emissions

Emission today (2021-data)

Approx. 1 ton per Copenhagener

Target: Climate positivity (CCS) and the wish to reduce biomass

Refshaleøen

Consumption-based Emissions

Emission today (2019-data)

Approx. 10 ton per Copenhagener

Target: A 50% reduction of CO2 emissions related to citizens' consumption in 2035

Target: A 50% reduction of CO2 emissions from public procurement in 2035

5.8 Sustainable urban development and mobility, Copenhagen, Denmark

Results and impacts

- Applied Donut Economics to link social and environmental goals
- Mobility has major impacts on climate, biodiversity, air quality and health
- Strong link between ecological limits and social well-being
- Sustainable mobility is key to environmental protection and social equity

Social links
Mobility encourages social interaction and community inclusion.

Gender equality
Increased mobility can give women greater independance, helping further gender equality.

Access to education
Mobility is vital for attending school and academic results.

Access to health services
Improved mobility helps access to healthcare, reducing maternal mortality.

Economic growth
Mobility stimulates economic activity and employment, especially in rural areas.

5.9 Supermanzanas, Barcelona, Spain

- EU Mission-labelled city, committed to climate neutrality by 2030
- Access to EU funding (€19 million shared among Mission cities)
- Dense coastal city: 1.6 million people in 101.3 km²; metro area 3.2 million
- Strategic location between sea, mountains and rivers
- Mediterranean climate shaping urban life and tourism
- Economy shifted from industrial to service-based, led by tourism
- Major European port and key hub for global trade
- Rapid tourism growth, strengthening economic importance in Catalonia

5.9 Supermanzanas, Barcelona, Spain

Barcelona's actions for sustainable development

Climate-focused urban transformation
Superblocks (Supermanzanas) reduce car use, cut emissions and reclaim space for communities and health
Expansion of green spaces & biodiversity protection
+1.6 km² of green areas
Conservation of climate-vulnerable species (amphibians, birds, bats, butterflies)
Water conservation & flood management
"Not a Drop Lost" initiative: use rainwater, groundwater and regenerated water
More permeable surfaces and sustainable urban drainage to reduce flood risk

5.9 Supermanzanas, Barcelona, Spain

Barcelona's actions for sustainable development

Renewable energy in public spaces
Solar panels on pergolas, walls and urban infrastructure; Strong promotion of public and private solar investment

Sustainable mobility
Reduced private car use; expanded public transport and shared mobility; More space for pedestrians, greenery and safer streets

Coastline and river protection
Preservation of beaches and river ecosystems; Sand redistribution and dredging to maintain coastal stability

5.9 Supermanzanas, Barcelona, Spain

Supermanzanas (Superblocks)
- Reduced private car use and lower GHG emissions
- More green space, better air quality and improved public health
- Safer, accessible streets fostering social cohesion
- Recreational areas for children, fitness spaces for the elderly, and urban beaches for cooling
- Supported by changes to the General Metropolitan Plan for climate-resilient urban design

Biodiversity and green infrastructure
- Tree Master Plan: +5% tree cover by 2037
- Focus on climate-adapted species
- Protection of vulnerable species (amphibians, butterflies, bats)
- Ongoing challenges from rising temperatures and humidity

5.9 Supermanzanas, Barcelona, Spain

Renewable energy in public spaces
- Energy-generating solar pergolas installed since 2016
- Expansion supports reduced reliance on fossil fuels
- Integration of clean energy into everyday urban spaces

Coastal and river protection
- Coastline contributes to CO_2 sequestration and climate regulation
- Sediment management and regular dredging to protect beaches
- Strengthens natural defences and urban climate resilience

6. Exercises

➡️ **Case Study Analysis**

Lecturers can either provide students with real-world case studies related to SDG 11, or ask students to look for cases and bring to class. Students can analyze these cases, identify the challenges and opportunities related to SDG 11, and propose sustainable solutions.

➡️ **Group Discussions and Debates**

Lecturers 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.

6. Exercises

➡ **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, present and discuss with the colleagues: what are the lessons learned and how it can be replicated in other contexts? Compare and discuss the data from Latin America, Africa and Europe along the years.

7. Final Considerations

This presentation offers an introduction to some crucial aspects related to SDG 11, while directing the focus to global crises that currently have a negative impact on its achievement and progress in regional contexts.

How can we be the change in the path forward?

Source: United Nations (2023a).
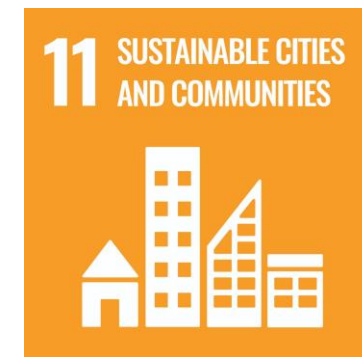

Source: United Nations (2023b).

THANK YOU!

Project funded by the German Academic Exchange Service

Prof. Dr. Luciana Brandli
Titular professor at the University of Passo Fundo /
College of Engineering and Architecture
brandli@upf.br

Prof. Dr. Rudi Pretorius
College of Agriculture and Environmental
Sciences, University of South Africa
pretorw@unisa.ac.za

Prof. Dr. Dr. Walter Leal
Head of Research & Transfer Center Sustainability &
Climate Change Management at HAW Hamburg
walter.leal2@haw-hamburg.de

11 SUSTAINABLE CITIES AND COMMUNITIES