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UniverCity Action Lab

Module 1: the Urban Context



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Module 1: Urban Context – Associated Opportunities and Challenges

The aim of this module is to introduce students to urban sustainability topics through interdisciplinary approaches to urban challenges

Upon completion of this module your students will be able to:

- ✓ Recognise the interdisciplinary nature of urban challenges
- ✓ Find, critically read & assess secondary research material and sources
- ✓ Discuss urban sustainability challenges with peers
- ✓ Link theoretical insights with your own everyday experience
- ✓ Apply previous theoretical and methodological knowledge to urban sustainability challenges



PROBLEM-BASED LEARNING

1. Introduction to Urban Challenges

- Overview of urban sustainability issues
- Key concepts
- Contemporary issues in urban policy-making

2. Specific Urban Sustainability Topics

- Challenges faced

3. Sustainable Urban Solutions

- Good practice case studies practices in cities
- social innovation, social entrepreneurship, circular economy



1. Introduction to Urban Challenges



Issues in policy-making



Key concepts



Key resources



Contemporary issues in urban policy-making

According to the EU Commission (Vandecasteele et al., 2012) these are some of the biggest priorities in urban areas:

- Air quality
- Housing
- Poverty
- Climate change
- Energy efficiency and access
- Mobility
- Sustainable land use
- Jobs and skills in the local economy



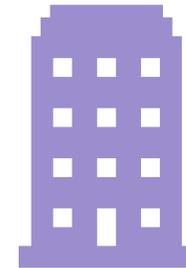
Key concepts



Sustainability



Urban expansion and
planning



Smart cities

Sustainability

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Gro Harlem Brundtland

Sustainability refers to the continuation of an activity at a certain level.

Social sustainability: maintaining human well-being

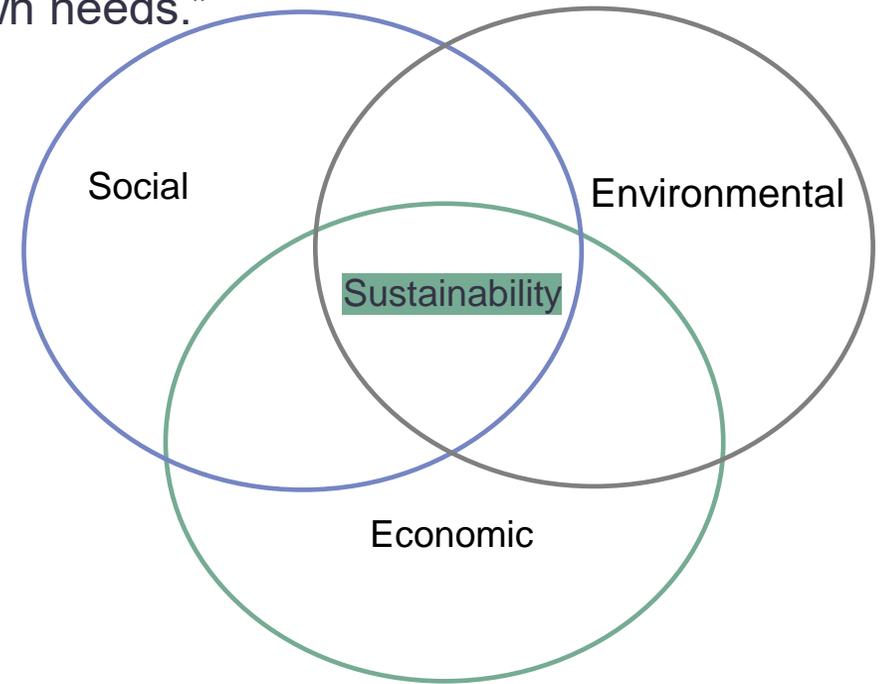
- i.e. human health, relationships, cultural practices, freedom from exploitation

Environmental sustainability: ability of the environment to maintain its processes

- i.e. preserving biodiversity, ecosystem services

Economic sustainability: healthy long-term economic growth

- i.e. circular economy, efficiency,



Three pillars of sustainability

Thinking points:

1. Find a definition of ‘ecosystem services’ and come up with your own examples.

Urban expansion and planning.

“Neither cities nor places in them are unordered, unplanned; the question is only whose order, whose planning, for what purpose?”

Peter Marcuse

Everyone is familiar with the term ‘urbanisation’.

The movement from rural to urban areas is not slowing down any time soon.

So, cities are getting larger and taking up more land, but can we control how they expand? And how does this link to sustainability?

Urban planning: focussed on how the land in urban areas will be used.

- Development and organisation of the built environment
- i.e. urban efficiency

Ineffective urban planning can have negative **social** effects, and urban areas require many resources to maintain their populations which often has negative **environmental** effects. Thus good urban planning is needed to enhance sustainability.

Thinking points:

1. **What elements would urban planners need to consider?** i.e. city residents, commuters, transport networks, businesses
2. **What are some negative issues related to sustainability that may be seen in cities?** i.e. lack of areas for recreation, air pollution, unemployment

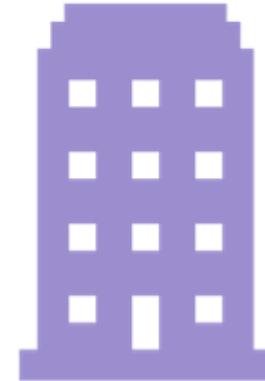
“Highly promising smart cities not only embrace technology and innovation but also nourish the creativity of their citizens.”

Faruk Tuncer

Smart cities are more than just high-tech, data collection hub.

Smart cities: connect all aspects of their urban environment to ensure efficient and effective processes.

- Governments can use collected data to plan activities, such as maintenance
- Data can be used to guide urban planning and thus focus on the three pillars of sustainability in the urban context



Thinking points:

How could data be used to improve mobility efficiency in the city? i.e. in terms of road traffic, public transport
What are the benefits for sustainability when using data in smart cities?

Interdisciplinarity of urban challenges

As you might have noticed, urban sustainability is a multidisciplinary topic with many connections. People, nature and the economy are interlinked in many different ways and problems (and solutions) may have knock on effects.

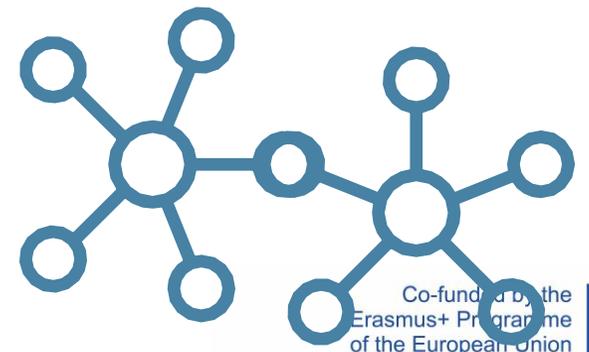
We need many experts in different topics to share their knowledge!

For example:

Inefficient public transport can cause people to drive cars more often, thus increasing air pollution and thus, harming both environment and people. If people constantly need medical attention due to the effects of low air quality, this can put strain on economic resources.

Thinking points:

1. Can you think of other examples of interdisciplinary challenges?



Activity

Create an 'Elevator Pitch' of 1,5 minutes for the following:

Considering the Thinking Points on the previous slides - choose an urban challenge and determine:

1. Which experts would be needed to give their input?
2. What other stakeholders could you identify?
3. Why is it important to get multiple viewpoints on the chosen issue?

Case study

- [Challenge Lab](#) – an example of interdisciplinary research and stakeholder engagement
- [Exchange at the Knowledge Market](#) – benefits of stakeholder engagement



Key Resources – Introduction to urban challenges

Readings

- [Introduction: The Challenges of an Urban World](#)
- [Future challenges in urban planning](#)
- Vandecasteele I., Baranzelli C...Zulian G., The Future of Cities – Opportunities, challenges and the way forward, EUR 29752 EN, Publications Office, Luxembourg, 2019, ISBN 978-92-76-03847-4, doi:10.2760/375209, JRC116711
- Dushenko, W. T., Dale, A., & Robinson, P. (2012). Urban sustainability: Reconnecting space and place. Toronto: University of Toronto Press.
- James, P. (2014). Urban Sustainability in Theory and Practice: Circles of sustainability. Advances in Urban Sustainability, Routledge.
- Lang, D.J., Wiek, A., Bergmann, M., Stauffacher, M., Martens, P., Moll, P., Swilling, M., Thomas, C.J. (2012). Transdisciplinary research in sustainability science: Practice, principles, and challenges. Sustainability Science, 7, 25–43.
- Nijkamp, P. and Kourtit, K. (2013). The “New Urban Europe”: Global Challenges and Local Responses in the Urban Century. European Planning Studies, 21(3), 291-315
- [Cities of tomorrow: Challenges, visions, ways forward](#). European Union Regional Policy, October 2011
- [Inclusive Smart Cities: A European Manifesto on Citizen Engagement](#)

Videos

- [What is Sustainability?](#)
- [The OECD Principles on Urban Policy](#)



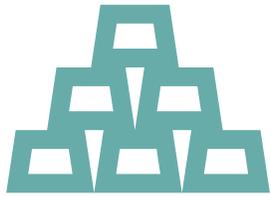
2. Specific Urban Sustainability Topics



Exploring real-life urban challenges



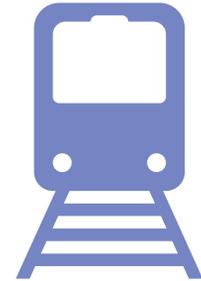
Specific urban challenges



Resource availability



Urban spaces



Urban mobility

Resource availability

Urban areas have larger populations and thus require more resources.

Water, energy and food are an example: These three are linked to one another, so a scarcity in one may lead to a scarcity in another.

Food: more people = more demand for food
Food production requires energy and water

Water: everyone uses water for a number of activities everyday
Water requires energy to be supplied to our houses

Energy: very few modern activities can be performed without energy
Fuels require water for extraction and growth (in the case of biofuels)



Thinking points:

1. How does example this relate to urban sustainability?



Urban spaces – Green

Green areas in cities, such as parks and recreational areas, are linked to less stress and increased happiness in residents.

These areas also perform other ecosystem services:

Cleaner air: plants produce oxygen and reduce carbon dioxide

Urban cooling: cities heat up faster and trap heat for longer than rural areas – vegetation reduces this heating effect

Habitat: parks with natural vegetation may host wildlife

Challenges related to maintaining green areas

- Lack of space
- Lack of suitable land
- Perceived negative effects of parks/green spaces (i.e. social unsafety, especially when not used regularly)

Thinking points:

1. What other benefits of (and challenges to) green spaces can you think of?



Urban mobility

Getting around the city might be easy or difficult depending on a number of factors.

How you move around in your city can have a big influence on the sustainability of where you live:

Cars: high levels of air and noise pollution, traffic, longer commutes, parking spaces take up lots of land

Public transport: less air pollution, more efficient, seldom door-to-door

Cycling: no emissions, door-to-door, works best in areas with few uphill

All these modes of transport require good infrastructure. Urban planning for sustainability needs to ensure that residents are connected to their city.

- Are there easily accessible public transport stops nearby
- Are these transport lines well-connected?
- Are these lines well serviced? (i.e. the bus/train/tram can be taken a number of times a day)



Thinking points:

1. What are the pros and cons of each transportation type with regards to the three pillars of sustainability?



Activity

Discuss the questions in small groups:

1. What urban challenges are faced in your home city?
2. What negative impacts do these challenges have?
3. Can you categorise these negative impacts – i.e. are they social, economic or environmental?



Case study:

- [Creathon](#) – multiple urban challenges being faced and tackled
- [Remining Lowex](#) – what to do with “useless” resources?
- [Shareplace](#) – transport and mobility

Key Resources – Specific urban challenges

Readings

- [Intelligent– rather than smart - cities](#)
- Morgan, K. (2009). Feeding the City: The Challenge of Urban Food Planning. *International Planning Studies*, 14(4), 341-348
- Rutherford, J. and Coutard, O. (2014). Urban Energy Transitions: Places, Processes and Politics of Socio-technical Change. *Urban Studies*, 51(7), 1353-1377.
- Devine-Wright, P., Batel, S., Aas, O., Sovacool, B., Labelle, M. and Ruud, A. (2017). A conceptual framework for understanding the social acceptance of energy infrastructure: Insights from energy storage. *Energy Policy*, 107, 27-31.
- [Case-studies](#) – challenges around the world
- [Urban Challenges](#) – click the different challenges to read more about them

Videos

- [Global Challenges Facing Cities Today](#)
- [Five lessons for urban policy](#)



Sustainable Urban Solutions



Exploring innovative practices



Exploring innovative practices – Urban Living Labs

We need sustainable solutions to urban challenges.

Urban Living Labs (ULLs) do research and experiments directly in the urban environment. These initiatives often use important methods such as *stakeholder engagement*.

Examples of how urban challenges are being tackled using ULLs:

- **Marineterrein Amsterdam Living Lab**

Urban Challenges: Smart Urban Mobility, Circularity in Urban Regions & Climate Resilient Cities.

- **UNALAB**

Urban Challenges: ecological and resilience objectives, social and economic innovation

- **REWAISE**

Urban Challenge: create a new “smart water ecosystem”



Thinking points:

1. How can stakeholder engagement be beneficial in solving urban challenges?

Exploring innovative practices – social entrepreneurship

Social entrepreneurship is about creating solutions with a social benefit (value creation).
Business with impact.

Examples of social entrepreneurship:

- Klean Kanteen water bottles

Aim: eliminating single-use plastics

- Amplio Recruiting Company

Aim: places refugees into jobs

- The Impact Guild

Aim: ethical and sustainable community development.



Thinking points:

1. Find your own examples of social entrepreneurs and the problems they set out to solve

What is the circular economy?

The circular economy is a closed economic system

- Everything is reused to create new products
- The value of the materials is maintained as much as possible

What does the circular economy require to function?

- ✓ Products designed with entire product lifetime in mind
- ✓ Regenerative resources
- ✓ Nothing is wasted
- ✓ Renewable energy



Did you know?

Recycling is not always the most efficient system as there is often waste that cannot be recycled.

Reusing products is a more effective approach – that's why the circular economy is such an important concept

Thinking points:

1. Do you understand the difference between the linear, recycling and circular economies?

CASE STUDY: venlo city hall (Netherlands)

Social wellbeing

- Natural light and greenery in the interior
- Stimulating people to walk around and socialise
- Spiral staircase encourages the use of the stairs

Environmental wellbeing

- Using plants to create air-purifying façade

Circular principles

- As many cycles as possible are closed
- Recycles rain- and waste water
- Energy neutral
- Using Cradle-to-cradle certified building materials



Activity

Write a report of 500 words while addressing the following:

1. If you were asked to manage the designing of the Venlo city hall, which stakeholders would you need to consult? Which experts?
2. Can you think of groups that would benefit from the construction of such a building?
3. Give another example of a system loop of a product that you could close in order to make it circular?



Case study

- [Creathon](#) – solutions for social issues
- [Digital and Green skills for an urban economy](#)
- [URBINAT project](#) – nature-based solutions

Key Resources – sustainable urban solutions

Readings

- Timo von Wirth, Lea Fuenfschilling, Niki Frantzeskaki & Lars Coenen (2019) Impacts of urban living labs on sustainability transitions: mechanisms and strategies for systemic change through experimentation, *European Planning Studies*, 27:2, 229-257, DOI: [10.1080/09654313.2018.1504895](https://doi.org/10.1080/09654313.2018.1504895)
- [Living Labs in Amsterdam](#)
- Dobernig, K., Veen, E., & Oosterveer, P. (2016). Growing Urban Food as an Emerging Social Practice. In: *Practice Theory and Research: Exploring the dynamics of social life*. G. Spaargaren, D. Weenink, & M. Lamers (Eds.). New York and London: Routledge. Pp. 153-178.
- Parra, D., Swierczynski, M., Stroe, D., Norman, S... and Patel, M. (2017). An interdisciplinary review of energy storage for communities: Challenges and perspectives. *Renewable and Sustainable Energy Reviews*, 79, 730-749.
- Balkmar, D. and Summerton, J. (2017). Contested mobilities: politics, strategies and visions in Swedish bicycle activism. *Applied Mobilities*, 2(2), 151-165.

Videos

- [7 principles for building better cities](#)
- [The future of urban mobility](#)
- [The Circular Economy: A Simple Explanation | Cillian Lohan](#)

