Individual Master Dissertation Constructing Ecosystems 2024/25

Material Cultures - Scaping bioregional architecture. Building relationships between land, materiality and agency

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How long is the growing season? (1)

The series of master dissertations on "**Constructing Ecosystems**" provides the opportunity for research through design and making, combining traditional design skills with systems thinking. The objective is to develop plausible spatial narratives that embrace the complex multi-scalarity of our built and living environment by relating the architectural intervention with the micro scale of materiality and the macro scale of ecosystems. Constructing Ecosystems aspires to make positive change by making sense of complexity and making prototypes synthesizing the micro, mezzo and macro scales.

The brief of 2024/25 focuses on place-based experimentation rooted in the concept of **bioregion**. A bioregion is commonly defined as "*a distinct area with coherent and interconnected plant and animal communities, and natural systems, often defined by a watershed"*, that interconnects the land with human culture and non-human life. "*[Bioregion] refers both to a geographical terrain and a terrain of consciousness to a place and the ideas that have developed about how to live in that place"* (2). Allowing a systemic understanding how we, our habitats and skills co-evolve with landscape and non-human communities, bioregions can bridge the dichotomies between Nature and Culture, acting as a catalyst for ecological stewardship and regenerative design. How is the formal language and aesthetics informed by the materials of the place ? How is the transition to regenerative agriculture and regenerative architecture entangled?

On continental scale, **Belgium** belongs to the Atlantic bioregion; characterized by a high degree of habitat fragmentation, **intensive agriculture,** eutrophication with massive algal blooms and Invasive species. An estimated 55,000 species of plants, insects and animals and a few thousand species of bacteria are native to Belgium. There are around 35.000 farms in Belgium, many of them animal farms with a total population of over 45 mill cattle, pigs and poultry. On country scale, the territory of Belgium can be geographically divided in 11 ecological regions with distinct assemblages of fauna and flora, ranging from the dunes and polders in the north over the loamy plains of the central plateau to the forests of the Ardennes in the south. With this project you will follow regional resources from where it is produced, harvested, processed through hands or machines, assembled and experienced. You will relate traditions and current approaches of agriculture and architecture with novel techniques and technologies to design a building practice that contributes to the regeneration of the region. The objective is that you as a designer will engage deeply with the place, understanding the geological and climatic conditions, the flora and fauna, the social history, the existing and emerging (agricultural) industries aiming to develop a **material culture**, adopted to the resources available in the bioregion, exploring the variety of specific materials, products and processes (3).

The project entails the following phases:

Phase 1 (semester 1): in-depth **research and mapping** on communities, (agri)cultures, and resources of one selected region, collating an observatory of resources and related processes and actors, identifying opportunities for regenerative transformation. During the atelier week you will plan and execute your **discovery journey** through the region to engage with real people and places, collect information, material probes (min 10) and stories; speak with key stakeholders and find inspiration. At the end of the week you will present the collections on a large scale map.

Phase 2 (first 5 weeks of semester 2): Select key material(s) and value chains to develop a regional **material culture** and manufacturing and construction processes to interweave land use, materials, technologies and communities with best practices from other places, e.g. diving deep into a regional network of natural fiber flows from farmers, processors, textile producers and consumers. Making, testing and **prototyping** will be a key part of this process – you can work in the labs at the department of Biology at Heverlee campus of KUL.

Phase 3 (semester 2): Showcasing the bioregional material culture through the design of a **tiny house** of ca. 35 m2 that can be installed at key positions across the region suggesting adaptations to places, demonstrating the regional material culture and regenerative practices of living, understanding and ecological care-taking. The design generates desired interactions between the house, the inhabitants, the land and its communities, improving inter-relationships.

You are strongly encouraged and supported to submit your project to the NEB Prices in 2025 for the "**New European Bauhaus** Rising Stars" Category**.**

Deliverables

- Map of the bioregion with key places and geological features; stakeholders, material related processes synthesizing ecological, physical and cultural information (scale 1:100.000 – 1:10.000),
- Material Culture Inventory – following materials from its source to part of a building system; synthesizing technical; processing, aesthetic and social aspects (M 1:1).
- Design drawings of the house (M 1:20), Axonometry of the house with technical description of key components and physical model (M 1:10 – M 1:1)
- Script or visual narration on the interrelationships of the house with the place, communities and users
- Material Culture Logbook and Dissertation booklet synthesizing research, experiments and design

Literature List

1 Charles, L., Dodge, J., Milliman, L., & Stockley, V. (1981). Where you at? A bioregional quiz. Coevolution Quarterly, 32, 1.

2 Peter Berg and Raymond Dasmann 'Reinhabiting California' in Cheryll Glotfelty and Eve Quesnel (Eds.), *The Biosphere and the Bioregion: Essential Writings of Peter Berg.* London; New York: Routledge, Taylor & Francis Group, 2015.

3 Bioregioning, Future Observatory Journal Issue 1, April 2024 https://fojournal.org/

4 Daniel Christian Wahl, Designing Regenerative Cultures, 2016

5 Kirkpatrick Sale: Dwellers in the Land, 200056

6 John Thackara, Bioregioning: Pathways to Urban-Rural Reconnection, She Ji: The Journal of Design, Economics, and Innovation, Volume 5, Issue 1, 2019,Pages 15-28,ISSN 2405-8726, https://doi.org/10.1016/j.sheji.2019.01.002.

7 Material Cultures - Material Reform: Building for a Post-Carbon Future, 2022

8 Paul Hawken, Regeneration: Ending the Climate Crisis in One Generation, 2021

9 Material Cultures, Circular Biobased Construction in the North East and Yorkshire, 2021

10 Billy Fleming, Design With Nature Now, Lincoln, 2019

11 Wearne S, Hubbard E, Jónás K & Wilke M (2023) A learning journey into contemporary bioregionalism. People and Nature.

12 Hubbard E, Wearne S, Jónás K, Norton J & Wilke M (2023) Where are you at? Re-engaging bioregional ideas and what they offer geography.

13 Capra F, Luisi PL. Frontmatter. In: The Systems View of Life: A Unifying Vision. Cambridge University Press; 2014:i-iv.

14 Dowling, R., Lloyd, K., & Suchet-Pearson, S. (2017). Qualitative methods II: 'More-than-human' methodologies and/in praxis. Progress in Human Geography, 41(6), 823–831. https://doi.org/10.1177/0309132516664439

Useful Links

Bioregions: https://thackara.com/
Systematic design: https://systemicdesignlabs.ethz.ch/,
Designing Regenerative Cultures: https://www.youtube.com/watch?v=d9WA1IIohq0
Regenerative Futures: https://www.youtube.com/watch?v=NwaI29aNsSk
Chair of Affective Architecture: https://www.fonteyne.arch.ethz.ch/en/
Biodiversity in Belgium: https://www.cbd.int/countries/profile?country=be

Blue and green infrastructure in Flanders: https://blauwgroenvlaanderen.be/
Regenerative Farming/ https://soilmates.be/
Agroforestry in Belgium: https://www.renature.co/articles/agroforestry_in_flanders_belgium/
Bioregion UK: https://southwestenglandfibreshed.co.uk/

Regenerative agriculture in Denmark: https://web-assets.bcg.com/a0/71/59d6ae4f40c4a8b81bfecba3afd7/bcg-the-potential-of-regenerative-agriculture-in-denmark-feb-2024.pdf

Regenerative land use in Scotland: https://www.thealternative.org.uk/dailyalternative/2023/11/21/dark-matter-scottish-land-commission-paper, https://www.landcommission.gov.scot/downloads/655b1bb264fac_SLC-DML_Discussion-Paper_for%20publication.pdf

Regenerative Farming: https://www.climavore.org/, https://www.rca.ac.uk/research-innovation/research-centres/climavore-x-jameel-at-rca/

Local advanced manufacturing: https://www.bombyxsilk.com/, https://royaldanishacademy.com/en/case/bio-local-advanced-manufacture, https://royaldanishacademy.com/en/case/living-prototypes

Design Ecologies: https://blog.lboro.ac.uk/london/design-innovation/design-ecologies-for-times-of-crisis

NEB Project - Cultivating Companionship: https://www.linahuelsmann.com/cultivating-companionship/