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Peat, Actor and Design Tool

Engaging Experimental Drawing Methods in the Design Process

Anastasiia Soshnikova [1] **and Inge Bobbink** [2]

[1] Technical University Berlin (Germany)
[2] Delft University of Technology (Netherlands)

Abstract

This essay explores integrating experimental graphic methods into the design process to engage with more-than-human worlds. It is based on the graduation project *'RE-Peat: Different Futures for the Peat Polders, a Social-Ecological Landscape in the Netherlands,'* which aims to transform degraded peatlands. Through various representation techniques, such as hand-drawn perception drawings and Gaia-graphic representation, peat is positioned as an actor and a design tool. Such methods aim to foster environmental sensitivity and holistic design ideas, acknowledging the needs of both human and non-human actors.

Keywords

Gaia-graphic representation, hand drawings, influence map, landscape architecture, more-than-humans, peat, social-ecological systems.

DOI

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This visual essay explores experimental drawing methods in the design process, seeking ways to include more-than-human actors in representation methods. We developed a narrative for a polder landscape by introducing 'peat' as the primary actor through various visual forms.

The essay is based on the graduation project '*RE-Peat: Different Futures for the Peat Polders, a Social-ecological Landscape in the Netherlands'*, which researches possibilities for recovering peatland degradation caused by human activities[1]. The project proposes design strategies and a framework to transform the Eilandspolder in North Holland into a social-ecological landscape based on peat soil growth. Inspired by social-ecological systems, it explores methods to represent interactions between natural and human processes, sharing flows of water, material, and energy. The term 'social-ecological system' underscores human-nature interconnectedness while highlighting the artificial distinction between social and ecological systems (Berkes, 2011). By focusing on human-natural system interactions, this approach considers non-human actors. Latour's Actor-Network Theory asserts that human and non-human elements actively participate in networks of material/immaterial objects and relationships (2007). Building on this, Latour suggests non-human actors possess agency influencing human behavior (Mahaswa, 2023, p. 2). The phrase 'humans and non-humans making each other' (Tsing et al., 2021) offers new insights into human-environment relationships, emphasizing non-human actors' roles.

Various experimental representation methods serve as analytical and design tools to approach the more-than-human world. The goal is to offer new perspectives highlighting non-human actors' agency, particularly peat—a delicate soil type formed by organic material accumulation under waterlogged, oxygen-deficient conditions. By positioning peat as both actor and design tool, representation methods become instruments for understanding and directing human-environment design solutions. Each drawing explores different dimensions of peat interactions, from sensory engagement and material exploration to depicting complex ecological processes and human impacts. Through hand drawings and visualization techniques, the project investigates peat's sensory and experiential qualities, using textures and materials to depict its complex nature.

The essay also examines human and non-human actor interactions, employing tools like the Gaia-graphic to map relationships and highlight ecological-social system interconnectedness. This visual tool builds on James Lovelock's 1970s 'Gaia' concept describing life-environment interconnections (Latour et al., 2020). Bruno Latour expands this, viewing Gaia as a complex network of humans, non-humans, and environments (Mahaswa, 2023, p. 6). The Gaia graphic visualizes this network's mutual influences. *Terra Forma: A Book of Speculative Maps* (Aït-Touati et al., 2022) proposes alternative cartography moving from anthropocentric perspectives (land as construction surface) to cosmopolitical perspectives focusing on Earth's internal dynamics (soil depth, natural cycles). This framework enables an 'inside' rather than external planetary view (Arènes et al., 2018, p. 4).

By transcending art-science boundaries, creative representations of peat's narrative invite stakeholders to reimagine landscape relationships. These experimental methods help navigate human-environment complexities, fostering holistic designs serving human and non-human actors' needs. However, potential misunderstandings may arise from unfamiliarity with these complex visualizations. Therefore, discussing them during creation is crucial to ensure they function as effective communication tools.

1 Graduation project (2022): RE-Peat: Different Futures for the Peat Polders as Social-ecological Landscape in the Netherlands. Tutored by Prof. Undine Giseke, Anna Neuhaus, both TU Berlin, Germany and Dr. Ir. Inge Bobbink, TU Delft, Netherlands.

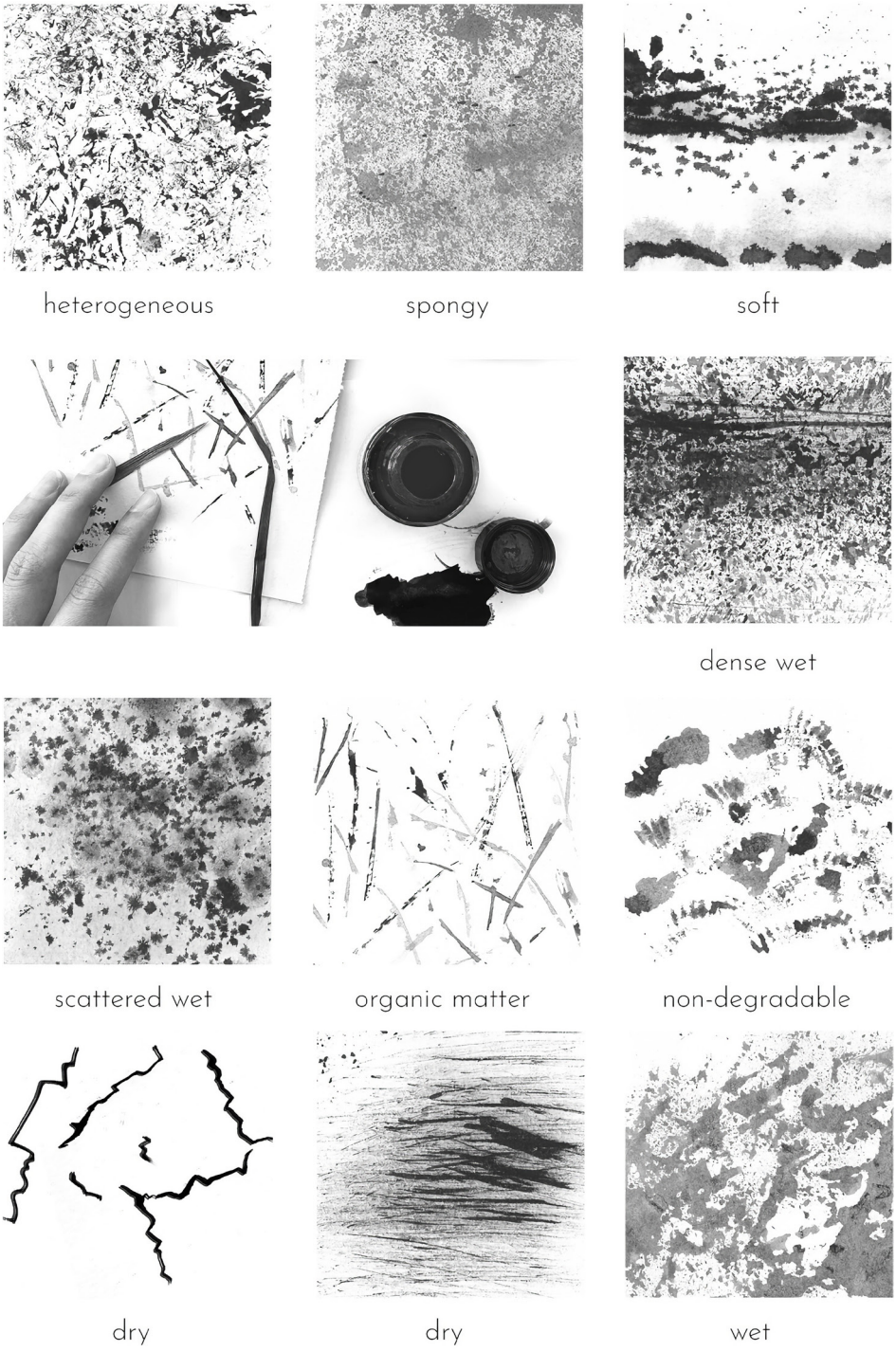


FIGURE 1

The hand-drawn perception. The visual representation of peat illustrates how humans perceive its qualities. Understanding peat as a primary actor involves studying its properties, composition, and processes. The perceptual quality of peat is employed to evoke specific emotions, fostering deeper connections with the peat soil. Peat becomes the design tool in these drawings, representing its sensory and experiential qualities for subjective and personal interpretation. Plants from the project site were used as a stamp to visualize the organic matter. The textures reveal multiple peat components and conditions through various techniques and materials. Wet and dry peat soil conditions are drawn, with water, essential for peat's survival. These texture drawings are a valuable tool in the design process because they offer sensory engagement, spatial contextualization, material exploration, and design iteration. This representation method promotes environmental sensitivity during the design phase by closely observing and representing the nuances of peat landscapes.

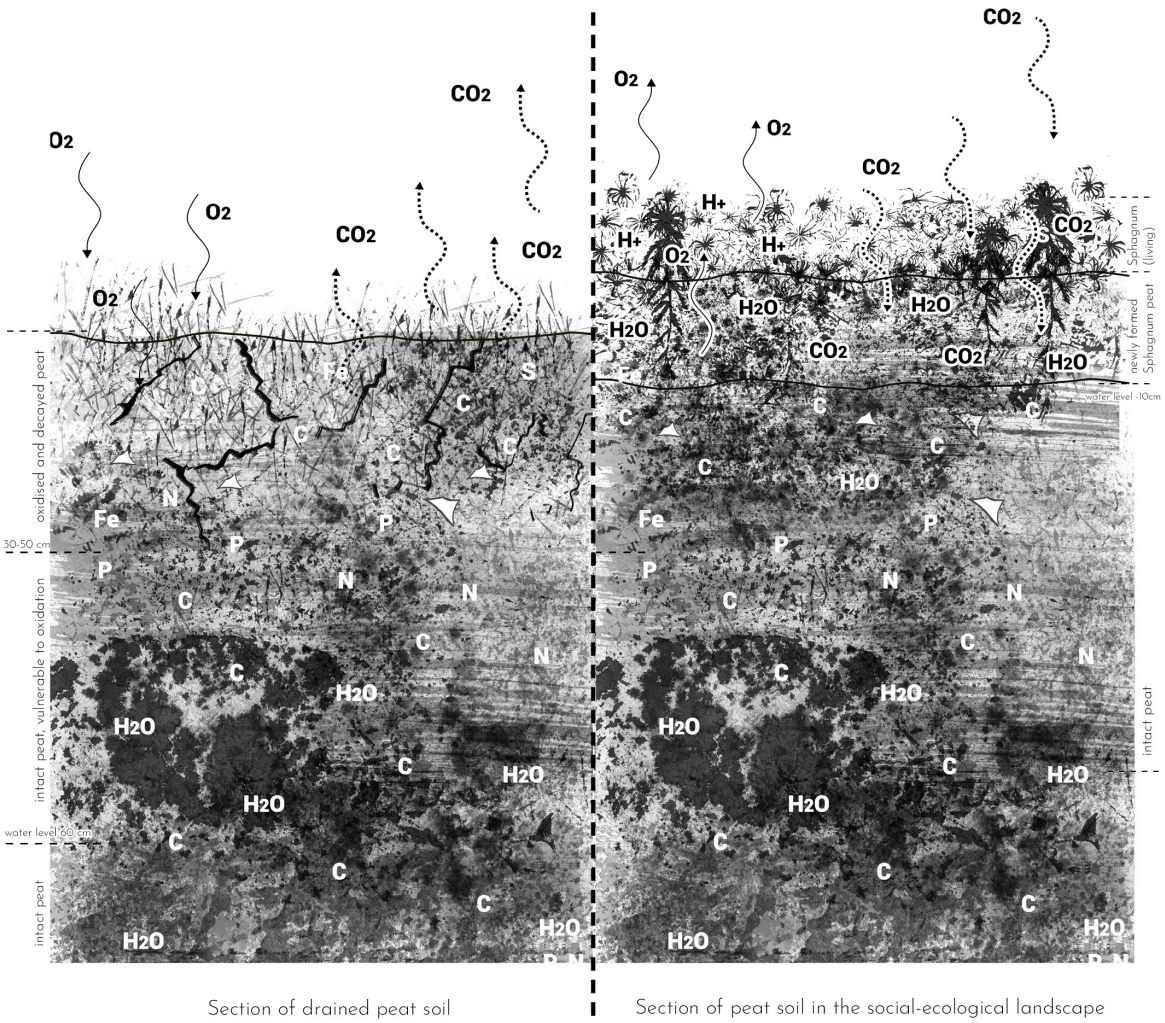


FIGURE 2

Sections of peat soil with components and processes. The drained and recovered peat soil sections are created using the textures illustrated in Figure 1. In contrast to the human perception depicted in Figure 1, this illustration delves into peat's intricate components and processes, highlighting how it functions and interacts within its environment. These sections help to appreciate the delicate balance between ecological processes and human interventions.

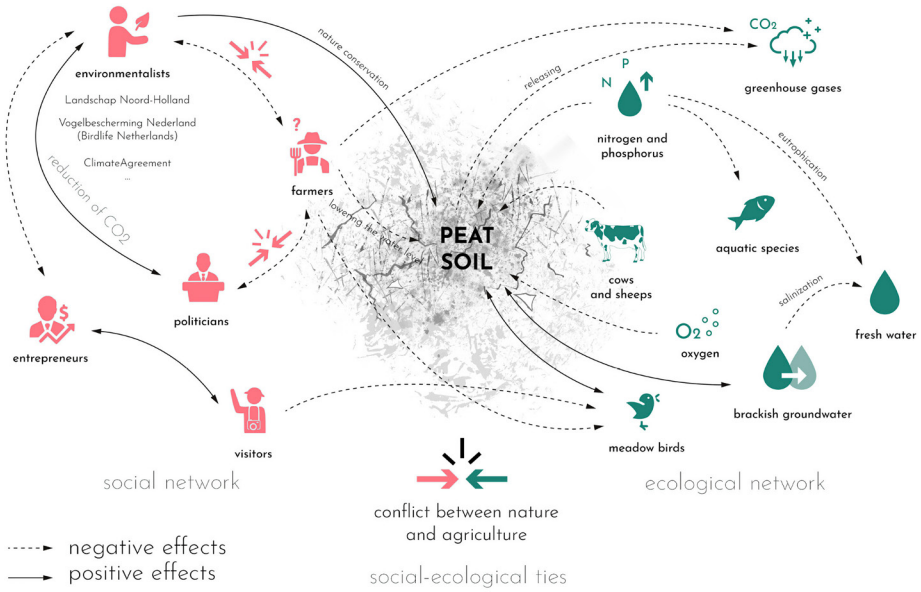


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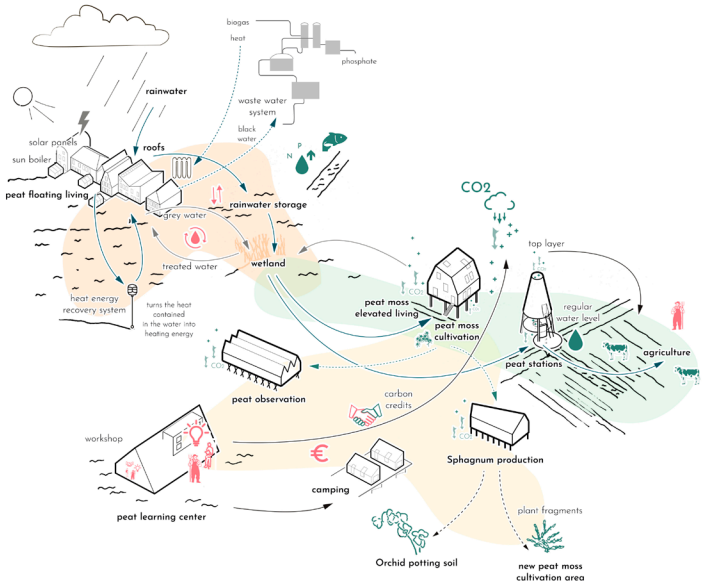


FIGURE 4

Social-ecological interactions: sharing flows of water, material, energy, and species. The social-ecological diagram depicts social and ecological systems' exchange processes and connections. Peat is an essential actor that interacts with other components in the system, influencing their behavior and functioning. Its distinct qualities make it a key player in maintaining the balance and resilience of the social-ecological system.

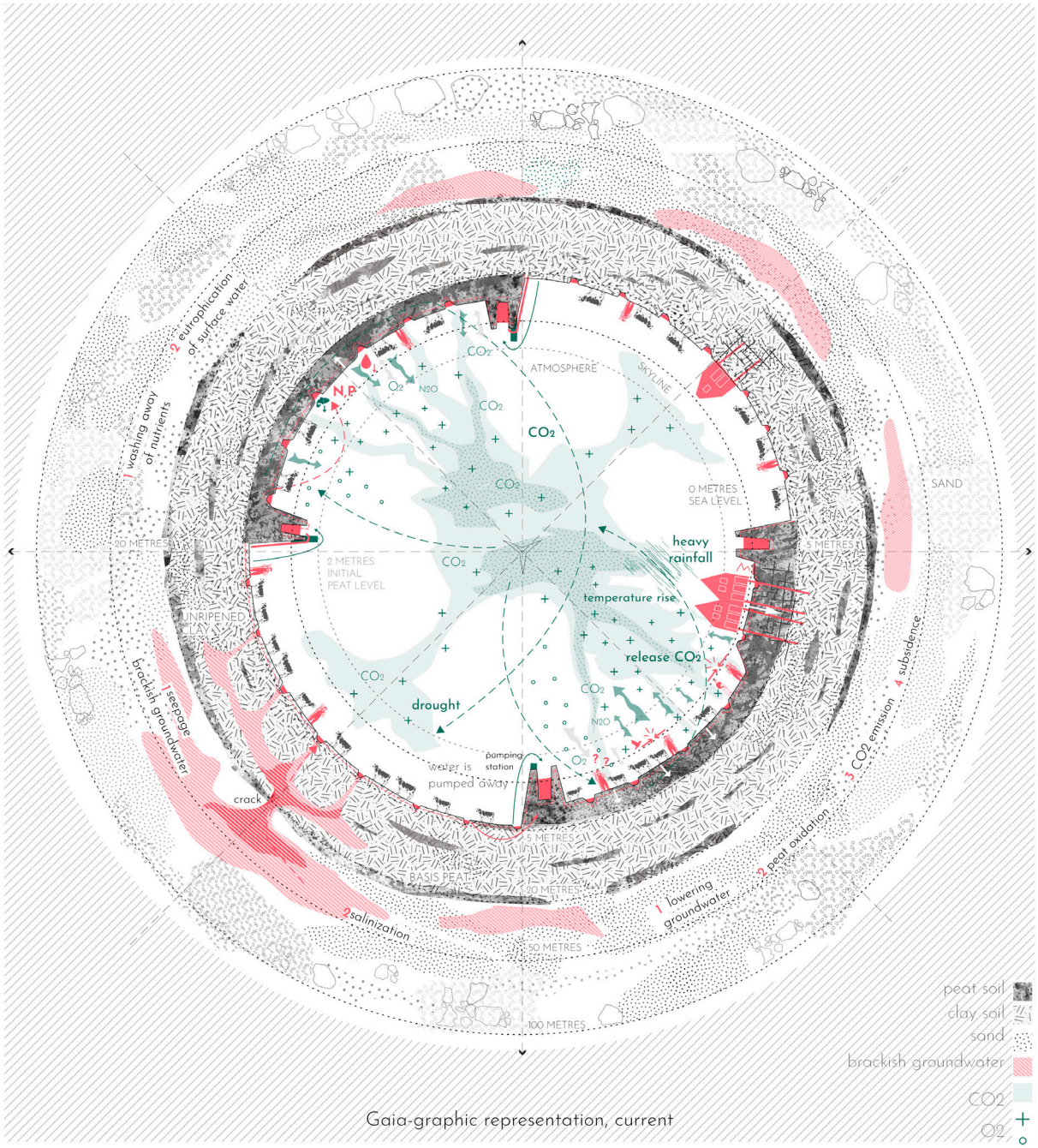


FIGURE 5

Gaia-graphic representation, current social-ecological systems. The outer ring reveals land use strata as a palimpsest, showing human impact horizontally and vertically. Placing the atmosphere at the centre illustrates how everything returns to us in a closed system (Aït-Touati et al., 2022). This representation highlights CO_2 release causing temperature rise, extended summer droughts, and increased heavy rainfall.

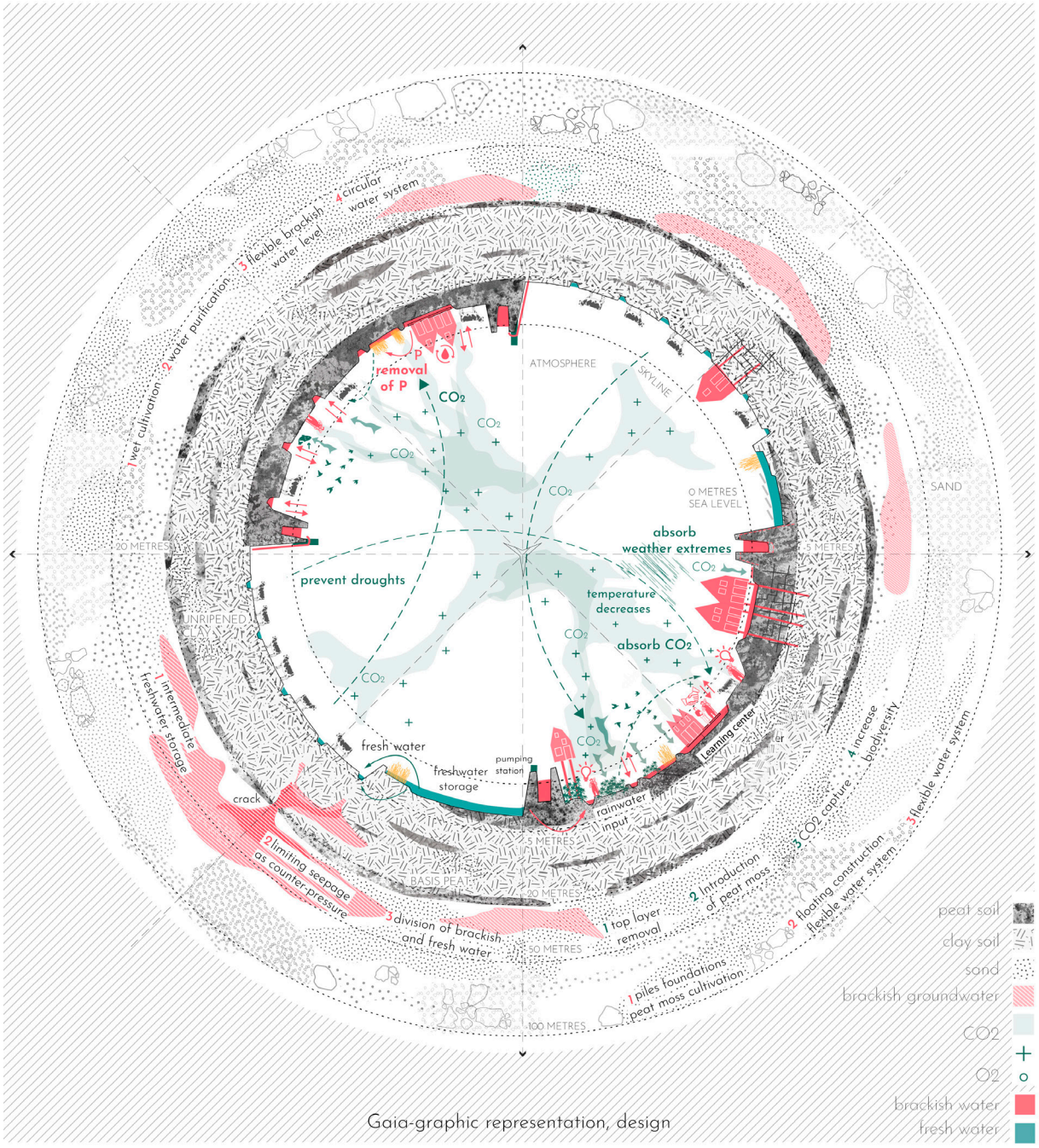


FIGURE 6

Gaia-graphic representation, design of a social-ecological landscape. The circular shape of the mapping allows a continuous visualizing process at various scales and the interaction of human and non-human actors. Actors participate in the design process through their actions. Visualizing spatial relationships across scales is a crucial aspect of understanding complex systems. Beyond analysis, the Gaia graphic becomes an integrated element of the design process. It maps potential design interventions and evaluates impacts on human and non-human actors. This application of the Gaia-graphic as a design tool introduces a new dimension, evolving from a descriptive to a prescriptive role. It transitions from depicting systems to guiding design thinking. It promotes a system-thinking approach, allowing for the visualization of interconnected elements and the identification of intervention points.



FIGURE 7

Human-peat interaction. This drawing is an experimental graphic method showing the coexistence of human and non-human actors with peat soil. Significant actors are depicted in black and white, while peat soil is highlighted with solid contrast. This method provides stakeholders and designers with insights into the physical and material experiences of the peat landscape. This visual framework offers insights and solutions on involving the more-than-human through various experimental graphic methods, contributing to bridging the gap between scientific knowledge and spatial design practice. These methods aim to make the complexities of the more-than-human world tangible and visible and stimulate debate on our relationship with the planet.

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