

Introducing the Landscape Economy Handbook for Educators

This book presents an approach to integrating a landscape economy dimension into higher education. It is addressed in particular to teachers motivated to develop knowledge and competences for sustainable development and social-economic transformation. Landscape economy is not restricted to any specific discipline. We all live and work in and with landscapes and we do that through an economic system. However, we think that this book is of particular interest for educators in the fields of spatial planning, urban planning, architecture, landscape architecture, economics, business administration, real estate, mobility, agriculture, geography and regional development. Broader keywords are: integrated planning, transformative science, systems thinking, social innovation and social entrepreneurship.

Landscape economy forces teachers and learners into deep systems thinking across scales and spaces, sectors and interests, communities and institutions. The concept is, first of all, confusing and disorienting. Before diving deeper into this challenge, it seems important to clarify that there is no such thing as a landscape economy method which we could easily adopt and apply to any given context. Instead, landscape economy needs to be understood as a way of framing system boundaries, system elements and system dynamics within a specific territorial context. Within these frameworks, transition and innovation pathways are always unique and context-specific. Therefore, what we are trying to explain in this book, is a way of taking systemic perspectives on the

landscape, guided by the normative dimensions of regeneration, sustainability, fairness and diversity.

The book is divided into four parts.

The first part is titled 'Mapping the Terrain' and starts with a broader argumentation of why a landscape economy approach is necessary. For example, the theory of the planetary boundaries explains the urgency for global regeneration of natural resources and the need for a deep transformation of how humans work with nature. This is followed by definitions of our key concepts which are 'landscape' and 'economy'. We use here the example of the global-value added chain to exemplify the relationship of economy and territory, leading to the three main characteristics of a sustainable economy system, namely efficiency, consistency and sufficiency. The chapter also includes a reflection on systems thinking, which is a key dimension of knowledge creation and a guiding principle of the landscape economy curriculum design. We also suggest here our definition of landscape economy, knowing that it is rather a state of mind than a tangible method.

The second part presents what we call 'Landscape Economy Stories'. It brings in the broad cultural and disciplinary perspectives of the five countries present in the landscape economy ERASMUS team. The idea is to create a better understanding of what is driving the different land use sectors that are typically competing for the same territory. The book contains

nine stories: The Commons, Health, Mobility, Dwelling, Energy Landscapes, Positive Energy Districts, Tourism, Agriculture and Urban Forestry. There are always more stories to tell of course. Each story follows more or less the same pattern. We start by setting the scene: What is driving this sector? Which sustainability conflicts is this sector not only facing but also creating? Which major tradeoffs with other landscape values are prevalent? On that basis, each chapter tries to show at least one example of a positive transition pathway and to tell a story of positive change. We learn about new models with innovative governance structures and value propositions. The authors further discuss which indicators of success are relevant: What is the specific contribution of this sector to an overall landscape economy? We learn that indicators, or so-called key performance indicators (KPIs), are different for every sector, and yet, they all come together in one landscape. Each chapter closes with a suggestion of research and analysis questions for landscape economy learners and provides references for further reading.

The third part explains in great detail how the landscape economy curriculum has been developed and what are the elements of the instructional design. We also introduce the various open access elements which are available to other educators and the learners. At the beginning, we elaborate broadly on the learning objectives of the landscape economy curriculum taking both the cognitive process and the

knowledge dimensions into account. We then explain how we have tested the curriculum as part of our educational action research cycle by which we have been able to generate continuous evidence and greatly learn through and from the process. Educators interested in a landscape economy approach find access to all learning materials and recordings, detailed explanations of the assignment descriptions, evaluation forms and all conceptual considerations we have made.

Part four, Reflection in Action, finishes with a detailed presentation of our evaluation findings highlighting the key learnings of everyone involved, and reflecting on the development needs that still remain. The book finishes with a glossary of some key landscape economy terms.

We hope you find this approach inspiring for your own educational activities.

Mapping the Terrain

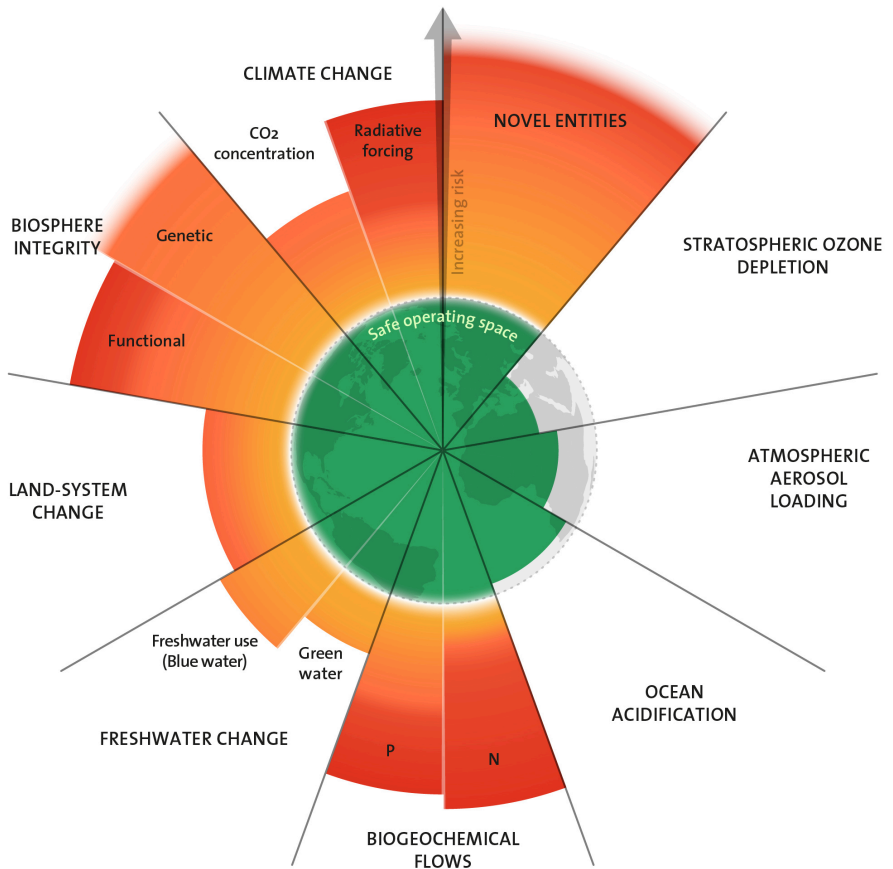
Why a landscape economy approach?

How do we understand landscape?

How do we understand economy?

Which are their conceptual connections?

What is the role of systems thinking?



The 2023 update to the Planetary boundaries
 Credit: Azote for Stockholm Resilience Centre, based on analysis in Richardson et al 2023
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Why do we need a landscape economy approach in higher education?

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Planetary boundaries

Planetary boundaries (PB) define the boundaries of the "planetary playing field" for humanity if major human-induced environmental damage on a global scale is to be avoided. Trespassing one or more planetary boundaries may be highly damaging or even catastrophic, due to the risk of crossing thresholds that trigger non-linear, abrupt environmental damage, from regional- to planetary-scale systems. This concept is featured prominently in the development of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (United Nations, 2015).

In September 2023, a team of scientists quantified, for the first time, all nine processes that regulate the stability and resilience of the Earth system, namely:

1. Climate change
2. Change in biosphere integrity (biodiversity loss and species extinction)
3. Stratospheric ozone depletion
4. Ocean acidification
5. Biogeochemical flows (phosphorus and nitrogen cycles)
6. Land-system change (for example deforestation)
7. Freshwater use (alterations across the entire water cycle over land)
8. Atmospheric aerosol loading (microscopic particles in the atmosphere that affect climate and living organisms)
9. Introduction of novel entities (i.e., microplastics, endocrine disruptors, and organic pollutants)

These nine planetary boundaries were first proposed by former centre director, Johan Rockström, and a group of 28 internationally renowned scientists, in 2009. Since then, their framework has been revised several times. Now, the latest update (2023) not only quantified all boundaries, it also concluded that six of the nine boundaries have been transgressed (Richardson et al., 2023).

Placing the PB concept in a political and policy context helps to integrate the global perspective across and within policy systems. Identifying the relevant PB can thus lead to establishing new evaluation frameworks, based on a better understanding of the whole safe spectrum for urbanisation. It is thus valuable to investigate PB in relation to the evaluation of sustainable development, underpinned by the concept of Landscape Economy.

New agendas: Growth versus Degrowth

The OECD has promised to "strengthen their efforts to pursue green growth strategies [...], acknowledging that green and growth can go hand-in-hand", while the World Bank has called for "inclusive green growth" where "greening growth is necessary, efficient, and affordable". Meanwhile, the EU has framed "green growth" as "a basis to sustain employment levels and secure the resources needed to increase public welfare [...] transforming production and consumption in ways that reconcile increasing GDP with environmental limits" (EEA, 2021).

However, a recent survey (King et al., 2023) of nearly 800 worldwide climate policy researchers reveals widespread skepticism toward the concept in high-income countries, amid mounting literature arguing that the principle may neither be viable nor desirable. Instead, alternative post-growth paradigms including *degrowth* and *agrowth* are gaining traction. The *degrowth* school of thought (Kallis, 2011) proposes a planned reduction in material consumption in affluent nations to achieve more sustainable and equitable societies. Meanwhile, supporters of *agrowth* (Van den Berg, 2011) adopt a neutral view of economic growth, focusing on achieving sustainability irrespective of GDP fluctuations. Both positions represent skepticism toward the predominant *green growth* paradigm with *degrowth* representing a more critical view.

Desirable growth

Much of the current debate centers around the concept of decoupling. Meaning: Can the economy grow without corresponding increases in environmental degradation or greenhouse gas emissions? Essentially, it signifies a separation of the historical linkage between GDP growth and its adverse environmental effects. Importantly, absolute decoupling rather than relative decoupling is necessary for green growth to succeed. In other words, emissions should decrease during economic growth, and not just grow more slowly.

The relevance of deep systems thinking

Systems thinking is vital for the landscape economy because it recognizes the multiple interconnections between ecological, social, and economic factors in the landscape. Landscapes are complex systems where decisions in one area – such as agriculture,

forestry, or urban development – impact water cycles, biodiversity, and local communities. By adopting a systems perspective, prospective landscape economists can identify synergies, minimize trade-offs, and anticipate unintended consequences. This approach promotes holistic solutions, such as balancing food production with ecosystem services, enhancing resilience to climate change, and supporting livelihoods. Within the TELOS programme, we consider systems thinking as a cross-cutting learning objective and an emerging cognitive skill.

Competences for sustainable development

This project is also an attempt to operationalise sustainability competences in higher education, taking the European Union's recently published GreenComp framework as a reference (Bianchi et al., 2022). This framework defines key competences for sustainability, which are crucial for the landscape economy. These competences—such as systems thinking, critical thinking, and fostering a sustainable mindset—help professionals address complex challenges in the landscape. They enable informed decision-making that balances economic growth, environmental health, and social well-being. By fostering collaboration, innovation, and long-term planning, GreenComp skills drive sustainable practices in land use, enhance ecosystem services, and support the transition to a greener, more resilient economy.

We therefore need a landscape economy curriculum to effectively combine systems thinking, systems innovation, global perspectives and local landscape contexts.

References

- Bianchi, G., Pisiotis, U. and Cabrera Giraldez, M., (2022): GreenComp: The European sustainability competence framework, Punie, Y. and Bacigalupo, Publications Office of the European Union, Luxembourg, <https://dx.doi.org/10.2760/13286>
- Jeroen C.J.M. van den Bergh (2011): Environment versus growth – A criticism of “degrowth” and a plea for “a-growth”, *Ecological Economics*, Volume 70, Issue 5, 2011, Pages 881–890, ISSN 0921-8009, <https://doi.org/10.1016/j.ecolecon.2010.09.035>.
- European Environment Agency (2011): EEA Report No 11/2021, Creating a resilient economy within environmental limits, <https://www.eea.europa.eu/publications/reflecting-on-green-growth> (accessed 22.08.2024)
- King, L.C., Savin, I. & Drews, S. Shades of green growth scepticism among climate policy researchers. *Nat Sustain* 6, 1316–1320 (2023). <https://doi.org/10.1038/s41893-023-01198-2>
- Giorgos Kallis (2011): In defence of degrowth, *Ecological Economics*, Volume 70, Issue 5, 2011. Pages 873–880, ISSN 0921-8009, <https://doi.org/10.1016/j.ecolecon.2010.12.007>
- Richardson, Katherine; Steffen, Will; Lucht, Wolfgang (2023). “Earth beyond six of nine planetary boundaries”. *Science Advances*. 9 (37): eadh2458.
- UN General Assembly (2015): Transforming our world: The 2030 Agenda for Sustainable Development, Resolution adopted by the General Assembly on 25 September 2015, 42809, 1–13. <https://doi.org/10.1007/s13398-014-0173-7.2>

The Concept of Landscape

Chapter authors

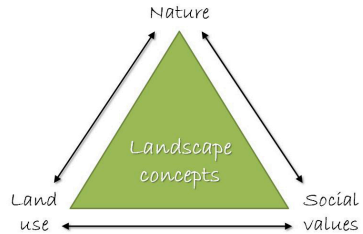
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The term landscape is used in many different contexts and can therefore be understood in various directions. TELOS follows the definition of the Council of Europe Landscape Convention. „*Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*” (ELC 2000, Article 1). These areas consist of natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas. It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes (ELC 2000, Article 2). Public spaces, recreation areas, parks, roads, streets, brownfield areas, forests, rivers, sea shores and agricultural land are all considered as parts of the landscape.

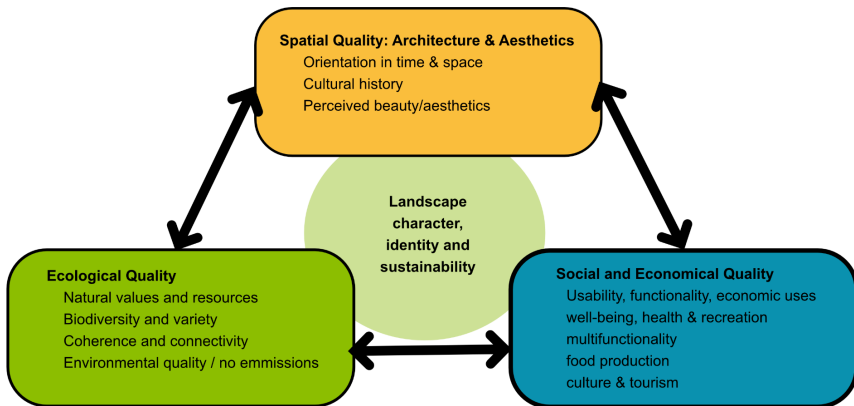
The concept therefore includes the city as a whole. In fact, a city is only a special type of landscape. It is important to recognize that landscape implies an understanding of how elements are interconnected. Landscape is a system in which natural and human elements are constantly present and systemically interacting. So landscape is both: the concrete natural and human elements of which it is composed. And the interpretation of it, both individually and collectively. Or, as described by Ipsen (2006), landscape concepts evolve at the interface of nature, human land use and the social - and cultural - values of society.

People judge objects, such as landscapes, by a specific and interrelated set of values: a value system. The value system is the basis for preferences and judgements, and thus determines the individual understanding of landscape quality. The system of quality criteria should in fact reflect the collective value system of the groups in society for whom the quality of the landscape has to be optimized. Only then it is possible to guide the development of a landscape in a way that serves the needs of society.



Landscape concepts evolve at the interface of nature, human land use and the social - and cultural - values of society (Ipsen 2006)

The systemic context of landscape quality. Graphic developed by Jeroen de Vries based on the Dutch landscape law.



In order to ensure healthy and generative development, the human use of natural systems in which the tourist industry, local businesses, farmers, multinationals and other stakeholders operate needs to become fully sustainable while stopping exploitation. Competing claims from a large variety of stakeholders converge on a landscape level. When addressed only individually, the approaches taken to reach these goals often have negative trade-offs and conflicts of interest. The idea of the landscape

approach is to find cross-sectoral solutions. This might lead to synergies that are better than the sum of each sector-specific solution (Horn, van der & Meijer 2015). The landscape approach aims to contribute to sustainability by supporting economic and social development that goes together with local biodiversity conservation. Landscape resilience and the continuous regeneration of natural capital are regarded as a foundation for sustainable development. A

key element of present-day landscape approaches is the involvement of local communities and all relevant interest groups in the decision-making on how we use our landscapes. In addition to involving participants from all concerned interest groups, the concept also requires approaches on how to include those who may not be represented or organised as groups. On that basis, changes can be started that promote common benefits. A multi-level governance approach can integrate the

objectives of different participants and help arriving together at a set of shared landscape quality objective. This way, innovative solutions for competing claims and interests might be found.

Since local situations are varied and there are social and cultural differences, there is not a one single landscape approach that fits all. There is a need to adapt the approach to the specific local landscape context at the interface of human and non-human needs.

References

1. Council of Europe (2000): Council of Europe Landscape Convention, <https://www.coe.int/en/web/landscape>
2. Ipsen, Detlev (2006), Ort und Landschaft, Springer, <https://doi.org/10.1007/978-3-531-90396-5>
3. Sarah van der Horn and Johan Meijer (2015). The Landscape Approach, The Hague: PBL Netherlands Environmental Assessment Agency, https://www.pbl.nl/uploads/default/downloads/PBL_2015_The_Landscape_Approach_1555.pdf (accessed 22.08.2024)

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OLA partners with communities of diverse ages, backgrounds, abilities, and life experiences. We invite you to be a part of our work today, committing at a level that suits your needs and capabilities:

<https://www.openlandscapeacademy.org>



The Neckar valley landscape in Plochingen, Stuttgart Greater Region, Germany: A natural river designed to serve production, energy and, transport