BE A GARDENER

"A gardener does not 'make' a garden.
Instead, a skilled gardener is one who has developed
***an understanding of the key processes** operating in the garden.*
Through careful observations of the conditions of the garden's
***ecosystem** at any given time, a savvy gardener identifies core processes*
that are impaired and makes judicious decisions on how and where
*to intervene **to reestablish the flows of energy that are vital to***
***the health** of the garden. "*

- Benne & Mang, 2015

Partnering with Nature

- In Search of Regenerative Approaches in Urban Environments

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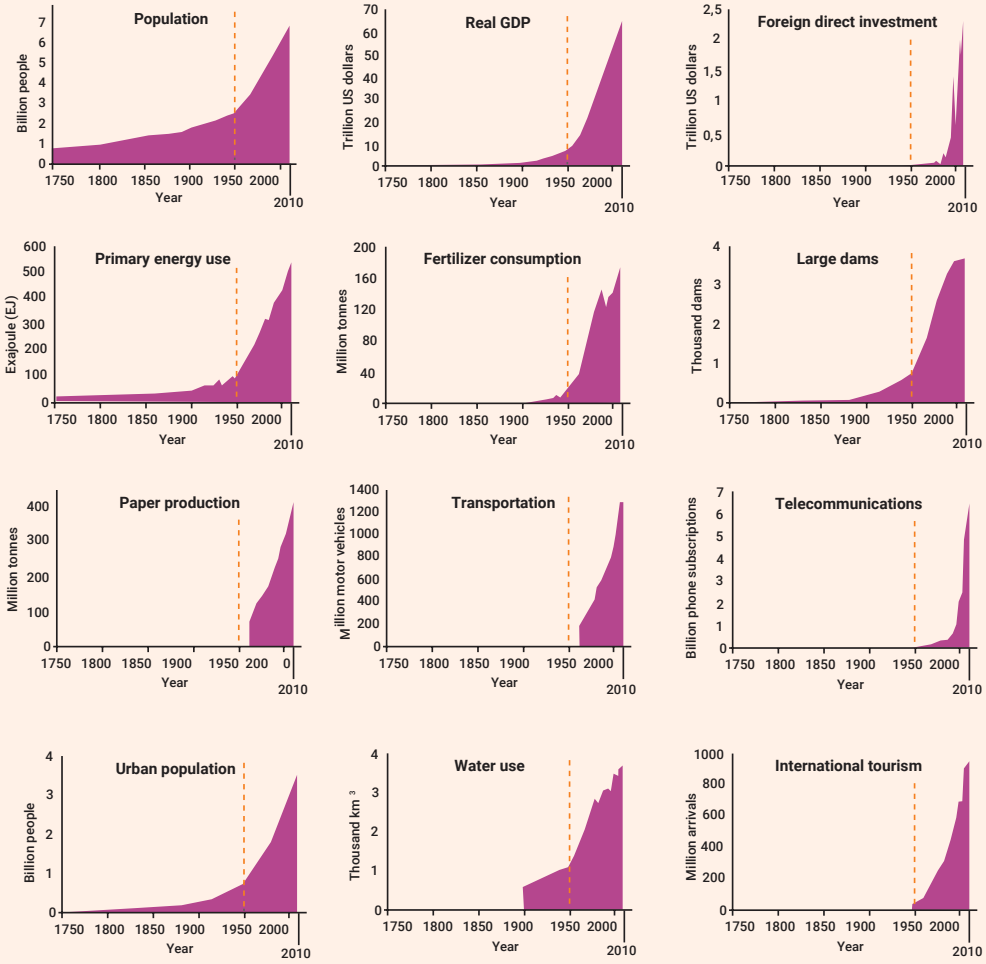
55% of the global population is living in urban areas (UN, 2019).

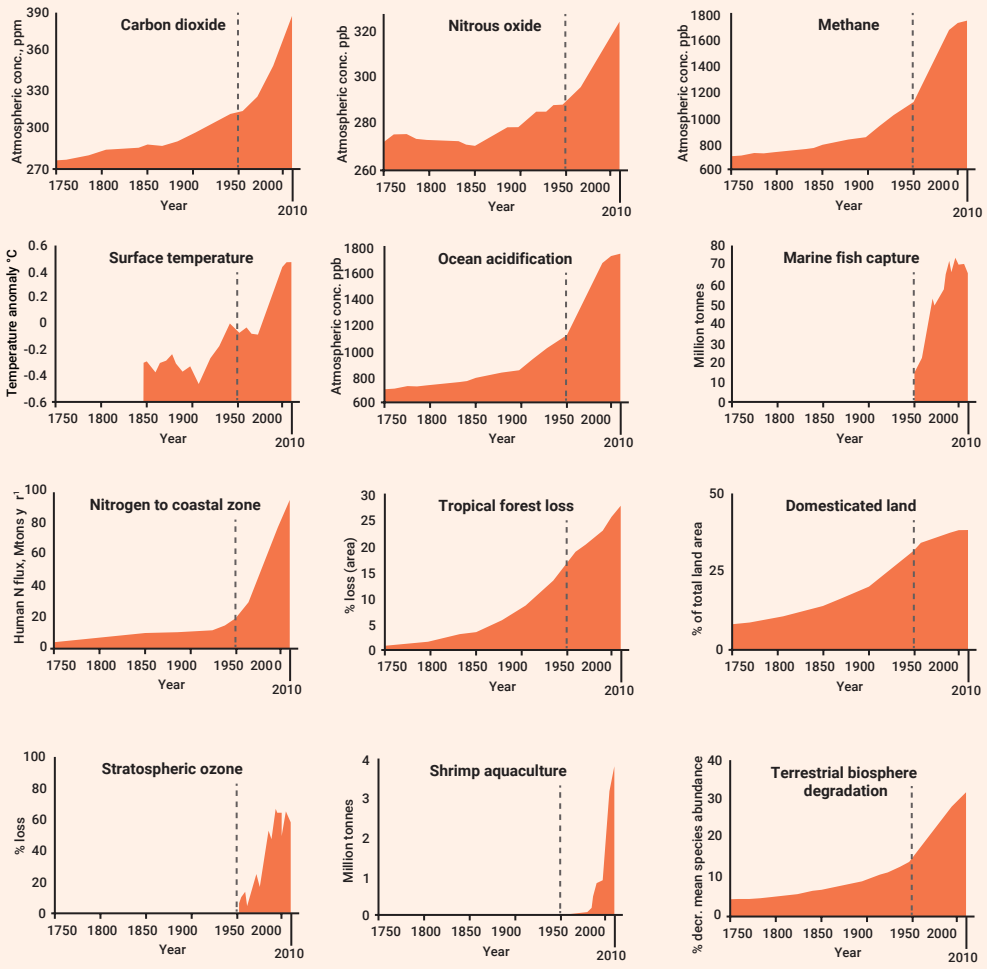
Urban environments produce over 70% of global CO2 emissions and consume 2/3 of global energy (C40 Cities, n.d.).

In 2050, there will be 9.7 billion human beings living on this planet, needing the capacity of 3 Earths (UN, 2019).

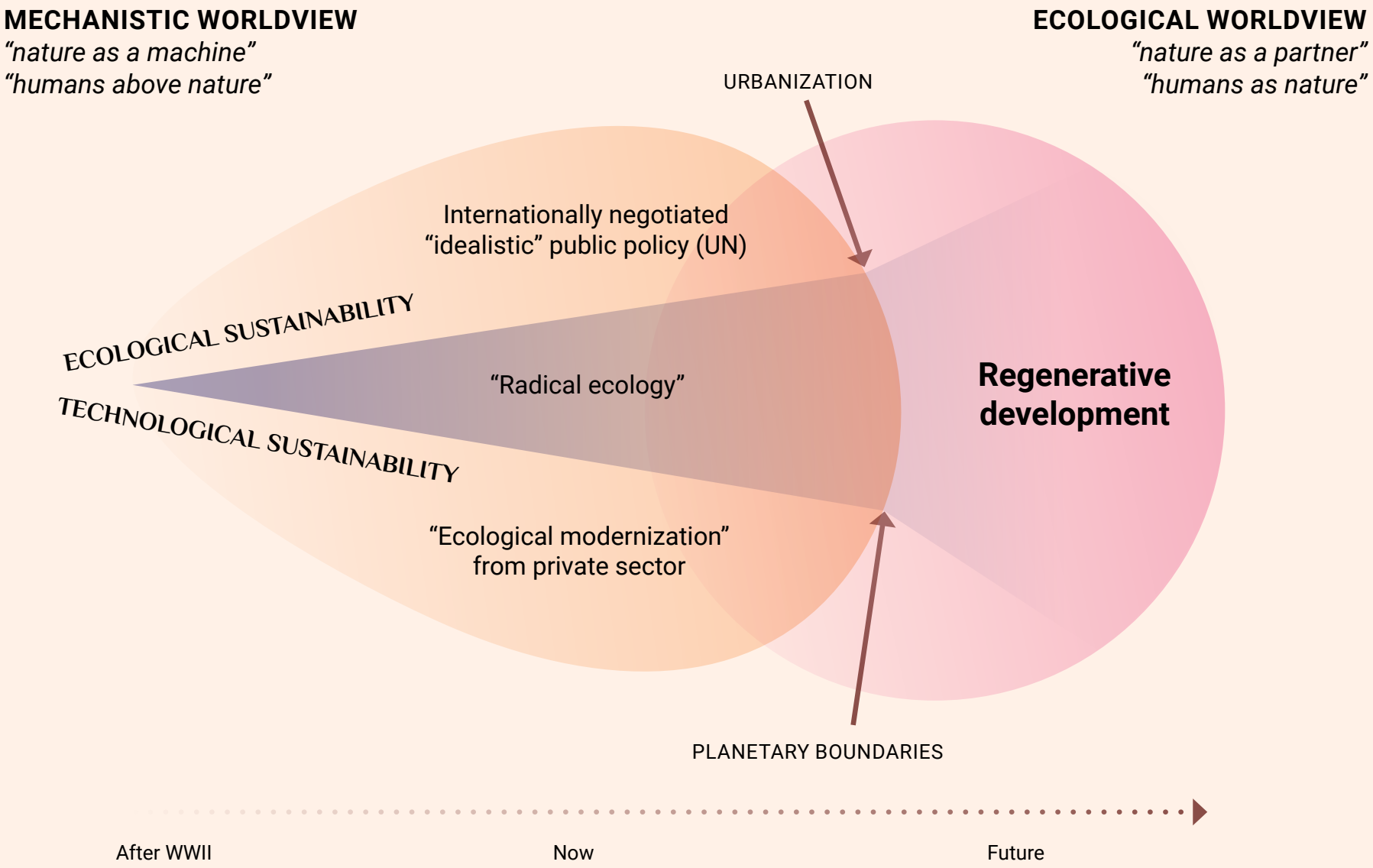
SOCIO-ECONOMIC TRENDS



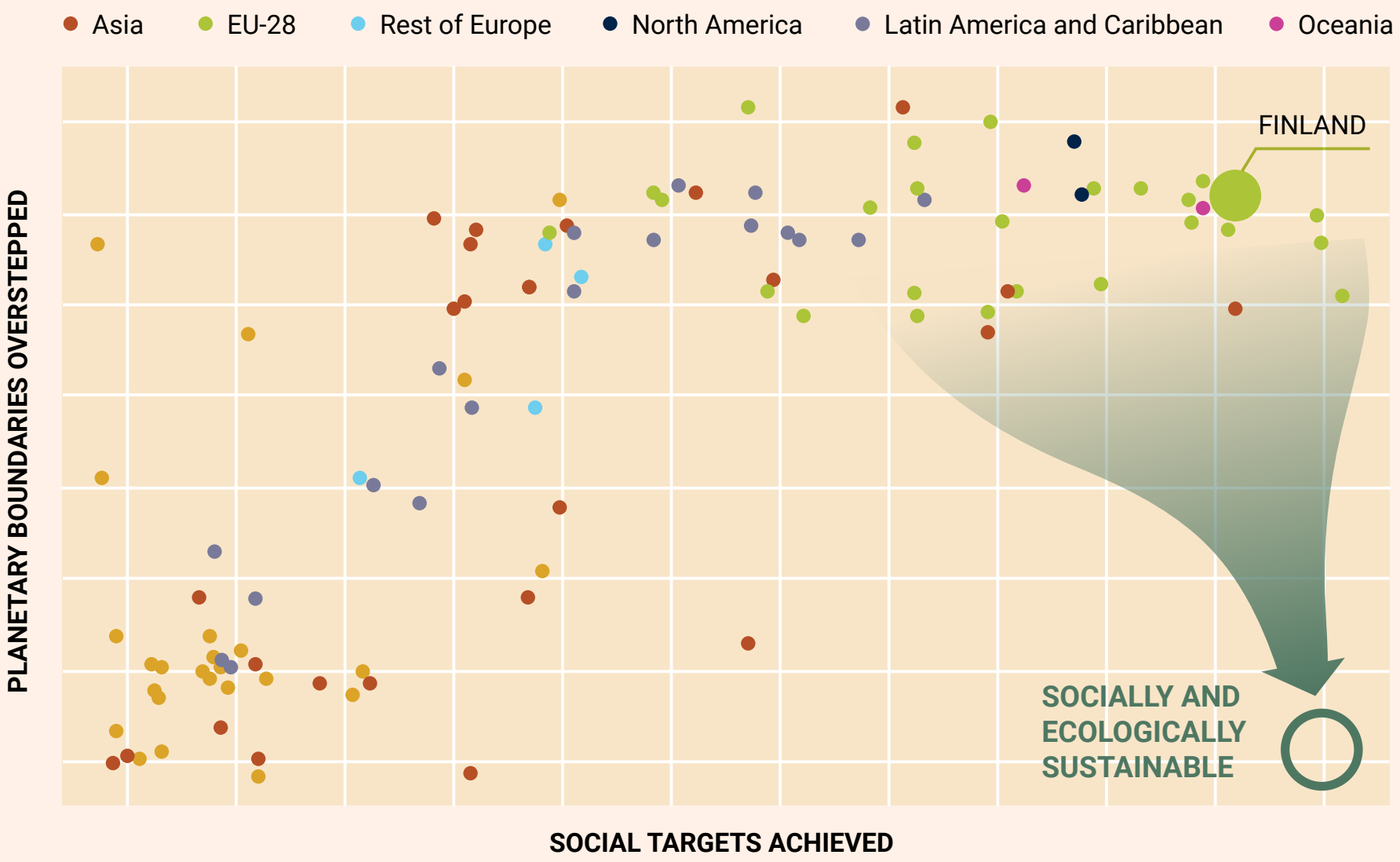
EARTH SYSTEM TRENDS



Source: The socio-economic and Earth system trends of ‘Great Acceleration’ from Steffen et al. (2015).



Source: Du Plessis (2012) and visualized by Katri Einola.



Source: O'Neill et al. 2018 © SYKE & SITRA.

REGENERATIVE DESIGN & DEVELOPMENT

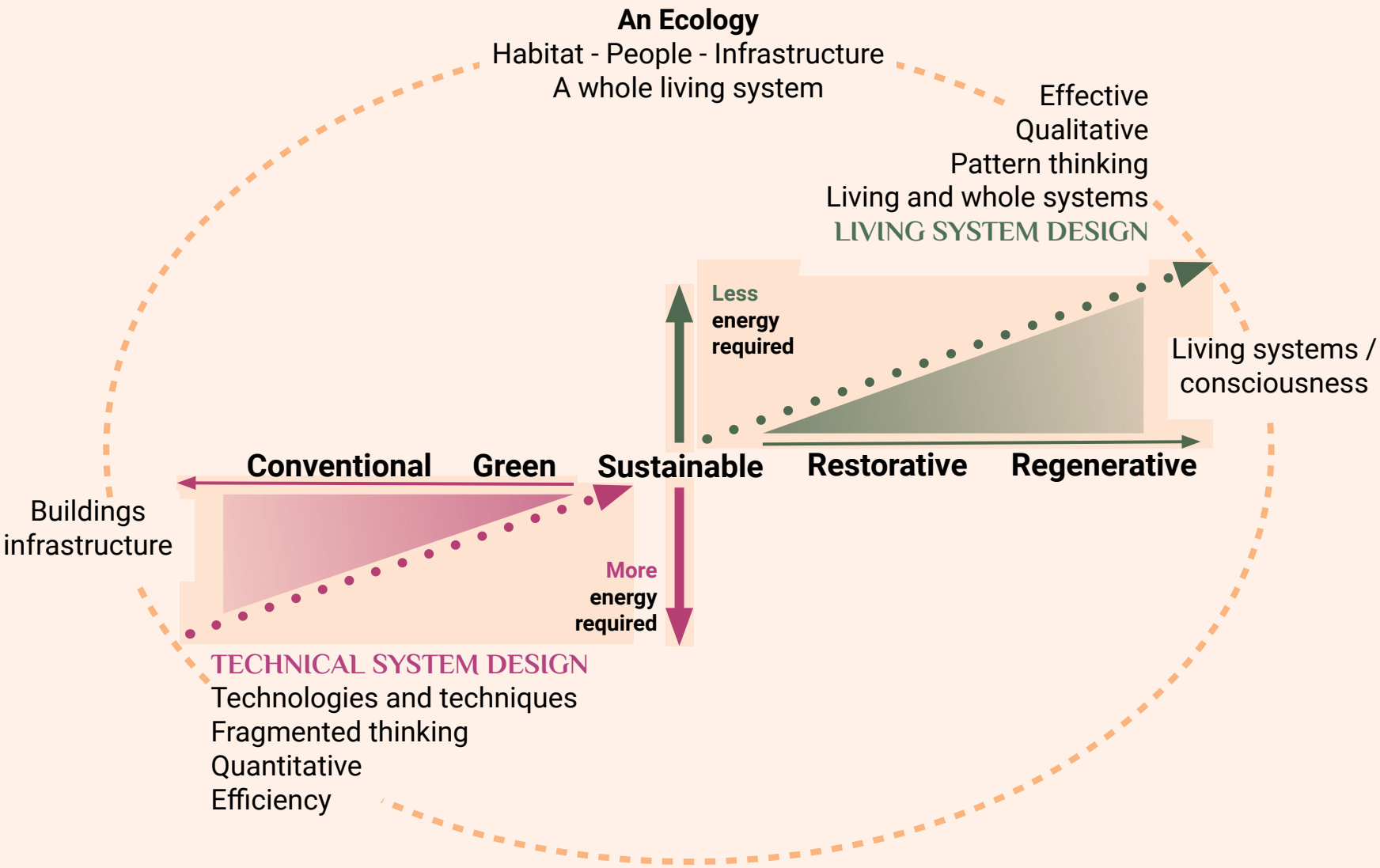
DESIGN: A set of strategies and approaches to reach a net-positive symbiosis between humans and nature or being in a mutually beneficial partnership with each other.

DEVELOPMENT: A holistic approach to sustainability between culture, built environment, and the natural world, guided by land use and advancing for mutually supportive, symbiotic, and positive relationship between humans and nature.

- The mindset of the developmental change process
- Focused on the process rather than the end solution

A **multidisciplinary** *and* **process-oriented** *approach to* **design human life-support systems** *seeking to replace "the present linear system of throughput flow with cyclical flows at sources, consumption centers, and sinks."*

- John Tillman Lyle: Regenerative Design for Sustainable Development (1994)



Source: The contrast of technical system design to living systems design. Regenesis Group (n.d.)

ELEMENTS OF REGENERATIVE DESIGN

Ecoliteracy / Knowledge of Nature

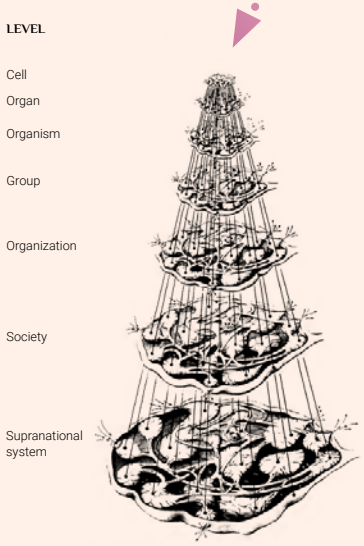
Positive health and well-being of systems

Place-based thinking

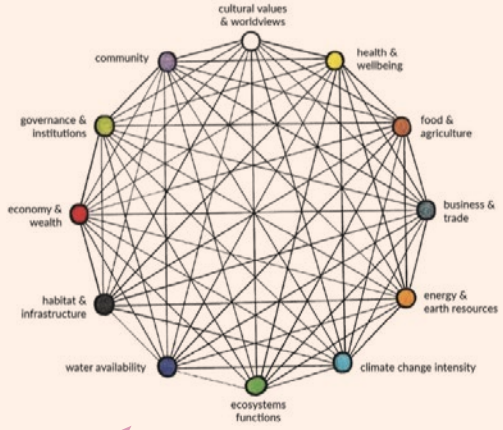
Co-evolution

Whole systems approach

Ecological worldview

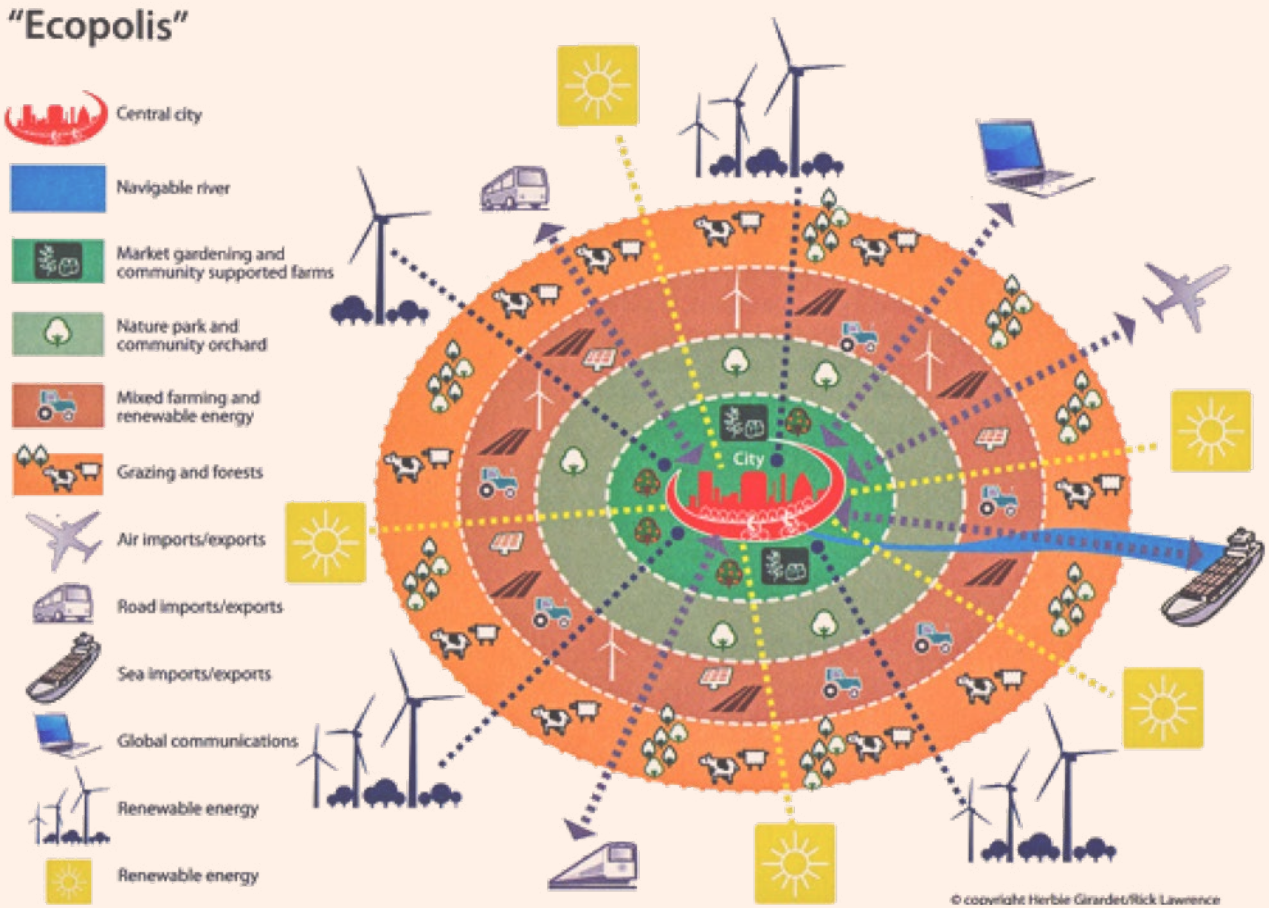


Source: Living systems model by Miller (1965)



Source: The IFF [International Futures Forum] World System Model,, Hodgson (2011)

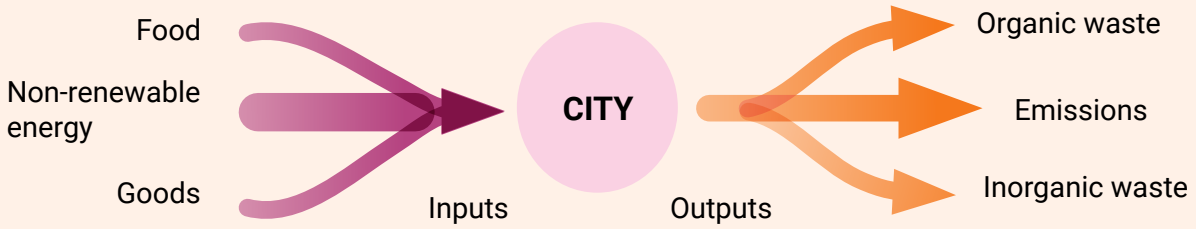
REGENERATIVE CITY



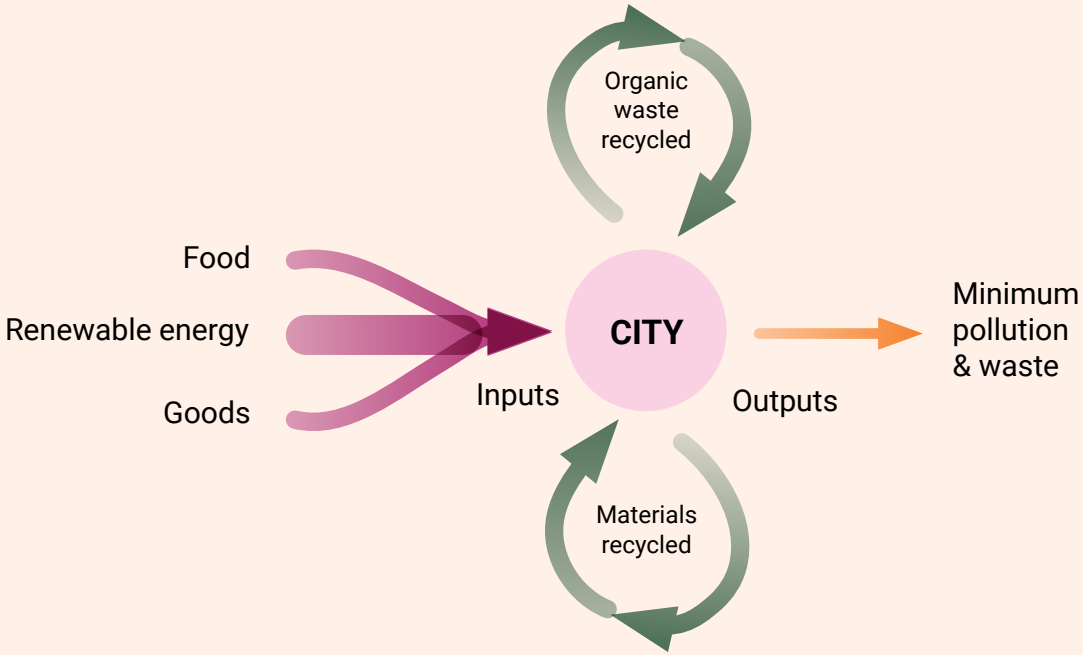
Source: Girardet and Lawrence (2015) from the book Creating Regenerative Cities

URBAN METABOLISM

LINEAR METABOLISM CITY

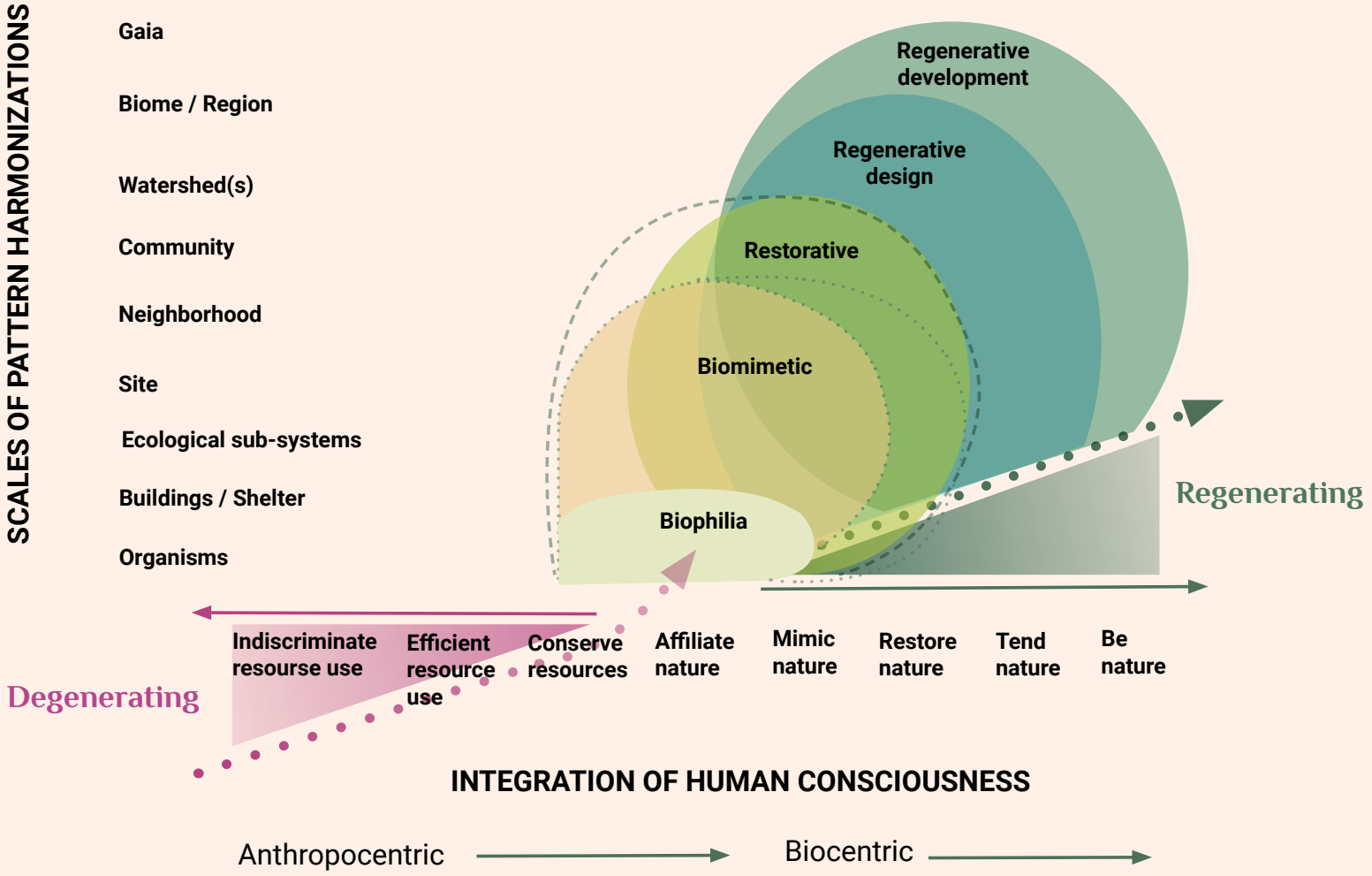


CIRCULAR METABOLISM CITY



Source: Girardet (2010)

STRATEGIES FOR URBAN ECOLOGICAL DESIGN



Source: Mang & Reed (2012)

URBAN ECOLOGY

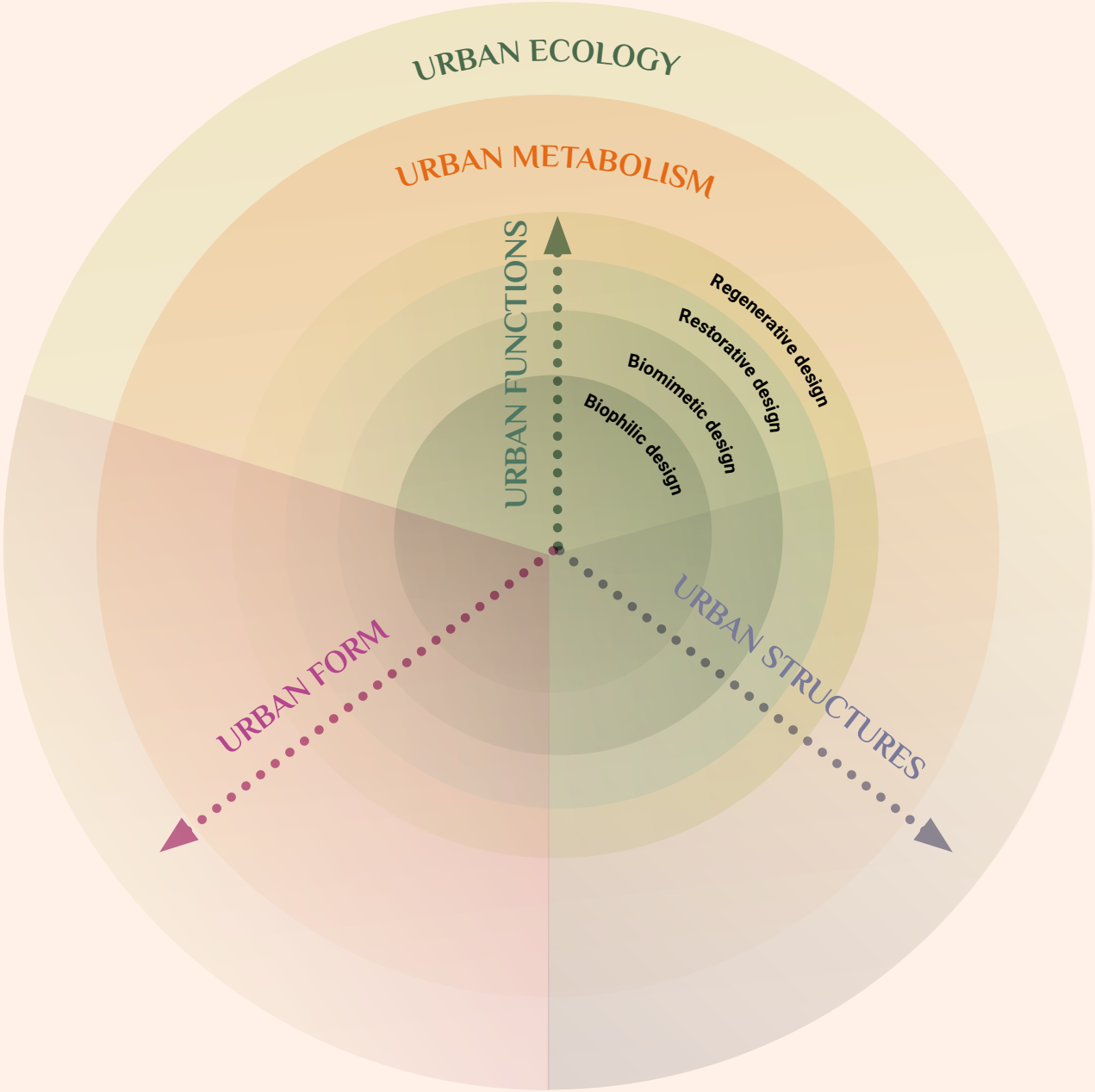
- Green infrastructure
- Ecosystem Services
- Nature-based solutions

URBAN METABOLISM

- Energy
- Water
- Biodiversity
- Waste
- Materials
- Transportation

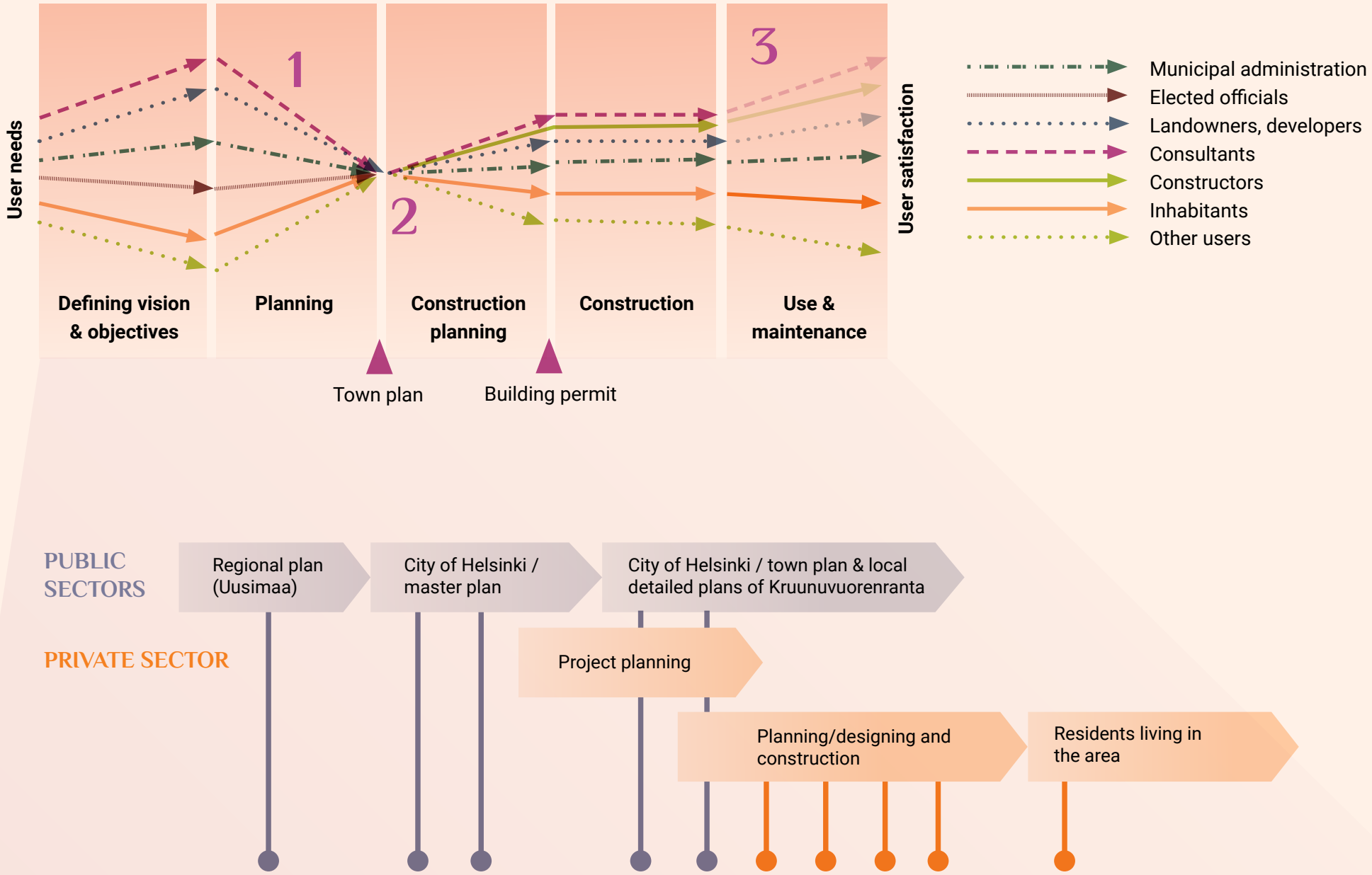
URBAN ECOLOGICAL DESIGN STRATEGIES

- Biophilic design
- Biomimetic design
- Restorative design
- Regenerative design



CASE STUDY

Kruunuvuorenranta, Helsinki



The planning and implementation process in Finnish context. Source: Väyrynen (2007).

FINDINGS

VISION & OBJECTIVES

- Sustainability - the subordinate goal
- Supporting ecological lifestyle

PLANNING

- From siloed experitise to holistic systems thinking
- From strategies to action
- Place-based solutions

DESIGN

- The value of green
- Architecture reinforcing community and co-evolution

CONSTRUCTION

- Planning regulations as drivers of change

SUSTAINABILITY - THE SUBORDINATE GOAL

- Overpowered by the weight of the responsibility, the speed of change, and the lack of knowledge.
- The mindset change as the greatest obstacle.
- Conflicting goals in city's decision-making.

SUPPORTING ECOLOGICAL LIFESTYLE

- Access to nature/green, renewable energy options, waste management systems (RODE), public transportation, bikelanes, walking, ...
- Densification as positive if it enables more space for green

"The city organization is now tuned for reaching the gross floor area goals, not sustainability goals".

FROM SILOED EXPERTISE TO HOLISTIC SYSTEMS THINKING

- Lack of expertise in understanding and managing sustainability holistically & horizontally and working across the silos (in public sector)
- Sustainability efforts mostly rely on a person's own interest, not their specific expertise, the appointed field of focus, or common goal.

FROM STRATEGIES TO ACTION

- Actions are not quick and radical enough
- The feeling of being *'left alone'* with carbon-neutrality goal (in public sector)
- Resources and decision-making hinder the actions

PLACE-BASED SOLUTIONS

- transformation from a brownfield into a residential area
- Utilizing elements from the oil harbor

"We are at a point with climate change where we need all the possible actions. I cannot see why we should categorize and grade the actions or wait for better ones. We need to use them all, now."

THE VALUE OF GREEN

- In every level, the positive impacts of green infrastructure were recognized.
- But understanding of nature's systems and processes needs enhancing.
- *'Nature as a designer'*
- Need for tools and systems to measure the benefits of nature

Source: EKE-Rakennus Oy

ARCHITECTURE REINFORCING COMMUNITY AND CO-EVOLUTION

- Adaptability ('*muuntojoustavuus*')
- *'Building a place together'*
- *'Village'*-feeling to living environments
- Hybrid / shared / community spaces
- Lifespan of buildings should be lengthened

PLANNING REGULATIONS AS DRIVERS OF CHANGE

- Private sector wants to ***'design more freely'*** but in order to do that they need to be ***'softly forced'***.

- The town planning including detailed plans were considered the most proactive and effective levels to provide entry points to tangible sustainability actions.

- Currently, in many competition calls for plots, the sustainability principles were nonexistent or side notes

" If we want the wooden apartment buildings to become more common, we need some compensations and incentives, regulated in the town plan. For example, if there was a planning regulation about getting an extra 10% or 20% building right in the plot - because wooden buildings take more space to build."

"In many ways,
the environmental crisis is a design crisis.
It is a consequence of how things are made,
buildings are constructed, and landscapes are used."

- Van der Ryn & Cowan, 2007

THANKS.

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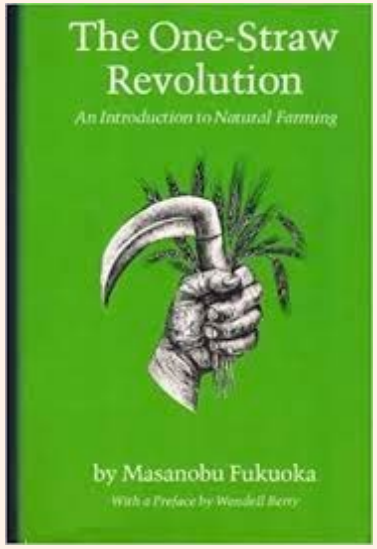
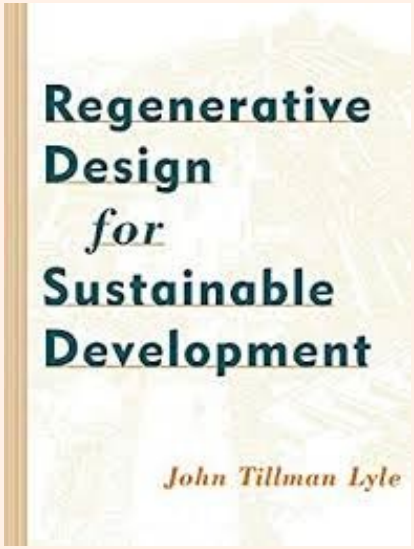
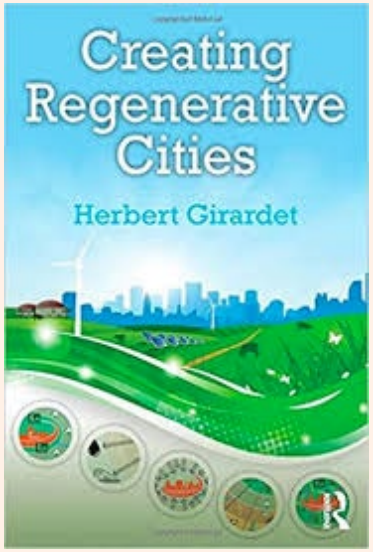


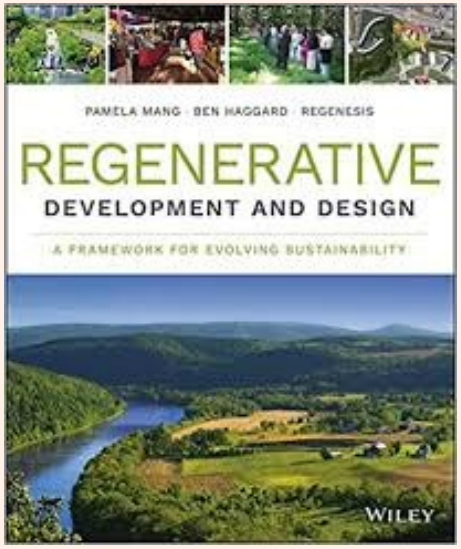
Masanobu Fukuoka (1975) - The One-Straw Revolution



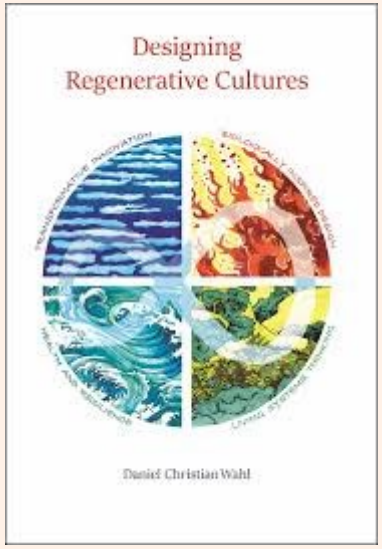
John Tillman Lyle (1994) - Regenerative Design for Sustainable Development



Herbert Girardet (2015) - Creating Regenerative Cities



Pamela Mang & Ben Haggard (2016) - Regenerative development and design



Daniel Christian Wahl (2016) - Creating Regenerative Cultures

RESEARCH QUESTIONS

1. What is regenerative design in the urban context? **(LITERATURE REVIEW)**

2. What elements of regenerative design can be seen in the current state of play when designing Helsinki? **(CASE STUDY)**

3. How could the designers of cities (planners, architects, designers, and makers) introduce regenerative design into urban design practices?

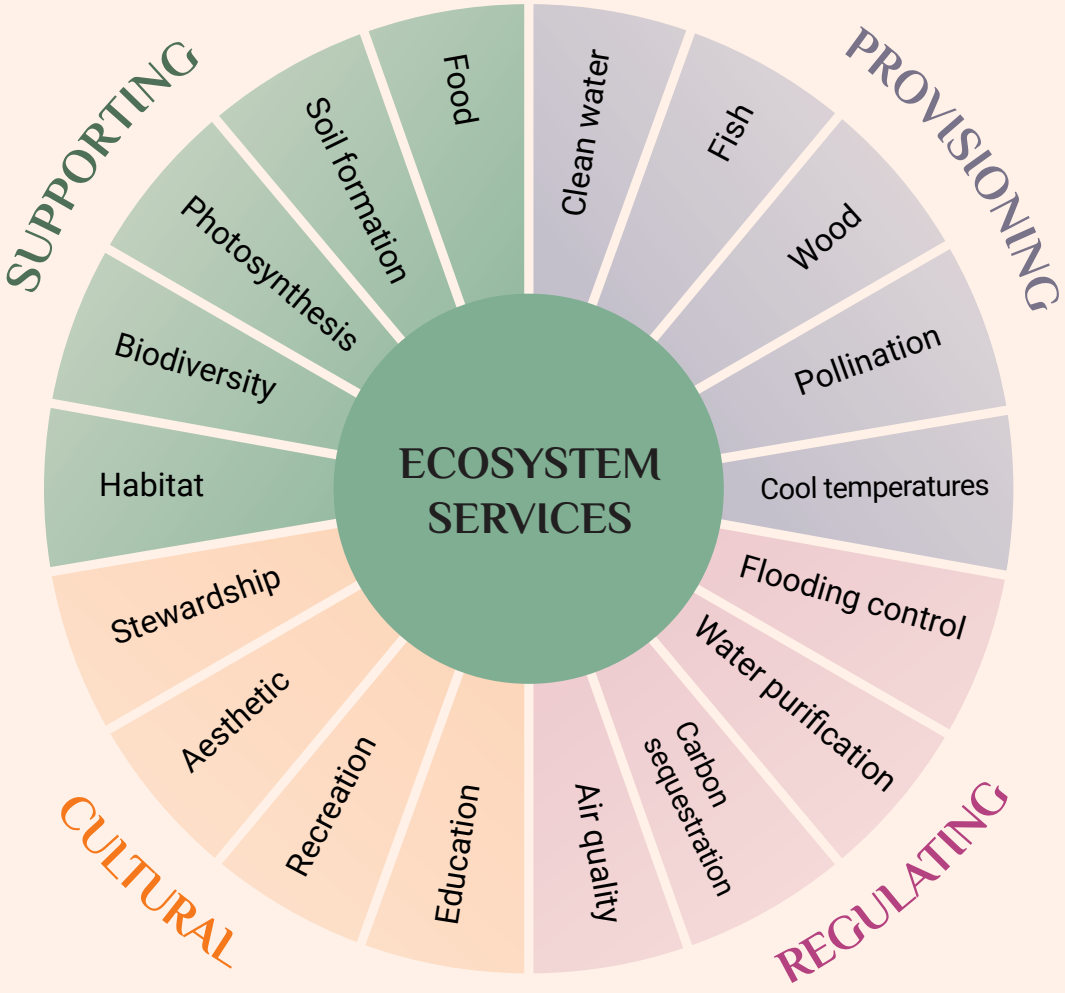
   (LITERATURE REVIEW & CASE STUDY)

URBAN ECOLOGY

Green infrastructure

Ecosystem services

Nature-based solutions



Source: Ecosystem services, Millennium Ecosystem Assessment (MA).