

## LECTURE SUMMARY

# Systems thinking for sustainable development: the SDGs and the role of the urban environment

## EXPECTED LEARNING OUTCOMES

- Comprehend the concept and application of Systems Thinking
- Relate different components and processes of the urban environment
- Relate Systems Thinking to practical interventions
- Hypothesise the potential impacts, positive and negative, of an intervention
- Comprehend the aim and structure of the SDGs
- Relate SDG11 to other SDGs and to Systems Thinking

## SUMMARY OF THE LECTURE

The lecture is structured to provide balanced information about the Sustainable Development Goals (SDGs) and the concept of Systems Thinking, focusing on how systems thinking reflects the interrelationships between the SDGs. The lecture highlights the role of the SDGs, in particular SDG11 (Making cities and human settlements inclusive, safe, resilient and sustainable), in mitigating climate change, while stressing how systems thinking helps addressing complexity of urban environments.

The lecture begins by engaging students and assessing their existing knowledge and understanding of Systems Thinking. A definition is then provided along with an example of how Systems Thinking differs from linear or design thinking. Its importance in the context of increasing urbanisation and the need for planning to respond to the environmental impact of cities is explained.

The 17 Sustainable Development Goals are introduced with a focus on SDG11 and its targets. In particular, SDG11 is analysed as entry point to the other 16 goals, underscoring the many issues in the goals which have an urban interpretation.



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A system approach to urban planning is explained through the case study of Melbourne's intensification and transport interventions from the mid-1980s until 2016 (*Postcode 3000* and *Transforming Australian Cities* projects). Integrated technological, engineering and nature-based (NBS) solutions are briefly presented.

The need for a Systems Thinking approach is discussed to then focus on how it can be implemented in practice, providing Bristol One City as a case study of cross-sectoral and multi-level governance implementation. The key challenges to implementation of a systems approach are listed.

Finally, a visual summary of the 'tools' for system thinking is provided, with a detailed explanation of concepts and practices commonly used within Systems Thinking.

## REFERENCES

- Lawrence R. J. (2021). *Creating built environments: bridging knowledge and practice divides*. Oxon: Routledge
- World Economic Forum (2022). Delivering Climate-Resilient Cities Using a Systems Approach.  
[https://www3.weforum.org/docs/WEF\\_C4IR\\_GFC\\_on\\_Cities\\_Climate\\_Resilience\\_2022.pdf](https://www3.weforum.org/docs/WEF_C4IR_GFC_on_Cities_Climate_Resilience_2022.pdf)

