THESIS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

REGENERATIVE PLACEMAKING

Ecosociospatial Practices Beyond Conventional Sustainability

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Cover:

An illustration of four intersecting scales of regenerative thought and practices identified and underpinning the work in this dissertation. Discussed in chapter 3 and specifically in section 3.23

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REGENERATIVE PLACEMAKING

Ecosociospatial Practices Beyond Conventional Sustainability

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ABSTRACT

This study aims to understand and develop a designerly interpretation of the growing call to move *beyond (conventional) sustainability* that emerged in the late 1990's. It does so through a theoretical and practical exploration of the implications of regenerative design principles for placemaking. As a testing ground for this mode of working, it explores publicly shared spaces that treat waste as a resource. More specifically: placemaking practices that try to make sense of, and adjust, people's relationship to waste-making practices.

Public space and waste management are generally considered to be on the opposite ends of the spectrum of what is to be seen and unseen in the built landscape. But as we move towards more regenerative modes of waste management, where waste is treated as a resource, human interaction with the conversion of waste into a resource becomes ever more present in societies and built environments. It is therefore relevant to investigate how spatial design can contribute to developing and supporting a culture and system of reuse.

This design inquiry develops design theory, practices and places that communicate regenerative ways of relating humans, nonhumans, societies and ecosystems to each other through *ecosociospatiality*. It explores ways to foster a regenerative society through embodied encounters with spatial practices and places that foster such a mindset. It does so through pondering, experiencing and generating these types of places. It also does so by considering their implications for design thinking and spatial practices beyond conventional sustainability, i.e. the regenerative spatial practices and design thinking involved in regenerative placemaking and spatial design.

The study identifies ecosociospatial forms and practices where *waste-resource relationships* are involved in *spatial narrativity*. It delineates the nonmodern *ecosociotechnic ontology and approach* that characterizes regenerative (design) thinking and practice, as well as its intersecting scales of application. It also suggests the implications of these for *regenerative spatial poetics* and in advancing discourses and enactments of sustainability through *emotive forces and effective actions*. The study does so by testing and developing research methodologies that fit into what could be considered a *prospective method assemblage* for *design-oriented performative research.*

Key words:
beyond sustainability, regenerative (spatial) design, design thinking, placemaking, publicly shared space, waste-resource systems, nonmodernity, spatial poetics, performative (design) research

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"Place is not just a thing in the world but a way of understanding the world."
– Tim Cresswell, from *Place: A short introduction* (2004)

There are a great number of people whom I would like to thank for their support and encouragement through the trials and tribulations that have led to these words in print. In truth, there are simply too many to name.

First of all, I sincerely thank my PhD examiner, supervisors and mentors for their patience, guidance, generosity and encouragement through periods of excitement, doubt and stubbornness.

Of those who are too plentiful to name, you know who you are if you recall ever having listened and given me encouragement.

However, there are also others who went much further by contributing with different forms of involvement in projects. The names of these individuals are included in the following text as the projects they were involved in are discussed. To these collaborators I wish to extend my special thanks for being part of the process and letting me use your work in this dissertation.

My eternal gratitude is with all of you. This text would very simply not exist without your presence in the process.

THANK YOU

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ORIGINS & APPROACH

Summary of Introduction

This introduction to the text is intended to help the reader understand the intentions and logic that has formed this study. It includes a brief explanation of the approach and processes that are foundations for the study; the voice and vision used to form the text, and the audience it imagines itself speaking to. The influences and background knowledge that I have carried with me into the study are exposed, and what type of reader may be interested in the contents of this text. The chapter also briefly explains why a design approach is an appropriate method for this study. It ends with a 'pre-story' of the experience of being in a publicly shared space where waste has been treated as a resource through design thinking.

0.1
Intentions & Motivations

Human use of space and resources is often pointed out as a threat to the health and well-being of ***nonhuman beings*** and ecosystems, whose degeneration in turn threatens humanity's well-being and survival. As built environments and human influences expand across the globe, the role of built spaces and human activities in ecosystems must be re-evaluated. Both ecologies and societies are reliant upon space and spatial interactions in order to be healthy and thrive.[1] A possible definition of unsustainability could therefore be: the condition of inequitable and unhealthy relationships between ecology and society which must be settled in and through the spaces they share in built environments and the planet as a whole. A new paradigm where the human use of spaces and resources do not create degenerative and unsustainable conditions for life in general is an obvious, yet seemingly elusive, solution.

Shifting from unsustainable to sustainable human activities and built environments is a hypercomplex[2] challenge that will not be resolved by any one discipline. However, as spatial designers[3] primary concern is in the formation and understanding of built space for current and future situations, a spatial design perspective can arguably be of help in developing strategies to improve the health of ***ecosociospatial*** relationships. These relationships are the interactions of ecologies and societies in the use and formation of spaces.

Space is often discussed in relation to sustainability however the discussions tend to focus on the cartesian dimensions of space. In other words, space as a physical location and volume where beings live and actions occur. Spatial designers, however, tend to focus on the ways space influences the well-being of individuals, sociality and society. As will become clear in the unfolding of this dissertation, this broader role that space, or spatiality, plays in the development of social identities and well-being is also discussed in geography, philosophy, cognitive sciences and the social sciences. These aspects, together with the cartesian dimensions of dimensions and locations, begins to define what is sometimes referred to as sociospatiality. This dissertation adds ecological considerations to discussions on sociospatiality, thereby creating the term ***ecosociospatiality***.

It is common for designers to lean on discourses from other disciplines to explain and understand spatiality and sustainability; this dissertation is no exception to this rule. However, spatial design also requires its own perspective, knowledge base and skill set in order to work with imagining future forms, functions and experiences of the built spaces for all living beings. Spatial design must therefore carefully consider the role of its particular perspective and practices in the advancement of the experience, expression, implementation and very notion of sustainability. This dissertation is the unfolding of such a consideration.

Understanding and navigating the complex and varied notions of sustainability and their relation to the practices of spatial design is not an easy task. Let alone addressing this in

[1] This is pointed out in a vast amount of literature on sustainability, not least of all the seminal UN report "Our Common Future" (Brundtland, 1987), commonly called 'the Brundtland report'.
[2] See section 1.1 for a discussion on hypercomplexity.
[3] See section 0.12

relation to the growing call to move 'beyond sustainability' (Jamieson, 1998, p. 468),[4] and yet this challenge lies at the heart of the motivation for all that is written here. This dissertation will argue that any discourse on sustainability that does not consider the importance of sociospatiality, or more accurately ecosociospatiality, is incomplete. Likewise, spatial design does itself a disservice when it bases the definition of sustainable spatial design on principles that do not include sociospatial perspectives. The intention of this dissertation is to contribute to the larger story through a smaller story: one about the relationships between placemaking, regeneration and designerly thinking.

This study is staged in numerous settings, all of which aim to understand how spaces[5] can become places[6] for shifting degenerative resource practices towards regenerative practices and places. To do so, it looks specifically at transformations of space-into-place and waste-into-resource in order to understand and delineate experiences, characteristics and principles of ***regenerative placemaking***.[7]

While the transformation of space into place is commonly called placemaking, the transformation of waste into resource can be referred to as either waste-to-resource or waste-as-resource. Arguably there is a slight difference in the meaning of these two terms: the former suggests a state change through some form of physical transformation, while the latter indicates a value perception that exists independent of a physical transformation. This dissertation suggests the term ***waste-resource*** as way to include both forms of state change.

This study is built upon an assumption that investigating and enacting regenerative spatial practices and expressions in ***publicly shared spaces***[8] can help to shed light on how to create places that engender ***socioecological well-being***. This can, in turn, also provide perspective on how to advance concepts and practices in spatial design thinking to support a shift towards and beyond sustainability.

0.11
Searching Beyond Sustainability – Revealing Regeneration

In the spirit of providing an understanding of the background of this work, I would like to devote a moment to explain how I came to first develop the notion of regenerative design; only to subsequently discover that others had already done so using logic similar to my own. These first steps began prior to my doctoral studies[9] with a concern for how designerly ways of understanding and developing the less quantifiable qualities of sociospatial conditions were often lost in mainstream, or conventional, notions of sustainability.[10] As language is vital to express and confer meaning, I sought a language beyond sustainability that could

[4] This is the earliest use of the expression 'beyond sustainability' that I have found. The motivations behind the expression are discussed in sections 1.42, 1.43 and 1.44.

[5] I choose publicly shared spaces as they are spaces, like resources, that we share communally and can therefore play an important role in developing "our common future" (Brundtland, 1987).

[6] See section 2.31 for a discussion on the notion of place.

[7] The logic behind these focalizations is explained in chapter 4.

[8] 'Publicly shared space' is used to emphasize this study focuses on where strangers congregate and share space, not where space is publicly owned. (Discussed further in section 4.24)

[9] During my master's thesis in partnership with Ante Flygare (Flygare & Östlund, 2010).

[10] The notion of mainstream/conventional sustainability is discussed further in section 1.43.

express the conditions and qualities involved in the act of forming, maintaining and being in 'natural' and built spaces; a language that could express the poetic aspects of generating conditions and habitats for the well-being of all creatures.

After a period of pondering different aspects of this conundrum, I reasoned that a more effective and poetic design approach for socioecological well-being would be to focus on principles of *regeneration* rather than *sustainment*.[11] I thought a good name for it would be 'regenerative design' and soon found like-minded authors and designers. This dissertation will delineate similarities and differences between several discourses related to the notion of 'beyond sustainability' and spatial design, most significantly regenerative design theory with a particular concern for the understanding of, and approach to, place. This is done in order to discern the meaning of moving beyond sustainability and develop principles relevant to spatial design through theories, practices and expressions of regenerative design and placemaking. I do so by exploring, identifying and deriving key principles for regenerative placemaking through theory (chapter 1-3), experiences (chapter 5) and projects (chapter 6).

0.12 Origins of Influence

Each of us are receptors and creators of stories and have particular ways of dealing with the interplay of subjectivity and objectivity. Research narratives, in a strive for absolute objectivity, often obfuscate the narrator's position and values. However, post-structuralists have challenged this obfuscation, arguing that the narrator's background and their relationship to the area of study is as essential to divulge as any other element that has gone into form a study.[12]

There is no doubt that the story (or stories) contained in this dissertation exist as a result of my background, interests and biases for which I take full responsibility for and expose here:

- I have an inter/multi-cultural personal and professional background. Perhaps my rooted-rootlessness, with its hybrid identity and thoughts, can be sensed in the text before you. It has left me with a fascination for the way identities and attitudes are influenced by, and expressed in, places, language and social norms.
- I was an environmentalist before I was an architect, and chose this profession knowing that the built environment was one of the largest contributors to energy and material consumption in society. I reasoned that perhaps I could more effectively change things 'from the inside.'
- Professionally I am most influenced by the years I have practiced design and planning for 'sustainability' in economically poor communities, being a craftsman and designer of spatially related objects, and educating young architects. When I have considered how to use what I have learned in the doctoral process, it is in these types of project settings that I have imagined them.
- The impetus for this work can be said to lie in my first encounter with Gaston Bachelard's seminal work on the "poetics of space" (1994 [1958]). The embodied experiences of built and 'natural' spaces are, for me, undoubtedly poetic. A driving

[11] Explained in more detail in section 3.1, 3.11 and 8.43

[12] Particularly in gender and post-colonial studies (Lykke et al., 2014).

> force has, therefore, been to find a theory, language and approach to sustainable spatial design that could express and advance the poetic aspects of lived experiences. It would not be an exaggeration to say that this dissertation is ultimately about understanding, discovering and creating a poetics of sustainability.

These experiences and values are what led me to practice architecture and have influenced my broader interest in spatial design and have subsequently influenced the formation of this study and text. Spatial design is a cross-disciplinary term that includes any profession that design spaces. It includes and reaches beyond the traditional fields of architecture, landscape architecture, interior design and urban design to include other designers and artists whose focus lies on affecting spatial experiences. Understanding and influencing the experience of spatiality, i.e. the relationship between voids and solids, is a core concern of these professions. It is this common element that differentiates them from other professions.

As the origin of this study came from the mind of a spatial designer, it began with an underlying hypothesis:

> Spaces, places and objects influence individual and community identity formation. These nonhuman members of the human world could, in turn, be directed to foster socioecological well-being in the world.

This hypothesis developed into a set of research questions that are delineated further in chapter four. For now, it suffices to say that these questions center on how spatial forms and practices can express and be influenced by principles that foster socioecological well-being.

0.2
A Design Inquiry into Hypercomplexity

This study uses a designerly perspective and approach to understand and reveal the potential for shifting degenerative ecosociospatial conditions to regenerative ones. The qualities and character of design problems lies in the relationships between a number of measurable and immeasurable aspects of the physical world and our values and perceptions. Designers have therefore developed ways to work with situations where the information is so vast and complex that it is impossible, or impractical, to gather all the related data and generate knowledge through deductive reasoning.

This is particularly true in situations where values must be combined with facts from multiple, often conflicting, perspectives and disciplinary needs in order to make sense of a situation and devise possible syntheses and solutions (Janssens, 2012; Wang & Groat, 2013). I consider these to be hypercomplex situations. Hypercomplexity can be described as intellectual messiness; it is a mess of multiple concurrent circumstances – a mess of hybrid realities.[13]

To work with and understand the interstitial realms of a myriad of facts, values and perspectives, the designer often approaches topics broadly and connectively, with the belief that depth can be achieved through breadth and correlation. Another common activity in

[13] Hybrid realities is a concept John Law (2004) uses which are discussed mainly in section 3.31.

design is to redefine task constraints and restructure problems by questioning and reframing[14] assumptions and 'givens' (Paton & Dorst, 2010) which may be the product of dogmas and paradigms. These skills and activities enable designers, and research driven by design thinking, to discover latent potential or problems in complex situations, which is an effective method for developing unforeseeable results (ibid.).

0.21 A Form of Performative Research

Design and art have increasingly gained recognition as an interesting and legitimate means of producing knowledge in areas where traditional scientific methods struggle or fall short (Akner-Koler, 2007; Demos, 2006) in particular in the realms relating to poetic aspects of human experiences. Brad Haseman (2006) argues that though it may share some characteristics of qualitative research, it should not be subsumed into the qualitative side of the qualitative-quantitative research divide. Instead, it should be seen as "a [third] paradigm of research with its own distinctive protocols, principles and validation procedures" (Haseman, 2007, p.12). Haseman calls this third paradigm 'performative research.' Its specific characteristics are rooted in practice-oriented research found in "the arts, media and design" (Haseman, 2006, p. 1).[15]

As it is a fledgling field of research in the process of maturation, projects that fall into this mode of knowledge production are often caught up in developing and defining its means and methods. Anyone involved in performative research could, therefore, be said to have two parallel research projects underway: one on the topic at hand, the other on the development and definition of its specific branch of performative research and methods. The terminology and definitions of more specific approaches to artistic, media and design research therefore varies greatly.[16] From reviewing a variety of discourses on designerly approaches to research, I find that the term 'design inquiry' (Buchanan, 2007; Emilson, 2015; Solovyova, 2003; Wang & Groat, 2013) to be best suited to encompass the various ways design can be used and studied to develop knowledge. It is a term that is used often in this dissertation to refer to both the theoretical and empirical work undertaken.

0.22 Using Prospective Reasoning

In order to conduct a design inquiry and contribute to design knowledge, it is important to also explore what modes of reasoning and knowing are typical in designerly thinking. In scientific research the inductive and deductive processes are often stated as the dominant methods of knowledge production, however, they are in fact only part of the story of how

[14] Discussed in more detail in sections 2.61 and 8.71

[15] I see performative research as an appropriate over-arching term that allows for cross-pollination between art and design, while also allowing them to be distinct. Why begin to close doors to interdisciplinarity between art and design by getting stuck in compartmentalized thinking?

[16] Terms I have encountered are: design-driven research, design research, design-based research and design inquiry. The difference between which is not fully made clear. I have chosen to interpret 'design-driven research' to refer to studies that use designerly methods to build knowledge; 'design research' when the practice and theory of design is studied; and 'design-based research' when designed objects and spaces are studied. I suggest here that one can use 'design inquiry' to refer to all of these modes of research.

knowledge is created and found. Inductive reasoning creates knowledge by *predicting* the *probable* nature of things and situations and is a useful part of design thinking (Wang & Groat, 2013). However, designers are particularly interested in – and skilled at – *anticipating* the *possible* nature of things and situations that include multiple values and desires for, and of, the future (Janssens, 2012; Wang & Groat, 2013). This is akin to abductive reasoning which is associated with intuition, idea formation, concept generation from facts and experiences in the present. Abductive reasoning has been found to be a crucial element in all knowledge production, and in particular the introduction of new ideas, and yet this is rarely acknowledged in traditional accounts of scientific reasoning (Wang & Groat, 2013, p. 34).

However, design thinking also explores future possibilities by considering the 'possible-impossible' (Pinder, 2013). Lefèbvre (1996/1968) uses the term 'prospective' to refer to this form of thought when he discusses the important role utopias plays in the consideration and generation of future possibilities. This suggests that ***prospective reasoning*** is yet another way to generate knowledge; one that anticipates possibilities by imagining, creating, testing and reflecting upon futures which may or may not be probable according to current conditions.

Grappling with the problem of defining and working towards an equitable and just 'common future' (Brundtland, 1987) involves a complex intermingling of multidisciplinary, and at times contradictory, ontological visions and values of present and future scenarios. The future is informed by the present; however, the present is also influenced by visions of the future. Changing present conditions through envisioning a specific future can be an effective way of operating when present conditions are part of the problem we wish to avoid (Holmberg & Robert, 2000). To be able to inspire work towards a future vision, one needs ways to define, derive and test its qualities, particularly when one's goals seem utopian from the perspective of present conditions. It is not a stretch to say that the very notion of sustainability is a utopian vision, nor that a regenerative design for moving beyond sustainability is even more so. One then requires prospective theories, methods and practices for deriving, testing and pondering possible futures.

David Pinder (2013) relates prospective thought to the fields of spatial design, and in particular to critical urbanism, and utopian thinking through the importance Lefèbvre places on "extending and realizing the possible through struggling for what seems impossible" (ibid., p. 28). It is through the search for, and development of, the 'possible-impossible' (ibid.) where utopian design thinking can be productive in the creation of new realities. This is, however, not a form of utopian thinking that uses surrealist associations; it is rather a set of "concrete explorations of what [is] possible that [is] rooted in everyday life and space" (Pinder, 2013, p. 32). Put differently, designers explore the future through generating, testing and "proflecting" (Janssens, 2012, p. 17)[17] upon various proposals of possible-impossibilities through the use of drawings, models, interventions, concepts and narratives.

0.23 Developing Knowledge from Design Practices

I have come to understand designerly thinking in research as a generative and prospective means of inquiry which approaches its topic from multiple perspectives and disciplines. The

[17] A form of project-based anticipatory reflection typical in design thinking. (Discussed in section 6.21)

results of design and design research build upon a future oriented tapestry of probability and possibilities of explorative interventions, driven by values, inspired by visions and contingent upon multiple perspectives in an eternally variable context. Results are often products of overlapping multiple theories and projects "all circling around a same issue but approaching it from different angles and with different emphases" (Janssens, 2012, p. 149).

The 'angles' of inquiry in this study are built upon the assemblage of practices that have been cornerstones for developing knowledge in the design profession:

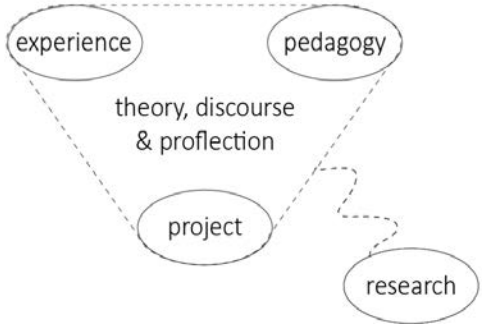
~ experiencing precedents (site visits, images, drawings, models)

~ partaking in pedagogical activities (common dual role of practitioner-teacher)

~ doing projects

These practices build a designer's theory and discourse on what good design is, and why it matters. Research that uses a designerly approach is a development on this assemblage of practices and often has the intention of influencing one or all of the elements in the assemblage (fig. 0:1).

ASSEMBLAGE OF DESIGN PRACTICES



(Fig. 0:1)
Design inquiries tend to use an assemblage of design practices in a research context for the intention of advancing knowledge on both the topic at hand and the practice of design.

Previously, all knowledge production in design was done outside of traditional scientific and academic research realms.[18] Since the 1960's (Cross, 1993), however, many endeavors have made progress to understand, legitimize and define this "third paradigm of research" (Haseman, 2006) as a mode of producing knowledge alongside more traditional realms of scientific research.[19] It is thanks to these efforts that this particular design inquiry can exist.

[18] However, there is a long tradition of investigative work done by practitioners and theorists in pedagogical settings, which Cheryl Akner-Koler (2007) calls 'Pedagogically Framed Research' (a methodology I have used and developed in this design inquiry. Described in section 6.22).

[19] This is most notably reflected in the bill passed in 2001 by the Swedish parliament acknowledging artistic methods as a legitimate means of conducting research (Akner-Koler, 2007, p. 53).

0.3
Performing Prospective Method Assemblages

In his treaty, *After Method*, John Law (2004) provides a description of a 'method assemblage' which parallels many aspects of a designerly approach to research:

> Method assemblage is generative or performative, producing absence and presence [through] the crafting or bundling of relations. (Law, 2004a, p. 161)

He argues this approach is useful when addressing aspects of 'reality' that standard research methods ignore. Law argues that the limitations of mechanic and imperialist tendencies of standard methods mislead us into believing that reality is always something 'out there', i.e. objective, that follows rules which require clarity and preciseness.

> While standard methods are often extremely good at what they do, they are badly adapted to the study of the ephemeral, the indefinite and the irregular. (Law, 2004, p. 2)

He proposes that the sciences must explore methods that are more honest about the messy, elusive, multiple and transitional qualities of reality, and take responsibility for how methods themselves affect and create realities through their ability to shape and affect intersubjective narratives of the world. Research methods do so through the way in which a reality is recorded and communicated (Law, 2004a; Puig de la Bellacasa, 2011).

Method assemblage is a form of inquiry that recognizes and embraces the argument that realities are created through the way in which we study and describe them (Law, 2004, p. 38). Like a design inquiry, a method assemblage "works in and 'knows' multiplicity, indefiniteness, and flux" (ibid., p. 14). Method assemblages listen in to the flux of a situation through various means, including the use of embodied and emotional experiences, and creates a perspective and moment of clarity of what is 'out there'. The approach to the studied topic, or situation, and the account of what is found "is the process of enacting or crafting bundles of ramifying relations that condense presence and (therefore also) generate absence by shaping, mediating and separating these" (ibid., p. 122). In other words, the methods in a method assemblage are not simply recording what is seen, but are also generative acts, and better "thought of as crafting, allegory, or gathering" (Law, 2004, p. 117).

Design inquiries, like method assemblages, explore the uncertain spaces in-between disciplines and what is knowable. It is a type of reasoning intending to transform and engage, not dissect and delimit.

> Designers trained in the arts are capable of capturing fleeting moments and structures that others find ephemeral, imaginative, and unstable for serious research. They are also trained in reframing ideas rather than solving known problems. Above all, they are trained to imagine problems and opportunities to see whether something is necessary or not. (Koskinen et al., 2011, p. 8)

Knowledge is produced as it "imagines and builds new things and describes and explains these constructions" (Koskinen et al., 2011, p.7).[20] It conducts critical thinking through the making and/or enactment of a proposal. In this way, it is performative in the sense that it "brings into being what, for want of a better word, it names" (Haseman, 2007, p. 12). Designers 'perform' realities rather than identifying and naming a reality already 'out there' in the world. Design inquiries therefore often construct rather than dissect realities with the intention of understanding possibilities rather than defining inevitabilities.

These types of inquiries have "fewer guarantees [and are] less caught up in a logic of means and ends" (Law, 2004a, p. 151). However, Law argues, they could address that which is lost in the tendency of scientific research to describe reality by subdividing it into separate disciplines. He argues that "after [this] subdivision of the universal we need quite other metaphors for imagining our worlds and our responsibilities to those worlds" (ibid., p. 156). This dissertation is, therefore, not primarily concerned with establishing 'facts', but rather with revealing variable and possible relations of facts and values, corporeal engagement and feelings, i.e. the ways we make sense of, and create, the ephemeral corporealities of our worlds.

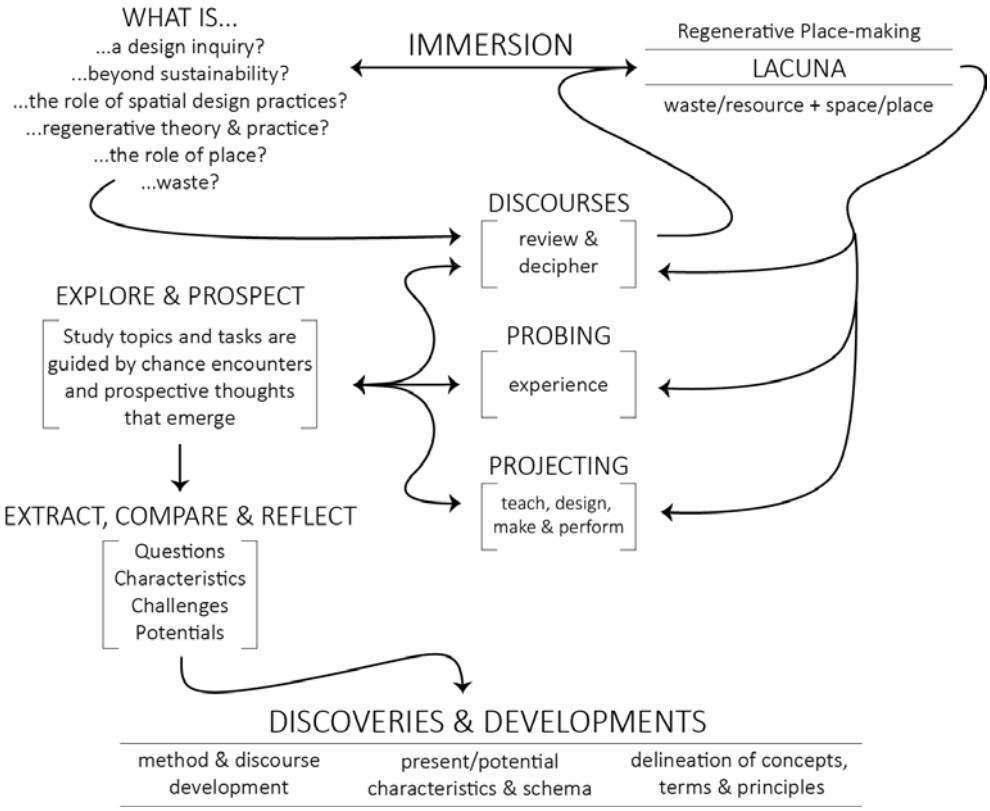
Design inquiries tend to use human experience as the basis for the acts of thinking, making and relating to the reality they seek to understand and explain (Buchanan, 2007). These human experiences of the material world are fleeting and fluctuating through time and subjectivity; they are the ephemeral qualities of the corporeal. A design inquiry of places, such as the one before you, is more concerned with what *can be* perceived and understood, i.e. what is subjectively encountered and created, rather than upon what objectively *is.* This is not to discredit more measurable aspects of a place such as form, proportion, enclosure, etcetera, but is rather a means by which to identify and focus on aspects that relate to intersubjectively lived experiences of the corporeal.

The intersubjective understanding of realities is every bit as influential as any objective fact in the creation and destruction of societies. Cultures are intersubjective. Our shared narratives, particularly those that persist intergenerationally, are central forces affecting the rise and fall of societies (Harari, 2015). They are maintained and manifested through the material world (Law, 2004b; Puig de la Bellacasa, 2011), cultural agreements and myths (Harari, 2015). However, in difference to objective facts, the intersubjective can, and does, shift if a significant number of subjective interpretations of experiences shift.[21] The intersubjective is durable, obdurate even, but not indelible.

A shift towards, and beyond, sustainability will require such an intersubjective shift and is more commonly referred to as a paradigm shift. In line with a common feature in design inquiries, this study's focus lies on exploring the potential of places, i.e. what *could be*, rather than upon what *will be.* To do so, it uses what one could call a ***prospective method assemblage*** to study possible-impossibilities of future situations. The intention is not to discredit the value of predicting future outcomes from current situations, but rather to explore regenerative and designerly perspectives that could provide inspiration – a utopia to aim for – in the work of shifting paradigms towards, and beyond, sustainability

[20] This is a definition of what the authors call "constructive design research." However, this and the following definition of performative research (by Haseman) are practically identical.

[21] A topic discussed from various angles throughout chapter 2.



(Fig. 0:2) An illustration of how my process of exploration moved between and related questions, topics and methods with the intent to understand the lacuna.

0.31 Intersecting Paths of Inquiry

Designers explore present and future situations through generating proposals, interventions, concepts and things imbued with prospective values (Lawson & Dorst, 2013; Paton & Dorst, 2010; Wang & Groat, 2013). Design processes and design knowledge are created by traversing, intersecting and existing in-between objective, subjective and intersubjective realities. Catharina Dyrssen (2017) points out that this way of working does not seek to...

> …reduce complexity [but rather] augment knowledge – as increased understanding, rethinking situations, rendering new or deeper insights, empathy or experience – to help in recognizing alternatives, atone with situations, discover possibilities and so on and enhance operative problem-solving capacity. This is a process that does not focus [on] evaluation standards but emphasizes and continuously encourages relational discourse and evolving, compositional explorative judgement and logics with accuracy and precision while making and thinking through serious – playful invention – intervention – shaping – learning processes. (Dyrssen, 2017, p. 186)

My process has been to outline a realm, a lacuna,[22] into which I have delved seeking the boundaries and depths of ways that regenerative theory and places can contribute to the socioecological well-being and the practice of spatial design. The research approach has been to concurrently explore principles, experiences and practices of regeneration and place. This has been done with an attitude of immersion, i.e. a type of wandering about, exploring and noting the paths that appear, diverge, and intersect (illustrated by fig. 0:2).

Design inquiries often combine and develop methods from a wide variety of disciplines and explore these through various projects and experiences. In this study, personal observations from experiences and projects are combined with more traditional discourse development in order to identify actual and potential qualities and characteristics of regenerative placemaking. Discourses and methods from other disciplines are used in a method assemblage to inform and develop spatial design perspectives and practices for moving beyond sustainability. While these perspectives could contribute to discourses outside spatial design, it is never the intention to purport any expertise in those fields.

0.32 Methods...Applied & Derived

The following sections are an overview of the methods used in the three modes of inquiry pursued in this study. These reflect the core activities of fig. 0:2 (discourse, probing and projecting) and builds upon how design research and discourse emerge from the triad of practices in fig. 0:1 (pedagogy, projects and experiences).

I. Methods for Discourse Development

The first three chapters develops a theoretical discourse and correlates this to a tapestry of perspectives from multiple disciplines. This reflects the multidisciplinary perspective that is typical of design inquires. Within the developed discourse there is also a more focused literature review and comparison of regenerative design discourses. The discourse is further developed through the site visits (chapter 5) and projects (chapter 6) and finalized in chapters seven and eight. This reflects the practice-based (i.e. performative) research that is typical of design inquiries.

II. Methods for Subjective Explorations (Probing Space)

The Directed Dérive is developed as a form of autoethnography in chapter five to explore what qualities of place emerges from a visitor's perspective of spaces that include waste-resource expressions or processes.

III. Methods for Intersubjective Explorations (Projecting Place)

Projectivity and pedagogically framed research are combined in chapter six to explore the application of regenerative design thinking principles in a fairly typical assemblage of practices for a spatial designer. The combination of these two methods are defined as Pedagogically Framed Projective Research.

[22] Outlined and defined in detail in chapter 4.

0.4
Structure, Voice & Language

0.41 Telling a Story

In a lecture on Actor-Network Theory,[23] Barbara Czarniawska remarked that "a good study must result in a good story" (Personal Communication, 25-1-2016). Inspired by this statement, I have mixed academic writing with what Gaston Bachelard (1994 [1958]) calls "insignificant confidences...[and]...recollections" (p.71). I therefore occasionally use 'I' when sharing of a personal journey, perspective or insight. It is my hope that this will create "intimate meanings that establish spiritual understanding between writer and reader" (ibid.) without compromising on academic quality.

0.42 To Whom it May Concern...

This text is directed at a reader who is interested in what role sociospatial constructs, such as place, can play in the effort to develop socioecological well-being in the world. It is particularly relevant for people involved in the development of design theory and practices that serve to understand and improve "our common future" (Brundtland, 1987); and in particular to the education of spatial designers.

This dissertation is also directed at readers interested in ways waste and resource concerns can play a role in redefining how we share and build common spaces and resources through acts of making, social engagement and community activism. Though the sociospatial notions of 'commoning' and 'public space' are addressed in an indirect manner, readers well-versed in these areas will find that the study is relevant to these fields of study as well.

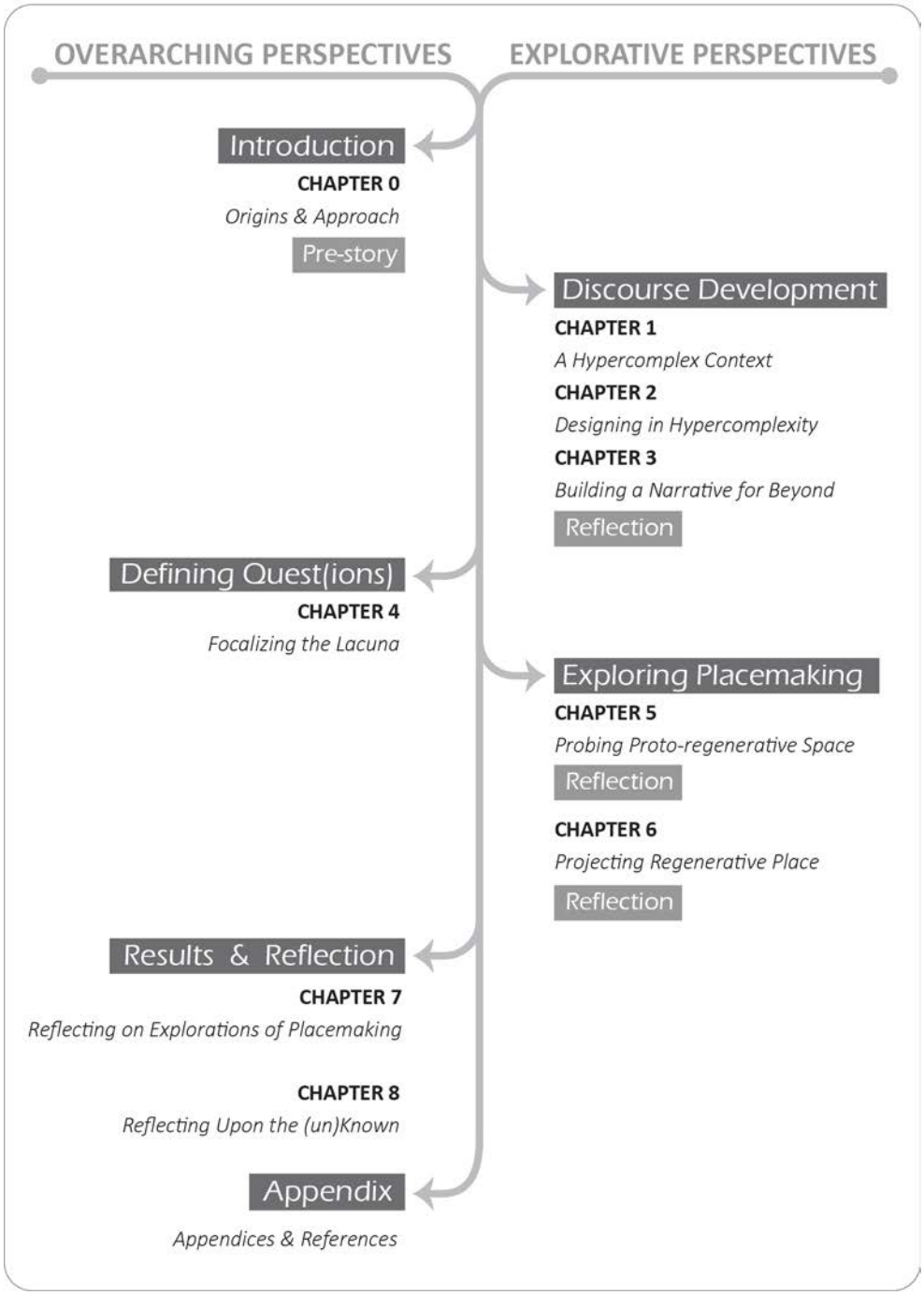
0.43 Structuring a Story

As has been pointed out, the study has had a layered approach rather than a consecutive one. It contains a multiplicity of paths converging and diverging. In contrast, a text must have a beginning and an end, with a logical sequence of thought. However, connections between topics are rarely linear. To express some of this non-linearity, footnotes are used to relate different sections to one another. The intention is to assist the reader in connecting concepts and allow one to read the text in a less linear manner.

The text's sequence is an attenuation of the logic of the academic formula: *introduction-method-results-analysis-discussion*. One important exception to this is that there is no methods chapter, instead method descriptions appear as they are relevant. The structural logic behind the sequence of chapters is illustrated in the following flow chart (fig. 0:3) and is as follows: some chapters are more of an exploration into performative submergence into place and waste-resource, while other chapters provide more existential and theoretical perspectives that help to tie the insights gained from explorations into a cohesive design inquiry and text.

[23] I often refer to discourses related to Actor-Network Theory (ANT) and the area of social sciences that it emerged from, i.e. Science and Technology Studies (STS), throughout the text. See sections 3.24, 3.33, 3.4, 5.3, 7.32 and 8.63.

THE STRUCTURAL LOGIC OF THIS DISSERTATION



(Fig. 0:3) An illustration of the roles and relationships of the different chapters of this dissertation.

0.44 Pre-Story

The following story provides a window into the thinking and explorations of spaces that underpin the discourse development and spatial explorations of this inquiry. It is the story of an encounter with a proto-regenerative space that are discussed further in chapter five.[24]

Encountering Waste - Resource in a Publicly Shared Space

My friends and I are in search of a place to relax and quench our thirst in the relative warmth of early summer when our senses bring Barabicu Restaurant and Bar[25] to our attention. The sounds of music and mingling spills out into the surroundings, producing a presence that cannot be ignored. As we cross the adjacent public square, I am reminded of the integral role privately-owned spaces often play in the life and character of publicly owned spaces. Not only does the sound and subsequent sight of the restaurant help to supplant the previously vacuous and shady nature of this part of town, it also acts as a magnet and incubator of sociality that overflows into the public spaces contiguous to it.

Though a place's ownership is often the qualifying factor of whether it is labeled 'public' or not, I resolve that the most interesting quality of public space is the possibility to carry out a part of one's life amid strangers or share an experience with them. In this case, young professionals and other persons-of-means dine and converse with friends amongst strangers, whom they observe and occasionally interact with. This sharing of space and experience is a communal act, a public act, where identities are enacted, created, experienced and interpreted. These acts simultaneously inform, and form, the social identity of a particular place and its role in 'the common' activities and identities of a community. From complex and shifting convergences of subjective experiences in shared spatiotemporal conditions, the intersubjectively shared narratives of a place emerge, and so by its identity: its sense-of-place.

As we near, I notice that much of the outdoor seating area seems to be composed of salvaged materials and furniture. The patina of time adds a warmth and informality to the cool modernist façade with its sheet glass windows. The theme continues into the interior, revealing a composition of collages from which a sense of sumptuous comfort and ease emerges. Sometimes even new materials have been used in a way to suggest they could, or might, have been salvaged. The overall theme of the place is what one might call a form of common luxury that a more professional and financially comfortable clientele can enjoy. Here we joyously sit amongst objects of waste conversing of personal or professional things over well-crafted food and drink, either intentionally or unintentionally, expressing our relatively privileged socioeconomic status. It is a place where stark contrasting values coexist and merge, e.g. wealth and waste, and contrasts always intrigue me.

It is a place like many others I have come across[26] where, even though atmospheric intents and qualities vary, salvaged items are a central theme. The recurrence points towards a fashionable trend, but perhaps also a trend of increased concern for the wasteful use of materials in society. I wonder if the design choice in this case was based on ethics or fashion.

[24] The methodology for this type of encounter is discussed in section 5.2
[25] Rosenlundsgatan 4, Gothenburg, Sweden.
[26] Presented in sections 5.31 and 5.32

(Fig. 0:4)
The sounds of mingling fill adjacent public spaces, such as Esperantoplatsen in the background, and draw us to the space.

(Fig. 0:5)
The modern façade is contrasted by the salvaged materials of the outdoor eating area.

(Fig. 0:6 & 0:7)
A relaxed but luxurious setting for sociality is created by the mix of old and new materials and things.

(Fig. 0:8)
Well-crafted beers and food add to the luxurious nature of the space.

(Fig. 0:10)
A DJ booth of scrap wood.

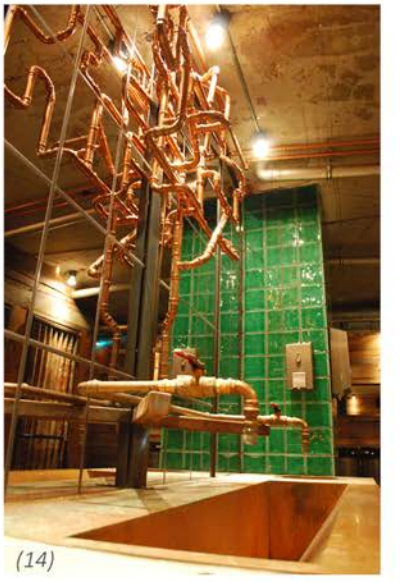
(Fig. 0:9)
Patinas and textures of salvaged materials are mixed with industrial aesthetics of exposed technology.

(Fig. 0:12)
A wall made of window shutters and illuminated from behind.

(Fig. 0:11)
The stair to the basement is plastered with old flyers and posters

(Fig. 0:13) Bathroom stalls made of reused wood with doors of rusty metal roofing.

(Fig. 0:14) Bathroom faucets become a sculpture that is fashioned as if made of left-over bits of copper piping. The visitor is left guessing whether this is an aesthetic trick or true salvaging.



Where new materials are made to *look* salvaged it carries the dangers of greenwashing,[27] but in the case where they truly are salvaged, does it matter?[28]

I doubt a shift towards, and beyond, sustainability, can be achieved without also appealing to the human needs for pleasure, joy, a sense of belonging and hope for a better future. Can ethics alone provide this? It is difficult to deny that many of these basic human needs are inextricably associated with fashionability and leisure in society today, and so fashion may be less frivolous than is commonly assumed.[29]

Barabicu uses reused materials to create a fashionable environment for people to dine, drink, socialize and enjoy the sun. Through these positive associations, perhaps one regenerative ethic, such as reuse, can be introduced as a norm which endures. While this clearly is not a place that exhibits *all* principles of regenerative design, it does suggest a way in which space and place can be a part of material metabolisms in societies and, in turn, provide an embodied experience of material metabolisms in publicly shared spaces.

I comment on the contrast of waste and luxury around us, and my friends look at me puzzled. "Waste? Where?" they wonder. As I point out the 'waste' around us, it becomes clear that the overall atmosphere has blinded them from this insight. The ensuing conversation reminds me of the fluid, temporally and contextually dependent definition of 'waste'. From my friends' perspective, waste can be nothing other than valueless. From my perspective, a regenerative perspective, waste is simply value in transition – a potential awaiting actualization. Does their inability to see the 'waste' make the spatial application of reuse less affective, or does it rather prove its effectiveness in making reuse in places more palatable and normal? It may be the evidence of the conundrum of any revolution: as new values and practices of a paradigm shift become the norm, they are often rendered invisible.

An imaginative discussion commences at our table over the possible past lives of the materials and objects. We ponder and describe possible origins, former uses and users as well as the way in they were acquired and transformed in order to create the restaurant-bar environment we are enjoying. These ***material memories***, as I call them, add layers of relationships, imagined and real, to the narrative(s) of the space, thickening its associations to other places and times.

It occurs to me that it would be interesting to study spaces with public access where things and processes of material waste coexist with human activities. What are the different qualities produced, and what can these tell us about a regenerative sense-of-place and the enactment of regenerative placemaking? These regenerative experiences and spatial practices that could, in turn, inform principles for teaching and practicing regenerative spatial design.

[27] See section 1.43 subheading II for a definition of greenwashing in relation to sustainability.
[28] This quandary is readdressed in section 7.24
[29] This is discussed further in section 1.3

0.45 Developing Language & Concepts

Communicating knowledge and insights requires a language that can express these. Latour (2004) claims that "good inquiries always produce lots of new descriptions" (p. 62). These descriptions often result in new terms or new interpretations of borrowed terms. The creation and interpretation of terms contributes to the language of the fields of study they pertain to, and as such is a result of a study like any other. Many terms have either been created or refined in order to describe and develop central concepts throughout this inquiry. To make these clear, they are put in bold italics the first time they are used, and each chapter concludes with a list of the terms and concepts which have been created or reinterpreted in that chapter.

Contributions to Language & Concepts

Spatial Design	the transdisciplinary art and science of crafting places through the composition of objects, spaces, lived activities and experiences
Nonhuman / Nonhuman Being	I use the term nonhuman in two different ways: 'nonhuman' to represent both living and non-living things and beings, and 'nonhuman beings' when referring to living creatures and plants *only*. I make this distinction because I find that the meaning of what a nonhuman is can be confusing in STS literature, from which this term is borrowed.
Ecosociospatial / Ecosociospatiality	adds ecological parameters to the notion of sociospatiality. It emphasizes the interactions and interdependence of ecologies and societies in the use and formation of space.
Waste-Resource (...relationships, ...processes, ...practices, ...expressions, etc.)	indicates any form of relationship between waste and resources. It was developed to group waste-to-resource and waste-as-resource together and be applicable to a wide variety of contexts.
Regenerative Placemaking	placemaking that is based upon regenerative principles
Publicly Shared Space	a term that can be used to differentiate between 'public space' that indicates public ownership and shared spaces where the public (i.e. strangers) congregate.
Socioecological Well-being	I prefer this term over sustainability and use it in place of that term whenever possible as I believe it to more accurately express the goal that sustainability is striving for.
Prospective Reasoning	reasoning that considers, generates and develops knowledge on future possible-impossibilities.
Prospective Method Assemblage	a method assemblage with a prospective focus, i.e. to study future possible-impossibilities.
Material Memory	an experience of things (materials and objects) that connects the imagination to unseen realities by suggesting former uses, users, times and places of origin.

A HYPERCOMPLEX CONTEXT

Summary of Chapter 1

When we speak of 'our times', we often speak of the 'age' or 'epoch' we are living in. The name of an age is the theme of an ongoing story, the one which we are living and building. Its name is not only a way of creating a headline for ongoing trends and associated occurrences, it is a way of describing the underlying forces that govern these trends. In order to shift the current trajectory of ecosociospatial conditions in the world, we must understand how we make sense of the world in which we live today.

Design is inherently wrapped up in the art of adapting, reinventing and developing technological and spatial realms to meet society's needs, desires, ideals and limitations, thereby also expressing and defining the shared identity associated with the times. This chapter helps to illuminate forces that are influencing the subjective experiences of the worlds that spatial designers must operate in. It is, therefore, also an illustration of the context of concerns that this study's focalizations emerge from.

1.1
An Age of Hypercomplexity

The conditions and problems of our day are often said to be hypercomplex, and while hypercomplexity is often referred to, it is seldom defined. This undoubtedly is due to the clarity of its component words[1] which imply that the complexity of today exceeds what we have previously encountered in the world. Hypercomplex situations, such as those that must be addressed in order to achieve sustainability, often contain 'wicked problems' (Frame, 2008; Rittel & Webber, 1973). Hypercomplex situations and problems are not only complex in the way they manifest themselves in the world but are also often ill-defined and difficult to pin to any single cause nor effect. Hypercomplexity is an intellectual understanding of messiness, and while 'reality' may always have been somewhat "complex, diffuse and messy" (Law, 2004a, p. 2), modern times have only served to heighten this messiness. Realities can, in other words, be either complex or hypercomplex.[2]

The challenges of attaining sustainability in an age of hypercomplexity has been defined as a condition "where challenges of increasingly globalizing economic exchanges as well as cultural exchanges are combining with the challenge of interconnected global and local ecological and social crises." (Kagan, 2010, p. 1094). Erwan Lagadec (2007) provides further insight into the messy condition, and effects of, hypercomplexity through studies of leadership in "unconventional crises" (ibid.). His study covers modern day events, such as natural disasters, that are predicted to increase if we do not deal with the problems underpinning our unsustainable way of living in our shared ecosystems.

Lagadec explains that hypercomplexity is a globalized condition that makes many modern-day events "which by themselves would seem mundane...and indeed would have remained so in the recent past...now trigger unforeseen snowball effects and lead to considerable systemic destabilizations" (ibid., p. 15). His study shows that hypercomplexity complicates the mapping of constituent parts and consequences of event, thereby challenging the validity of traditional modes of gathering, understanding and acting upon information. He concludes that:

> In the face of hypercomplexity, over-reliance on scientific reasoning can in fact turn into a liability. (Lagadec, 2007, p. 29)

And adds that the challenge this presents to scientific modes of thinking is like sailing to 'the edge of the world' without navigational charts (ibid.). Leaders in these situations must be able "to synthesize and organize complex responses out-of-the-box" (ibid., p. 23). While Lagadec's study regards singular disastrous events, one can extrapolate that dealing with a slowly unfolding cascade of unconventional crises, as is predicted to occur in the coming century, will also need leaders and professionals with similar skills.

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[1] A dictionary definition of the prefix *hyper-* as "above; beyond" and often implying "exceedingly; to excess" (Merriam-Webster, n.d.-d, definitions 1, 2a, 2b), and *complex* as "a whole made up of complicated or interrelated parts" (Merriam-Webster, n.d.-a, definition 1).

[2] When speaking of a reality that can manifest itself as either complex or hypercomplex, depending on the siutation at hand, I will use a parenthesis in the term, i.e. ***(hyper)complex.***

1.2
The Age of Unsettlement

The world as we know it is changing rapidly and is likely to continue to do so for generations to come. Many of these changes suggest that we are well on our way towards what Tony Fry (2011) identifies as the 'age of unsettlement.' It is a time of shift in our ways of inhabiting the earth and our psychosocial relations brought on by the "combination of geophysical *and* geopolitical impacts of climate change" (ibid., p. 434). Fry's main point is that all of this leads to mass migration and an unsettled relationship with the physical landscapes we live in and how we settle upon them.

Many of the crises Fry uses to illustrate the time of unsettlement parallel the ones that Lagadec studies in his evaluation of leadership in catastrophic crises. Lagadec's study not only illustrates the difficulties we face of dealing with events that contribute to the age of unsettlement, it also implies that the age of unsettlement is upon us – it is not merely a future effect of climatic changes which is yet to occur. The implication that the condition of unsettlement is upon us is reinforced by studies on migration. The UN predicts the already high and complex condition of international and internal migratory patterns will increase (UNDESA, n.d.). Migration from rural areas is also one of the factors of the rapid urbanization which is increasingly the predominant form of human settlement and habitat of the planet (Tacoli et al., 2014).

The condition of unsettlement does not only refer to actual changes in the conditions of human settlements; it is also a psychological and existential condition produced by the changing ecosociospatial[3] conditions of our times. While one can study, measure and predict the physical shifts underway, is also important that we question how this affects the way we make sense of being in the world. Being unsettled in unsettled times connotes both a physical condition as well as an existential one.

1.21 The Unsettling of Placehood

John Thackara (2005) observes that the hyperconnectivity of the information age coupled with today's hypermobility of travel and migration patterns are reconfiguring cultural and individual relationships to places at an unprecedented speed. Hypermobility reinforces "what philosophers call our ontological alienation, a sense of rootlessness and anxiety, of not quite being real, of being lost in space" (ibid., p. 100). There is a clear parallel between this ontological alienation and the psychosocial condition of unsettlement defined by shifting relations to place and institutions.

Increased mobility caused by rapid economic growth and competition are accused of threatening individual and communal associations to sense-of-place and the political enactments of social and ecological solidarity (Baber, 2004). This rootless condition can make it difficult for some people to find a meaningful role and identity in the geographical location

[3] A term coined and defined in section 0.1

they are living in and is argued to also be a condition of modern/postmodern times (Pearse, 2005). This has led to a discussion on the changing nature of place, community and our relationship to these through the alternate temporal and spatial conditions of our times.

The hypermobility and hyperconnectivity which modern technology has brought about is argued to have affected our relation to places by making "the sense of belonging, community and communality [traditionally] associated with sense-of-place… less directly dependent on location" (Agnew et al., 2003, p. 606). Doreen Massey (1991) explains that our growing uncertainty with how we relate to place(s) and what we mean by the term is an effect of what postmodern thinkers call "time-space compression" (p. 315). Which is the argument that the increased speed of experiences in life accelerates time (temporality) and disrupts our relationship to space (spatiality).[4]

At the core of this unsettled notion of place lies the question of "how, in the face of all this movement and intermixing, can we retain any sense of a local place and its particularity?" (ibid.). Massey argues that part of the problem lies in the tendency to treat place and community as synonymous. The treatment of these concepts as interchangeable, she continues, has been a mistaken extrapolation of an idealized notion of place.

> 'Place' and 'community' have only rarely been coterminous. But the occasional longing for such coherence is none the less a sign of the geographic fragmentation, the spatial disruption, of our times. (Massey, 1991, p. 315)

The debate over the meaning and relevance of the romantic notion of place in this age of new modes of communication, socialization and movement is far from concluded. The nature of this discussion will be addressed at a later point in this text.[5] For now, it is sufficient to say that there are those who hold that the hypermobility and hyperconnectivity of modern and postmodern times have removed place from the traditional relationship it had with political acts and communal belonging in the "golden age of placehood" (Agnew et al., 2003, p. 611).[6]

Regardless of the outcome of this ongoing debate over the role and nature of placehood in hypercomplex times, I argue that the its existence ongoing is a reflection of how the perception and importance of places is affected by conditions of unsettlement. This is supported by John Agnew (2003) who maintains that although the modalities of hyperconnectivity and hypermobility may be changing the way we relate to place, they will not change the importance of place. Instead he finds evidence that the importance of place has grown, and is still growing, in the age of the internet and increased globalization (ibid., p. 611–612). There are also many who argue that place plays a crucial role in addressing the socioecological predicaments of our time (e.g. Guy & Farmer, 2001; Moore, 2001; Regenesis, 2006; Svec et al., 2012; Williams & Stewart, 1998).

[4] Massey (1991) refers to Carl Marx as the origin of the concept of time-space compression.
[5] Discussed throughout the text, but more specifically in sections 2.31 and 3.24
[6] There are no dates for this golden age of placehood, however it is inferred in the referenced text that this was prior to the hypermobility enabled by widespread car use, flying and hyperconnectivity enabled by the internet.

1.3
The Age of the Ephemeral

The 'age of the ephemeral' has been defined as a psychosocial and existential condition caused by our "modern relationship to the material world" (Strasser, 1999, p. 199). Though this age of ephemerality is driven by the perceived and actual rate of entropy[7] of objects and resources, it also adds to the sense of temporal acceleration discussed previously in relation to the age of unsettlement. This ephemeral age is dominated by fleeting relationships to material objects, whims of fashion and experiences which dissipate as quickly as they arise – a 'throw-away culture' (ibid.) driven by 'conspicuous consumption' (Veblen, 1899). It is fueled by human desires of "self-interest, novelty seeking and social ambition" (Whybrow, 2009, p. 113). The biological triggers that evolved to reward us when we desire, seek and take advantage of times of abundance have gone array.[8]

Our world is, and has always been, full of ephemeral experiences. The enjoyable experiences of space and place are also ephemeral, lasting only a moment in time, intangible and irreproducible (Pallasmaa, 2012). Nothing is permanent in the physical or social realms; all is transitory if you expand the temporal gaze far enough. Theoretical and quantum physicist David Bohm (1980) argues that the nature of reality *is* process. Bohm describes this process not in terms of a linear sequence of events, but rather as a field of *flux*.

> Not only is everything changing, but all is in flux. That is to say, what *is* is in the process of becoming itself, while all objects, events, entities, conditions, structures, etc., are forms that can be abstracted from this process. (Bohm, 1980, p. 61)

In other words, all things which we interpret as enduring and unchanging only appears so relative to the life span of humans and civilizations.

Mountains shift, ecosystems change, stars are born and eventually die, and yet the presence of these things are permanent fixtures from an anthropocentric view of time. Geographer David Harvey observes that systems "[perpetuate themselves] through circular and cumulative causation" (1996, p. 92). My interpretation is that it is this continuous movement which gives the impression of stability and allows the system to persist, i.e. sustain itself. What at first seems to be stable, is in fact *phenomenological experiences* of *relative permanence* in the natural processes of a changing universe.

This hearkens back to the ancient debate on whether reality lies in *Being* (that which does not change) or *Becoming* (continuous change).[9] Stephen Moore (2001), however, argues that we can cross this historically dialectical divide of Becoming (favored by modernists) and Being (favored by postmodernists) once and for all. Building on insights

[7] Entropy is the second law of thermodynamics, and is "the degree of disorder or uncertainty in a system" as well as "a process of degradation or running down or a trend to disorder." (Merriam-Webster, n.d.-b, definitions 1, 2b)

[8] Behavioral neuroscientists have found "that when the brain's reward circuits are overloaded or unconstrained …desire can turn to craving and to an addictive greed that co-opts executive analysis and commonsense" (Whybrow, 2009, p. 113).

[9] Western philosophy tends to date this discussion back to Heraclitus (500 B.C.E.). However, it was also discussed in Buddhism at this time, which had inherited the topic from older Indian belief systems.

from social ecologists,[10] he argues for a "dialogic naturalism" which recognizes that "the flow of life is a process where Being *is* Becoming" (ibid, p. 19 emphasis in original).[11] In other words, one does not necessarily exclude the other.

What is it then that makes our age more ephemeral than others? The difference lies within the temporal perspective; more precisely in the rhythm of change over time**.** Though the changes began with the industrial revolution, the rhythm of the new accelerated in the 1950s when "every indicator of human activity underwent a sharp increase in rate" (Steffen et al., 2011, p. 849). Observations of this 'great acceleration' (ibid., p. 852) set off a debate as to whether we find ourselves in a new geological epoch: the Anthropocene (Crutzen & Stoermer, 2000).

This heightened rate of entropy in our relation to the material world influences our state of mind which transfers itself into the world of images, ideas, of experience, understanding. As this rhythm has increased, it has replaced a sense of solidity in our experience and relationship to the world and fomented a sense of surfing on an endless surge of 'the new'. I call this state ***the rhythm of the new***, and associate it with Guy Debord's description of 'the society of the spectacle' that he identified through observing predominant modes of production and consumption of the 1960s:

> The spectacle is both the result and the project of the present mode of production. It is not a mere supplement or decoration added to the real world, it is the very heart of this real society's unreality. In all its particular manifestations...the spectacle is the *model* of prevailing way of life. It is the omnipresent affirmation of the choices that *have already been made* in the sphere of production and in the consumption implied by that production. (Debord, 2014 [1967], p. 3 emphasis in original)

This description parallels descriptions of psychosocial effects of the throw-away culture indicative of the age of the ephemeral (Strasser, 1999). I see Debord's observation of how the increasing rhythm of the new affected the way humans communicated and lived in the '60s as the effects of a mature state of the great acceleration and age of the ephemeral. The impetus for their mutual emergence began however much earlier, with shifting habits and attitudes in relation to resource consumption and what we can call ***waste-making.***

1.31 The Rise of Waste-Making

Waste was an important part of household and industrial economies up until the early 1900s (Strasser, 1999). Recovering waste from household for industrial use, as well as repairing broken items for household use, was a service which provided an important income for many. However, in the 1930s two concepts came into being that would shape the waste-resource relationship into what it is today. One of these was 'planned obsolescence'. It was introduced by Bernard London (1932) as the solution to the economic depression of the time. The concept was to create flaws in a product so that it would break and have to be replaced sooner, which in turn would create new jobs and increased wealth. He and other proponents of this waste-making system openly discussed what the temporal limits of deterioration were for keeping a customer loyal to buying replacement or new items from the same company.

[10] Primarily Murray Bookchin's work.
[11] Moore's work is discussed further in section 3.24

The other was 'progressive obsolescence' introduced by Christine and J. George Frederick in the 1930s. The concept was to fomentat a *desire* to replace a thing before it actually *had* to be replaced, in other words, the fomentation of *perceived* obsolescence. The argument was that technology, designers, workers and consumers alike would benefit by the rapid rejection of the old for the fascination of the new (Strasser, 1999, pp. 197–198).

Both philosophies of obsolescence were eagerly advocated in engineering and product design. For this reason, I propose a joint term: ***designed obsolescence***. This co-joined term emphasizes that design is integral to both the planning that is required to determine how long a thing should *function* (planned obsolescence) and the visual *perception* of progress that is achieved by making an older model seem 'out-of-date' or 'out-of-fashion' (progressive/perceived obsolescence). It is also an inference to the role design has had in the development of the throw-away cultural paradigm, and the potential role it has in changing it (Fry, 2011; Papanek, 1971; Thackara, 2005).

The roots of consumer culture can be traced back to Veblen's identification of 'conspicuous consumption' (Veblen, 1899). However, it came into full bloom with the advent of planned and perceived obsolescence (Strasser, 1999), i.e. designed obsolescence. Initially pioneered in the auto, product and fashion industries, designed obsolescence eventually also influenced architectural and interior design. Houses became catalog items, an increase in the demand for redecorating and remodeling, and the expected durability of buildings reduced from centuries to decades (Knox, 1987). The confluence of these processes laid the foundations for what has been called the 'age of the ephemeral' (ibid.) and the 'great acceleration' (Steffen et al., 2015).

In this age the perception and understanding of waste and its role in societies and places underwent a dramatic shift. The burgeoning of a 'consumer culture' in the past century created a new way of life, and economy, which dramatically changed the perspective on what was considered as waste or resource. It was a perspective that favored "products made for one-time use [and associated] of traditional reuse and recycling with poverty and backwardness" (Strasser, 1999, p. 200). The design of products and packaging introduced "the throw-away habit, and new ideals of cleanliness emphasized swift and complete disposal" (ibid.).

As previously stated, Debord's (2014 [1967]) description 'the spectacle' in modern society is, in essence, an observation of the effect of the culmination of shifts in our relationship to the material world. He describes the emergence of the 'society of the spectacle' as the historical moment at which the commodity completes its colonization of social life (ibid., p. 42). It is the point in time when the economics of conspicuous consumption matures into a "degradation of *being* into *having*…and a shift from *having* to *appearing*" (ibid., p. 17, emphasis in original).

Aspects of the age of the ephemeral is criticized by many, however some also claim it to be a liberator and benefactor. Proponents of designed obsolescence argue that it supports social well-being through jobs and a prosperous economy (Gonzalez, 2010; Strasser, 1999). Fashion has been credited in philosophical circles for enabling the liberation of the individual through opportunities for self-expression and being a representation of and contributor to "progress and civilization" (Gonzalez, 2010, pp. 72–73). Though often held in contempt, the influence of fashion in the discourses on politics, metaphysics, culture and "the shaping of social space" (ibid., p. 70) is recognized in philosophy.

Ana Marta Gonzalez (2010) reasons that philosophy's interest in fashion's "ever-changing spectacle" (p. 72-73) is quite logical as it exemplifies many of the essential questions

of the philosopher, i.e. those relating to: being and changing, identity and flux, reality and appearance. Fashion is, in fact, an important part of the nature of human sociality and our relationship to the world around us and the others with which we share it.

> Despite its frivolous appearance, fashion is not only a powerful social indicator, but also a particular means of bringing together the diverse and often contradictory demands of our human nature through a peculiar exercise of practical judgment...It implies a dynamic of social assimilation and distinction, which, for want of other references, could be postulated as a guiding criterion that determines our very identity. (Gonzalez, 2010, pp. 65–66)

How we consume is, in other words, part of our personal identity. However, findings in cognitive sciences suggest that the insatiable desire and craving fueled by fashion and designed obsolescence is just as likely to create insecurity and loss of identity (Whybrow, 2009). If we are filled with desire and craving, we cannot rest in who we are at this moment and are instead caught chasing a future dopamine kick from the acquisition of 'the new'.

However, fashionability does not need to be tied to designed obsolescence. Since the dawn of human civilizations there has always been a popular form of aesthetics aspired to for bodies, objects and the built landscape that expresses that culture's practices, values and norms. One could say that prior to designed obsolescence, fashions of the time were more enduring. I propose that becoming less wasteful could become fashionable, i.e. a popular form of living. The challenge in an ephemeral age so accustomed and addicted to the rhythm of the new, is how to make sure such a fashion endures.

1.32 Waste in & of Publicly Shared Spaces

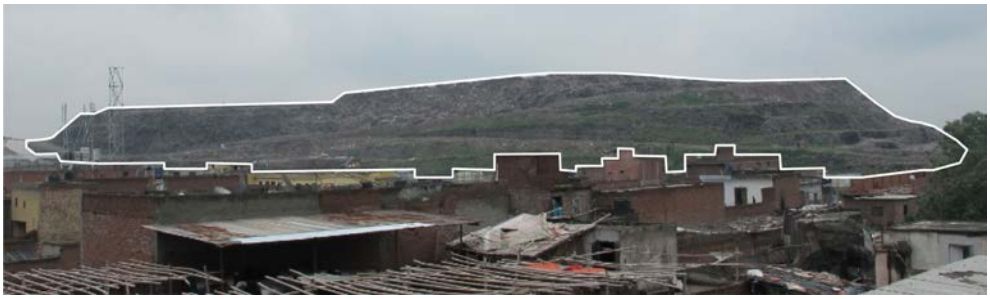
Though the consumption of products may at first seem to be merely a question of resources, it is also a question that relates to place and social conditions such as power, identity and the perception of our times. During this design inquiry, I have seen in many locations where waste is a persistent, even dominant, presence in communities and their publicly shared spaces.[12] In the suburbs of New Delhi, India, I witnessed how a mountain of waste had become a defining and dominant feature in the middle of the urban development that has grown around it (fig. 1:2). In other places in India and Kenya I witnessed the ubiquity of waste in publicly shared space, altering its character from a space where one reposes with others to a space where one disposes of things (fig. 1:3).

The ability to discard things in places "where material shortage is the norm…is a notorious way of demonstrating power" (Lynch, 1990, p. 31). What and where things are discarded and by whom "both underscores and creates social differences based on economic status" (Strasser, 1999, p. 9). In fact, the inability to manage waste has been recognized as a reliable indicator of whether a nation's government is dysfunctional on a whole (Hoornweg & Bhada-Tata, 2012).

> Trash varies from person to person, it differs from place to place, and it changes over time. The categories of objects we use and throw out are fluid and socially defined. (Strasser, 1999, p. 8)

[12] Discussed further in section 5.31

In other words, the waste one produces (and can afford to produce) is part of one's social and personal identity. And the manner in which this waste is treated near one's living space reflects the state of local governance and one's status within society.



(Fig. 1:2) The neighborhood of 'Waste Mountain' (outlined) in New Delhi, India. (In public domain)

(Fig. 1:3) This image from Malwani, Mumbai in India (January, 2014) illustrates an extreme case of the scenarios I experienced in publicly shared spaces in India and Kenya. (In public domain)

1.33 Grappling with the Ephemeral Lives of Objects

The age of the ephemeral is quickly becoming an acute socioecological crisis. This is caused by the discrepancy it foments between the time needed to build resources and the rate of the perceived, and actual, entropy of resources due to consumptive patterns. The World Bank warns that in our rapidly urbanizing world "the amount of municipal solid waste (MSW) is one of the most important by-products of an urban lifestyle [and] is growing even faster than the rate of urbanization" (Hoornweg & Bhada-Tata, 2012). They also warn that current data indicates urban waste generation will nearly double by 2025 from 2012 levels.

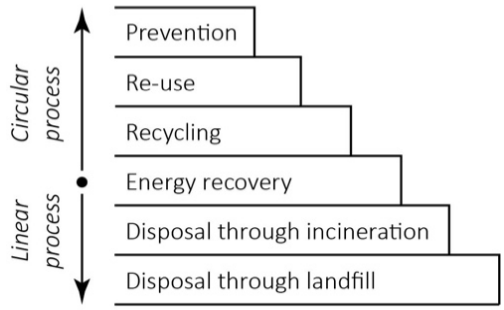
Waste generation is not only a growing problem on par with the threats of climate change, it also contributes to it. Multiple studies indicate that MSW transportation and operation, particularly landfills, have "been an important contributor to greenhouse gas emissions" (He et al., 2011, p- 112). The World Bank predicts that the scale and ubiquity of the problem will require an all-hands-on-deck approach if we are to address it affectively. No profession or person can claim to operate outside systems of resource use and waste disposal and each must take responsibility for their role in waste-making.

> Citizens and corporations will likely need to assume more responsibility for waste generation and disposal, specifically, product design and waste separation. Also likely to emerge will be a greater emphasis on 'urban mining' as the largest source of materials like metal and paper may be found in cities. (Hoornweg & Bhada-Tata, 2012, p. 3)

Standards and categorical definitions vary so greatly between EU member countries that the overall picture of recycling and landfill conditions in EU is still imprecise. As these measurement discrepancies are addressed, the EU has formulated a 'Waste Framework Directive' to encourage reuse and recycling:

> 50%...of certain waste materials from households and other origins similar to households, and 70% preparing for reuse, recycling and other recovery of construction and demolition waste. (*Waste Framework Directive 2008/98/EC,* 2008)

In this directive, EU uses what is frequently referred to as Lansink's ladder[13] (R. Kemper et al., 2006, p. 468) to determine a hierarchy of waste management (fig.1:4). It requires all member states to develop programs for waste prevention (the top rung of Lansink's ladder) as a part of their national waste management plan (Van Rooijen, 2012). In Lansink's ladder, reuse and prevention are presented as key factors in both reducing consumption of virgin materials and to reducing number of items that go to recycling, incineration and landfill.



(Fig. 1:4) Lansink's ladder illustrates a hierarchy waste management processes that has become the standard reference for EU waste management goals. The 'ladder' is also commonly depicted as a stair as shown here. As waste management climbs the rungs of the hierarchy, it includes more circular waste-resource processes. (Adapted from various diagrams in the public domain).

(See also fig. 3:1a & b for linear vs. circular waste-resource processes.)

While Sweden is a leader in landfill reduction (only 5% of all waste is landfilled), it is highly dependent on the combustion of waste (i.e. energy recovery) as a means of reducing the size and number landfills as well as fueling to municipal heating systems. It is, therefore, far from meeting the goals of the EU directive (Naturvårdsverket, n.d.). Sweden does however, show progress with municipally supported reuse and prevention programs of which Alelyckan

[13] It is named after Ad Lansink who introduced it to the Dutch parliament in 1979.

Circular Systems Park[14] in Gothenburg is a forerunner. Studies have shown that its pro-active program for preventing re-usable objects from being included in the lower levels of Lansink's ladder can make significant contributions to CO^2 reduction (Söderman & Palm, 2011).

Many argue that art and design have an important role to play in the production, use and awareness of 'waste' (Dartel & Nigten, 2015; Hoornweg & Bhada-Tata, 2012; Lynch, 1990; Strasser, 1999; Whiteley, 1987). This is an admonishment that I argue needs to be taken seriously in the education and practice of spatial designers. While resource use and disposal patterns cannot be solved purely by architectural means, design decisions can contribute to the problem, or solution, through spatial configurations, programming and material use. Which is one of the main reasons why this design inquiry explores alternative synergies between acts of waste-making and placemaking.

1.34 Spaces that Extend the Lives of Objects

Will Straw's (2009) rhythmanalysis[15] of "objects and their itineraries" (p. 212) uncovers three types of spatiotemporal pauses in the trajectory of commodities in cities:

1) The charity shop and main street boutique
2) The neighborhood yard/garage sale
3) The pawnshop and its restricted inventories

These spaces, which he calls 'spectacles of waste,'[16] play a key role in how a "city delays the disappearance of objects by extending the itineraries through which things travel as they live out their life cycles" (ibid., p. 206).

His study was conducted in Canada and is primarily a reflection of trends in North America, however the observations are not without parallel in many European countries. These types of places detain objects in their flow towards the waste management or recycling centers in a city and help to extend their usefulness and role in urban life, essentially slowing down their rate of entropy. Straw observes that "the convergence of artifacts on a limited number of spaces reverses their original commercial dispersal" (ibid., p. 212). They do so by detaining and reframing a discarded object for rediscovery and reclaiming by a new owner. These places embody the relative nature of what is, or is not, waste in society.

> Waste is not a condition of the material, but a value attributed to it by actors in its lifecycle. (Dartel & Nigten, 2015, p. 1)

Straw points out that the rise in fashionable boutiques of retro/second-hand/vintage clothing and things is often found in areas where the 'urban bohemia' (2009, p. 199)

[14] *Alelyckan Circular Systems Park* is a recycling center that includes a number of different organizations and businesses that are centered on salvaging objects for reuse, repair, repurposing, etc. It is a proto-regenerative place in the list of Dérives (section 5.32). Alelyckan was also used as a case study and workshop regenerative placemaking in the course Regenerative Design at the Architecture Department of Chalmers University of Technology. It was introduced to the students as a pre-study for their in-depth study *Bråta: from Recycling Center to Regenerative Place* (project 6.36).

[15] As defined by Henri Lefèbvre (1985) for social research that places a particular focus on the city's relation to time (Straw, 2009, p. 194).

[16] This seems to be a subtle reference to Debord's 'society of the spectacle' and others, such as Gonzalez, who speak of the spectacle nature of consumerist culture (see sections 1.3 and 1.31).

congregate. These boutiques have taken second-hand commerce out of the geographical and social margins and made them into prominent locations in the city. What once was considered a 'junk shop' is now often not far from the antique store both in location and character. Straw also points out that they have risen from the somewhat shady character of pawn shops. And though yard sales, flea markets and car-trunk sales remain somewhat marginalized they have also increased dramatically both in frequency and popularity in last decades of the 20th century (Straw, 2009, p. 200).

Straw observes that finding value in what another considered 'junk' (i.e. waste) is increasingly seen as a type of individual expression. It is a fashion statement based on novelty. The novelty is created either through redefining an object's use entirely or revealed through "narratives of surrealist discovery [of] the singular, disconnected object" (ibid., p. 212). These singular narratives can have a pedagogical role in a culture by relating past and present practices and values. However, he argues that the processes that produce the accumulation of objects in places are potentially an even richer source for the social study of urban cultures. The trajectories that commodities take in a culture, he reasons, is a quality of a local and/or national character and can have a direct bearing upon the sense of belonging an individual feels in the local culture. As pointed out earlier, these also reveal socioeconomic and socioecological conditions and values within a culture.

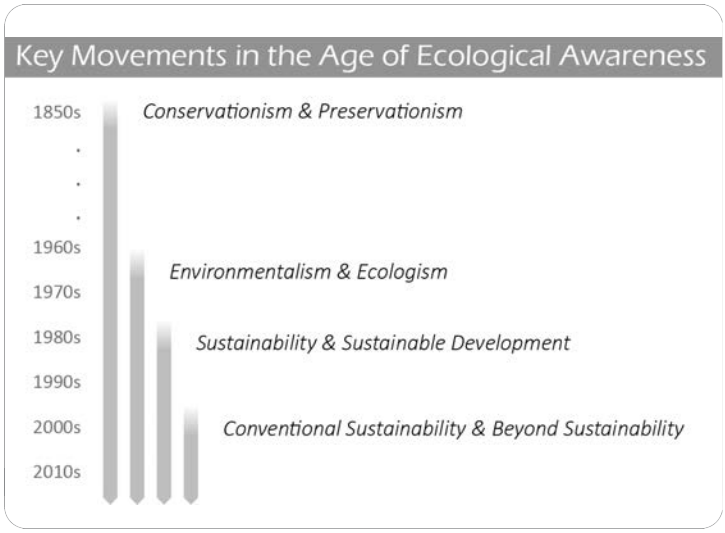
1.4
The Age of Ecological Awareness

While the age of unsettlement highlights the ecosociospatial conditions of our time, and the age of ephemerality our relationship to the material world and consumption, 'the age of ecology' (Sessions, 1987) highlights the rise in awareness and willingness to address the existential threats these conditions pose. In an age of ecology, one would expect to see a society that is driven by ecologically centered decisions and actions. This age is underpinned by a move towards a more systems-oriented understanding of the world influenced by scientific discoveries of the 20th century (Dobson, 2000).

It is a time of increased popular understanding of the adverse effects that industrial and post-industrial consumerist societies have had on the ability of ecologies to support life as we know it. However, the overwhelming characteristic of the age has been a state of insufficient action in the face of mounting evidence and increased awareness. For this reason, I suggest amending the title given to this age so that it may reflect more accurately its reigning condition: ***the age of ecological awareness***.

Regardless of its efficacy, this age is said to have been one of the most significant paradigm shifts in the history of (hu)man-kind (Sessions, 1987). A key product of this age is that sustainability is now considered a mainstream topic in modern political debates and everyday life. The path towards mainstream ecological awareness began in earnest with the spread of mounting evidence of threats and our connection to the health of ecologies in the 1960s

(Sessions, 1987).[17] However, the modern roots of these environmental concerns and political movements can be traced back to the late 1800s (Appleton, 2006) (fig. 1:5). The movements that have emerged and developed in during the maturation of the age of ecological awareness are all still active and relevant today and are often grouped under the term sustainability or sustainable development. This has, in turn, created a certain amount of confusion on what is meant by sustainability today and how to achieve it.



(Fig. 1:5)
An illustration of when key movements emerged in the development of the age of ecological awareness. The philosophies behind all of these movements still influence the debate on how to understand interrelationships between humans and nonhumans.

1.41 Eco-anxiety & Cognitive Dissonance

With the rise of the age of ecology, comes an increased concern to act individually and collectively to address social and environmental issues. Lack of knowledge of what needs to change is not always the problem leading to inaction. A range of 'psychoterratic' syndromes have been coupled to the threat and experience of "chronic environmental change" (Albrecht, 2011) in home environments. Albrecht warns that these are likely to increase as changes to our climate increase, and will affect the poor as well as the wealthy, though in different manners.

One of the syndromes he mentions connected to the knowledge of looming environmental crisis is 'eco-anxiety' which is often connected to a sense of helplessness or paralysis in those who experience it. It is not that people in this condition do not want to act, they simply do not know how to "translate their concerns into meaningful action" (Albrecht, 2011, p. 48). Eco-anxiety is not a mental disorder, but has become a popular term (Hewitt, 2008) to describe "a chronic concern over environmental issues…and a general feeling of helplessness in how to 'fix' it" (EcoWho, n.d.).

An overview of research conducted on psychological impacts of climate change made by the American Psychological Association (APA), predicts climate related anxiety to rise as climate related disasters increase (Clayton et al., 2014). APA supports findings from other studies (Bain et al., 2015; Moser & Dilling, 2007) that find that people are more likely

[17] For an overview of these and the dominant narratives within them see my licentiate publication (Östlund, 2017) available on Chalmers Publications online.

to overcome negative emotions, such as anxiety, denial and passivity, if presented with "specific, actionable ideas about what they can do to move toward solutions in their everyday lives" (Clayton et al., 2014, p. 32). The report also concludes that in order to encourage action and reduce paralyzing negative emotions, one must emphasize possible "positive co-benefits, like economic prosperity, reduced risk, and stronger communities" (ibid., p. 33). The report emphasizes that "local, place-based impacts may help also overcome political polarization" (ibid., p. 34).

A psychological term that can help explain the distressed state of eco-anxiety, is 'cognitive dissonance' (Festinger, 1957). When our cognitive consonance (or consistency) is disrupted by conflicting thoughts or situations (dissonance), an inner discomfort is produced, and we are driven to adjust our thinking or actions in order to recreate cognitive consonance. This can explain why some reject ecological concerns when these contradict how they are used to acting in the world. Understanding the mechanisms of cognitive dissonance, one can see how increased awareness of ecological responsibilities coupled with a built environment that make appropriate actions cumbersome can cause psychological discomfort and thwart a shift towards values and habits that support socioecological well-being.

It is, then, reasonable to assume that built environments that include a variety of opportunities for people to engage in acts that benefit socioecological relationships can help to reduce climate and eco-related anxieties. The APA concludes their report with a proposal that places such as these can also encourage local communities and cities to become "a forum where people can share what they are doing, and learn about what others are doing [which in turn] can lead to a positive feedback loop in which actions inspire other actions and support the creation of new social norms" (Clayton et al., 2014, p. 34).

Physical places create lived experiences through bodily senses and emotions and are silent partners to the intellectual and visual information that predominate society. Bodily senses are integral to how humans intellectually and emotionally interpret and interact with their surroundings and make sense of them[18] and how new experiences become emotionally meaningful in everyday life. These physical forums, i.e. places, are important not just as sources of intellectual and visual information, but also through their invisible and ephemeral effects on senses and emotions (Falkheden, 1999).

1.42 Ontologies in the Age of Ecological Awareness

Few argue that they wish to have poor (or 'unsustainable') relationships to the planet and their fellow human beings, however, conflicting ontological views and values create heated debates on how to view and improve these relationships (Jamieson, 1998). There are a number of pre- and post-Brundtland views on how to understand and address the socioecological problems of our time, many of which overlap or contradict one another. There have been a number of attempts to group these into larger categories in order to help orientation among them.[19] From a review of many of these, I have defined three ontological views of the relationship between ecology and society. This is not to say that overlap does not exist between them, but rather to point out three core worldviews driving the debate.

[18] Further discussed in section 2.41

[19] I found similar arguments in many articles, e.g. (Du Plessis, 2012), (Holland, 2002) and (Kidd 1992).

I. Negotiable Eco/Social Substitutability

The first ontology interprets sustainability "as a relationship between present and future welfare of *persons*" (Norton, 1992, p. 97, emphasis is mine). It is a view which holds true to neo-classical economic theories of substitutability between man-made and natural capital. In other words, it believes that the "costs of environmental deterioration...can be compensated by benefits from manufactured capital" (Rennings & Wiggering, 1997, p. 25). For this reason, it is not unusual for ecological care to be framed as "the maintenance of the stock of natural capital" (Jamieson, 1998, pp. 184–185). Sustainability is seen as a negotiation between separate and conflicting economic, ecological, and social needs (Campbell, 1996). Many choose to call this approach 'weak sustainability' (Daly & Goodland, 1996). It has, however, also been called the 'social scientific' (Norton, 1992) and 'ecological modernization.'[20] It is often favored by governments and private sector organizations (du Plessis, 2012) who in turn are more likely to use the term 'sustainable development' (Robinson, 2004).

II. Ecologically Dependent Social Well-being

The second ontology rejects the notion of substitutability between natural and (hu)man-made capital (Ang & Van Passel, 2012; Rennings & Wiggering, 1997). Though it has a stronger ecological focus, it is primarily focused on maintaining and prolonging human well-being as long as possible. Those who call the previous approach 'weak' call this approach 'strong sustainability' (Rennings & Wiggering, 1997). I also consider it to align with what Bryan Norton (1992) defines as 'scientific contextualism' and defines "as an obligation to protect the natural processes that form the context of *human* life and culture, emphasizing those large biotic and abiotic systems essential to *human* life, health, and flourishing culture. Ecosystems, which are understood as dynamic, self-organizing systems *humans* have evolved within, must remain 'healthy' if humans are to thrive" (ibid., p. 97, emphasis is mine).

Within this strand of thought, the dominant economic theory of today is often accused of excluding unpaid labor of humans (often women) and perpetuating age-old north-south power dynamics. I believe that Thoreau's words on the relationship between 'the good life'[21] and modern economic norms rings true for this group:

> The good life has little or nothing to do with ever increasing levels of consumption and manufacture, or with any conception of ourselves as Homo economicus, that is, economic man. (Oelschlaeger, 2000, p. 5)

This is a stance often taken by NGOs and academics (Robinson, 2004). These groups tend to prefer the term 'sustainability' over 'sustainable development' as the latter is interpreted to be "ameliorating, but not challenging, continued economic growth" (ibid., p. 370).

[20] A term that Andersen & Massa (2000) trace back to the 1980s, more specifically to Huber (1982), Jänicke (1984), and Wicke (1982).

[21] 'The good life' is a phrase used both popularly and scholarly to discuss shared conceptions of the ideal life. Aristotle famously discussed this as the ideal relationship between personal virtue and happiness.

III. Reciprocal Socioecological Well-being

The third ontology rejects the objectification of the natural world as a resource and context whose *primary* value is to benefit *human* life and culture. Proponents of this stance claim that sustainability can only be measured by the well-being of *all life* on earth. It argues that the common future of all life depends on a reciprocal partnership between civilization and ecology which, in turn, "calls for profound and radical changes to the structures of society, including the dominant worldview" (Du Plessis, 2012, p. 8).

It holds similar criticisms of reigning economic theories as those made in 'Ecologically Dependent Social Welfare,' with the addition that we must also consider the unpaid labor and welfare of nonhuman beings. Being kinder to the environment and making current systems more efficient are deemed necessary but insufficient measures to avoid socioecological disasters, instead we need to redefine current socioecological relationships (De Beaugrande, 2004, p. 117). The welfare of human and nonhuman beings must be considered on equal and reciprocal terms, which is at times described as a co-creative and coevolutionary affair in a socioecological context (Kagan, 2010). In a Thoreauvian spirit they would claim that the well-being of human and nonhuman beings cannot be reduced to, or achieved by, economic being.

While some who argue for this view can be guilty of substituting an anthropocentric view with an eco-centric one, others argue that the "emancipation of the natural world cannot be considered separately from the emancipation of the social world" (Moore, 2001, p. 19). Proponents of this view are likely to accuse the representation of 'sustainability' and 'sustainable development' of misleading priorities and for containing irreconcilable conflicts (Campbell, 1996; Mebratu, 1998). It has been called 'absurdly strong sustainability' (Holland, 2002) and 'radical ecologism' (Du Plessis, 2012), which both imply an outlier status in difference to the term that I prefer for this mode of thinking, namely 'beyond sustainability' (Jamieson, 1998) which connotes an aim for new horizons – a step beyond notions of sustainability that we can now, thankfully, consider mainstream and conventional. This third ontology of the age of ecological awareness is, furthermore, where this design inquiry finds itself.

1.43 A Basis for Beyond Conventional Sustainability

The call for moving beyond sustainability is not a united call, nor is it very well defined. However, one can see it rising from a sum of varied voices of concern and critique that arose post-Brundtland. The first description and use of the phrase 'beyond sustainability' I have found lies with Dale Jamieson (1998). The arguments he makes for such a movement are emblematic of this loose 'movement' and entail criticizing mainstream discourses on sustainability as too vague, conservative, anthropocentric and unquestioning of current economic norms. He recognizes a need for a discourse on sustainability "that permits deeper discussion of aesthetic, spiritual, religious, political and moral values" (ibid., p. 191) of how to shift the ways humans relate to each other, nonhumans and ecology – a need that cannot be met by conventional scientific inquiries.

The first two ontologies identified in the previous section are the paradigms of sustainability which have reached mainstream practices, with the first (negotiable substitutability) dominating most heavily (du Plessis, 2012). The third ontology accuses the first two of not being very different from one another. Alan Holland (2002) goes as far

as claiming that the difference between them is a misunderstanding at best, a "charade" (p. 126) at worst. One can therefore arguably refer to the first two jointly as either 'mainstream sustainability' or 'conventional sustainability'.

While recognizing the important achievement of making concerns for socioecological conditions mainstream, long-time proponents of sustainability have become increasingly concerned that the mainstreaming process has thwarted the paradigmatic shift that is necessary for real change to occur (Sneddon et al., 2006). Proponents of the third ontology (Reciprocal Socioecological Well-being) hold that part of the problem is that in this mainstreaming process the conventional views that caused the problem in the first place has largely remained intact. I therefore propose that in place of 'beyond sustainability' it would be more accurate to call this a movement ***beyond conventional sustainability***. To further understand the roots of this loose, but growing, movement one can look to the three main criticisms of conventional sustainability described below.

I. The Sustainment of Exiting Dualisms & Paradigms

Conventional sustainability is accused of perpetuating a number of dualistic Cartesian ontologies, e.g. mind vs. matter, (hu)man vs. animal, technology vs. nature, urban vs. rural, natural landscape vs. built landscape (Moore, 2001). This is rooted in conventional sustainability's inability to provide a vision that departs from the traditionally antagonistic and dualistic notion of the relationship between (hu)mankind and 'nature'. Where 'nature' is primarily a resource for human well-being in an anthropocentric and mechanistic worldview.

Ted Trainer (1990) expresses the thoughts of many when he accuses the Brundtland definition of sustainability of being "a conventional statement that argues for continuation of the same basic values, systems and strategies, which are the very roots of the problems to which the report was intending to offer solutions" (ibid., p. 71). The cause of which lies in the report's "fail[ure] to face up to the basic contradiction of how to reconcile the expansionist nature of industrial society with the limitations presented by the planet's array of self-regulating ecological systems" (Sneddon et al., 2006). The conventional interpretation is therefore accused of promoting 'business as usual' in a more 'eco-efficient'[22] (Najam, 1999) form with the ultimate goal of upholding 'the status quo' of the current world order (Du Plessis, 2012; Moore, 2001).

Sustainable development, in particular, is accused of problematizing and victimizing the poor as it tends to frame poverty as the cause of unsustainable behavior (Lélé, 1991). This also relates to the accusations that sustainable development oversimplifies the notion of economy into forms coherent with neo-classical economic theory and thereby continues to ignore the role of unpaid labor. These combined factors are accused of reinforcing age-old power dynamics between the global north and south (Pietilä, 1990).

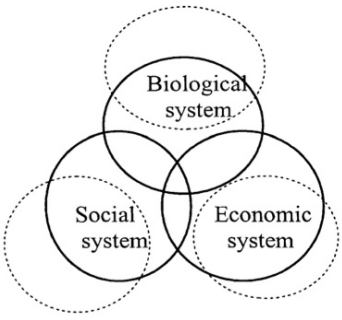
[22] The World Business Council for Sustainable Development has been a key proponent of 'eco-efficiency'. In 1993 they developed a formal definition and in 1997 they promoted it "as a 'marketing philosophy' […] 'developed by business for business' and highlights the fact that 'the first word of the concept ['eco'] encompasses both ecological and economic resources—the second ['efficiency'] says we have to make optimal use of both" (Najam, 1999, p. 70).

II. Vague Language & Misleading Terms

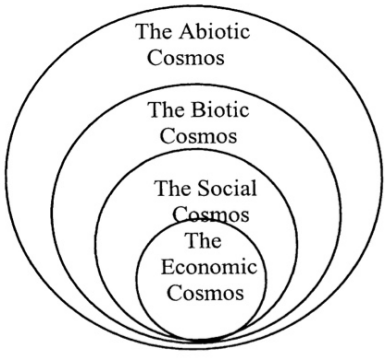
The Brundtland report is accused of being ambiguous, vague and contradictory (Langhelle, 1999). This vagueness has burdened discourses of sustainable development with a recurring "mixing of goals and means, or more precisely, of fundamental objectives and operational ones" (Lélé, 1991, p. 611). It has also allowed co-option of the notion of sustainable development by "powerful actors hoping to give unsustainable activities a 'sustainable' veneer" (Sneddon et al., 2006, p. 263). This co-option is otherwise known as 'greenwashing' (Corporate Watch, 2006; Greenpeace, 2012; Najam, 1999) and is counterproductive for the understanding and implementation of the core principles and ethics that lie at the core of the Brundtland report (Langhelle, 1999). Critics therefore claim that the very notion of what should be *sustained* and *developed* as well as *for (and by) whom* this work is to be done, needs more linguistic, philosophical and normative clarity in order for real change to occur (Jabareen, 2008; Lélé, 1991; Mebratu, 1998; Norton, 1992; Robinson, 2004). These claims imply a need to explore forms of research that do not favor answering the question of what *is* over what *could* or *ought to* be.

III. Misguided Representation of Interdependence & Well-being

The definition and widespread diagram of the 'three pillars of sustainability' (social, ecological, economical) are a representation of powers that must be appeased in politics (Murphy & Drexhage, 2010), not a depiction of the actual interdependence in real life (Mebratu, 1998). The diagram reinforces the positivist idea of independent interacting, but separable, spheres of activity, and that sustainability lies in their intermingling (ibid.) (fig. 1:6a). When it is interpreted as a description of the ontological constitution and relationships of the world, there has been a grave "cosmic (mis)conception" (ibid., p. 512) as to who depends upon whom and the relationship between their realms of influence.



(1:6a)
The Dominant Model



(1:6b)
The Cosmic Interdependence

(Fig. 1:6a & 1:6b) Desta Mebratu's (1998, p. 513) diagram explaining the "(mis)conception" of interdependence underlying the diagram of the three pillars. The three pillars diagram (6a) communicates three interacting but separate spheres of influence, rather than spheres of influence acting within a larger sphere which it is dependent upon (1:6b). Reprinted with permission.

Proponents of moving beyond sustainability, or at least beyond the three pillars of sustainability, argue that there lies a basic lack of recognition of the ubiquitous nature of ecology in all social well-being and that economics are inseparable from social institutions (fig. 1:6b). In the three pillars diagram, economics is expressed as something on par with, and other than, the social and ecological realms. If one imagines that the world is to be divided into supplying these three realms equally, two thirds of the planet's resources would be dedicated to human concerns and is a clear representation of its anthropocentric nature.

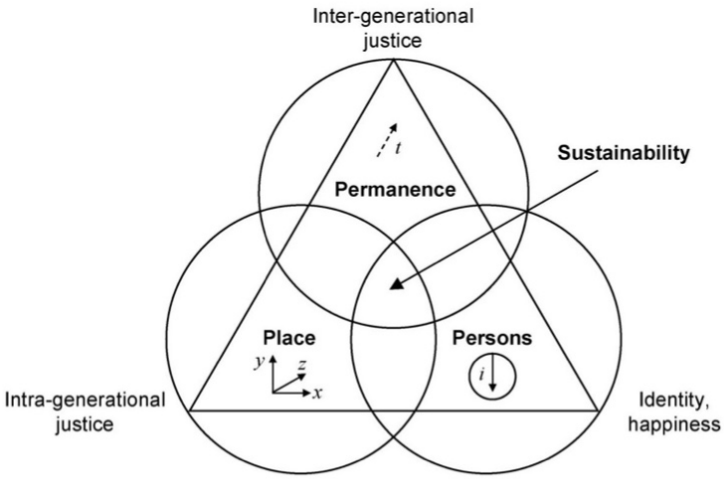
Even within its anthropocentricity, it is also criticized for "not sufficiently captur[ing] some [of the] spatial, temporal, and personal aspects" (Seghezzo, 2009, p. 550) necessary to satisfy all human needs. Lucas Seghezzo (2009) therefore proposes a 'five-dimensional conceptual framework' to address the question of sustainability. He bases this framework on the "fundamental ontological categories" that underpin guiding principles and topics of concern in social sciences. He argues, that the application of a sustainability framework rooted in ontologies derived from social sciences increases the "potential for plurality and its adaptability to specific settings...making it more appropriate to understand local, regional, and global processes [and the] pluralism" that is unavoidable in "the collision of collective and individual values and rights" (ibid., p. 551).

He translates the ontological categories identified within social sciences into a triad of concerns for sustainability with five correlating dimensions to consider as a basis for achieving and balancing the basic social and individual needs for *inter-* and *intra-generational justice, identity* and *happiness* (fig. 1:7):[23]

(1) The dimension of *Time (t)* which underpins concerns for *Permanence.*

(2) The dimension of *Identity* (i) which underpins concerns for *Persons.*

(3, 4 & 5) The three dimensions of *Space* (x, y & z) which underpin concerns for *Place.*



(Fig. 1:7) Seghezzo's diagram (2009, p. 548) of "five-dimensional conceptual framework" for sustainability based on the ontological categories of time, identity and Euclidian space. Reprinted with permission.

[23] All terms in *italics* are from figure 1:7 and the numbers in this list represent the different dimensions Seghezzo argues are missing in conventional sustainability.

While Seghezzo's model is clearly anthropocentric, it is illustrative of how the conventional model of sustainability, which is also anthropocentric, even falls short of fully considering the human needs. Most poignant, for this design inquiry, is how Seghezzo's model illustrates the importance of addressing spatiality and place in the concept of sustainability. This model begins to explain why the conventional model of sustainability lacks the ability to create a compelling framework for sustainable spatial design. It also illustrates why technological solutions fall short of addressing spatiality in sustainability and thereby also in sustainable spatial design.

The issue of the equitable use of space is repeated across numerous articles related to the question of sustainability. However, space is commonly described in terms of quantities, measurements and commodity which I consider a typical way of speaking about topics in general within conventional sustainability. While these are not invalid issues to consider, it is not sufficient ground upon which to discuss the nature and role of spatiality in the question of shifting paradigms towards socioecological well-being. By including knowledge concepts from the social sciences, Seghezzo (2009) argues that the diagram could be "a useful tool to assess current development paradigms in terms of their ability to integrate, reconcile, or transcend the anthropocentrism/non-anthropocentrism 'dichotomy" (p. 541).

From Seghezzo's observations from social sciences one can conclude that the general lack of consideration for the role of place (and spatiality) in the establishment of socioecological well-being is not only a problem for the design of places. It is also indicative of a larger problem with dominant definitions of sustainability in general. Processing the notion of sustainability through an ecosociospatial and designerly perspective can, therefore, arguably contribute to the advancement of the notion and practice of sustainability.

1.5
Approaching Hypercomplexity with a Third Ecology Perspective

Proponents for moving beyond sustainability, like myself, question how many concessions to current conditions and norms can be made before the practice of sustainability becomes more about maintaining current degenerative conditions than changing them. Mainstreaming a concern for our socioecological conditions was a necessary step, but it was only the first step; this dissertation focuses on what follows the mainstreaming of concerns for socioecological well-being by envisioning desirable futures rather than simply making current conditions a little 'less bad' (Robinson & Cole, 2015). This dissertation holds that beyond sustainability is not a question of rejecting sustainability, but more of how to examine the core values and emotions that will drive needed changes and how to focus on them *more affectively*. It is also about how to build more actionable, inspirational and constructive ways for envisioning and moving forward into our common future.

This work of reevaluating, redefining and envisioning sustainability is a continuous discussion as reality in hypercomplexity is always in flux and continuously brings about new configurations of concerns and conditions. The world has changed since the publication of Rachel Carson's (1962) seminal work *Silent Spring* and "Our Common Future" (a.k.a. the Brundtland report) which are often credited with initiating mainstream ecological awareness and the political debate on sustainability (Sneddon et al., 2006). The changes that increasing levels of hypermobility, hyperconnectivity, hypercomplexity and unsettlement bring to the times we are living in makes the need to reexamine our approaches and interpretations of sustainability. This design inquiry's mission is no less than to contribute to this work.

It does so by exploring notions of beyond conventional sustainability through a nonmodern ecosociospatial perspective.[24] This nonmodern perspective aligns with a form of design thinking that Sanford Kwinter (2010) identifies and calls 'third ecology.' I find that Kwinter's description of third ecology, along with the two ecologies leading up to it, parallel the key movements and ontologies of the age of ecological awareness that I have previously delineated (fig. 1:8).[25]

Movements...	Forms of Ecology...	Ontologies...
...in the Age of Ecological Awareness		
Conservationism Preservationism	First Ecology Ecologies and societies are seen as two separate realms.	Negotiable Eco/Social Substitutability
Environmentalism Sustainability Sustainable Development	Second Ecology Ecologies and societies are seen as two separate but interdependent realms.	Ecologically Dependent Social Well-being
Beyond Sustainability Regenerative Sustainability	Third Ecology Ecologies are understood as not only biological, but also technological and social, and that societies are not only social, but also technological and biological.	Reciprocal Socioecological Well-being

(Fig. 1:8) Definitions of Kwinter's (2010) three forms of ecology in relation to the movements and ontologies present within the age of ecological awareness.

The fact that these different forms of, approaches to and perspectives on sustainability are all still active today, further reinforces the need for any profession(al) to delineate exactly what form of sustainability they are aiming for and what means are necessary to get there. But it also reinforces the need for society, and the world as a whole, to as whether or not all of these forms of ecology *should* still be active and relevant in a future age of ecology.

[24] See section 3.24

[25] Movements are delineated in section 1.4, fig. 1:5; Ontologies are delineated in section 1.42.

This design inquiry embodies this third ecology perspective by investigating the built environment (to address unsettlement), waste-resource relationships (to address ephemeral economies) and the possibility and existence of constructive role of humans in ecologies.[26] As such, it embraces the situatedness of socioecological well-being and the mess of ecological, societal and technological corporealities and correlational influences that need to be cared for in moving beyond conventional sustainability.

[26] Discussed further in relation to regenerative thought in chapter 3.

Contributions to Language & Concepts

(Hyper)complexity	hypercomplexity is a heightened level of complexity and can be described as an intellectual understanding of messiness. Adding a parenthesis infers that a certain reality can become either complex or hypercomplex depending on situational circumstances.
Designed Obsolescence	this term emphasizes that design is integral to both the planning that is required to determine how long a thing should *function* (planned obsolescence) and the *perception* of progress that is achieved by making an older model seem 'out-of-date' or 'out-of-fashion' (progressive/perceived obsolescence).
The Rhythm of the New	the rhythm of change over time
Waste-making	the psychosocial and physical practices that make an object obsolete in the life of an individual.
The Age of Ecological Awareness	the rise in awareness and willingness to address the existential threats posed by ecological decline caused by human activities.
Beyond Conventional Sustainability	a loose but growing call to address divergences and concessions made in the mainstreaming process of sustainability.

SENSEMAKING IN HYPERCOMPLEXITY

Summary of Chapter 2

This chapter explores psychosocial mechanisms and experiences that influence how humans perceive, understand and act in the world. It reveals how various forms of narrativity is central to how we make sense of the world, i.e. sensemaking, and how this relates to spatiality and design thinking. It explores the existence, character and quality of spatial narrativity and how this relates to the notion of placehood and the notion of shifting paradigms towards, and beyond conventional sustainability.

2.1
Contributing to Future Realities

Design can be part of the solution, but design has also been part of the problem. Currently, solutions for sustainability often lie within the realm of technology (Fry, 2009; Puig de la Bellacasa, 2011) and even though designers engage in sustainability issues, the result often is that "the unsustainable gets sustained" (Fry, 2009, p. 53). This fixation on technological fixes creates a tendency to see sustainable spatial design as a question of applying energy and material technologies to the built environment. It *is* about these things, but the design and creation of the built environment also has an identity and culture-building aspect through sociospatial relationships, i.e. relationships between social and societal constructs and the spaces they inhabit. This aspect of the built environment is most significantly represented when a space takes on different layers of meaning and is considered a place. This chapter delves into how these sociospatial relationships play a role in how we make sense of and sense the world, i.e. *sensemaking*.

About the time that Environmentalism and Ecologism emerged in the age of ecological awareness (fig. 1:5), Viktor Papanek's (1971) influential book *Design for the Real World* called on the design fields[1] to cease its pandering to the obsession of spectacles in fashion and throw-away cultures – which, as we have seen, are two key forces influencing human attitudes towards resources in the age of the ephemeral. He bases this admonishment to the design professions by observing that "design has become the most powerful tool with which man shapes his tools and environments (and, by extension, society and himself)" (ibid., p. 14). Papanek's call for political action and socioecological responsibility was hugely influential in the fields of spatial design as well as product design (Fineder & Geisler, 2010).

Tony Fry may be referring to this design activism present in the '70s when nearly three decades later he accuses the design profession of suffering from "political amnesia" underpinned by a lack of understanding in "how design makes or breaks worlds" (2009, pp. 25–26). In the work towards sustainability, he argues that spatial design must further develop methods and a deeper understanding of 'futuring' (consciously enabling future socioecological well-being) to counteract the role it has played in the "unfolding defuturing forces in the urban" (Fry, 2011, p. 432) that undermine future well-being by "[failing] to comprehend what it destroys" (ibid., p. 434) in socio-ecological relationships.

Papanek and Fry's admonishments represent a larger call for the design fields to investigate, develop and communicate the potential of their own methodologies and actions for making and breaking worlds. This chapter is a step in that direction, with a focus on the characteristics of spatial design, practices and manifestations that relate to sensemaking, paradigms and future-making.

[1] Though Papanek addresses the design professions in general, his thesis was hugely influential in the fields of spatial design as well as product design (Fineder & Geisler, 2010).

2.2
Making Sense of the World

Narratives help us make sense of the world and often carry ontological suppositions about shared realities. They not only express and communicate our interpretation of the world, they also form the way in which we understand it (Brône & Vandaele, 2009; Bundgaard, 2007; Mitchell & Egudo, 2003). Narratives come in many different forms. Stories and images in the historical development of ecological awareness have been credited with "engendering empathetic responses; formulating and defining, or strengthening, identities; as well as engaging, activating, and gathering people from diverse backgrounds to a common cause" (Harari, 2015). A metastudy of transdisciplinary research[2] on "narrative, narrative theory, the use of storytelling and sensemaking" found the "applied aspect" (Mitchell & Egudo, 2003, p. 7) of narratives and storytelling to:

- be effective tools in seeking insight into changes in organizations and cultures
- be useful in the processes of decision making and knowledge transfer
- contribute to sensemaking
- act as a source of understanding
- serve as a source of implicit communication
- impart complex tacit knowledge

The authors conclude the metastudy by claiming that:

> Through stories, narrative becomes an instrument to construct and communicate meaning and impart knowledge. Stories told within their cultural contexts to promote certain values and beliefs can contribute to the construction of individual identity or concept of community. (Mitchell & Egudo, 2003, p. 7)

In other words, narratives are useful and pervasive in individual and collective sensemaking, i.e. the subjective and intersubjective meaning we interpret and attach to our experiences of our world. There is therefore good reason to conclude that they can play a crucial role in the "deeper discussion" (Jamieson, 1998, p. 191) on values that could, in turn, lend clarity to the linguistic, philosophical and normative clarity many critics of conventional sustainability call for.[3]

Intersubjective phenomena are the confluence of different individuals' subjectivity. In difference to objective phenomena,[4] which exist regardless of human consciousness, intersubjective phenomena exist only in so far as they are held between "conscious minds" (OED, n.d.-c). In other words, it is what is communally experienced and held as true at a given point in time – a temporal reality shared by many. A paradigm (Kuhn, 1962) is a form

[2] Fields of study ranging from cognitive sciences, social sciences, anthropology, linguistics, organizational studies and history.
[3] See sections 1.42, III and 1.43, II.
[4] It is not uncommon to mistake the intersubjective as objective and the two words are at times treated as and explained to be synonymous.

of intersubjective sensemaking governing scientific practices which correlates with intersubjective perspectives on the world and society. Which in turn, as narrative studies have revealed, are perspectives intertwined with different forms of narratives in society.

When an intersubjectively held narrative becomes "a grand theme around which society is organized" (McCusker, 2010, p. 225) it can be called a *metanarrative*. Like a paradigm, a metanarrative underpins and shapes what is understood and done; it is implicitly understood and integral to our shared understanding of 'reality' and its associated stories and practices. The view of society's dualistic relationship to ecology, for example, is often referred to as a metanarrative for how we interpret sustainability.[5] As all that is intersubjective is upheld by subjective experiences, a shift in paradigms and metanarratives necessarily involves shifting individual subjective experiences and narratives that uphold it. It is for this reason that this design inquiry shifts between explorations of subjective and intersubjective constructs.

The development of the age of ecological awareness is underpinned by narratives that underscore the value and nature of a future based on socioecological well-being and the dangers of damaging the prospects for its existence. Yasef Jabereen (2008) points out that utopian narratives have played a central role in the development of ecological awareness and sustainable development.[6] Much of this has been done through different art forms, literature, slogans and principles of practices (including architecture). In this development of narratives in the age of ecological awareness, "reactions to different views of the future of the world are influenced as much by the fundamentally optimistic or pessimistic personalities of prominent authors as they are by facts and objective analyses" (Kidd, 1992, p. 4). In other words, the way the story is presented is as important as the story being told. The question of how space and spatial design contributes to an optimistic or pessimistic story of our socioecological conditions is therefore a crucial one to ask when considering how design can contribute to improving future prospects in times of hypercomplexity.

The notion of what a narrative is, and the forms it can take, has developed and diversified as narrative theory has made its way through the scrutiny and discourse of different disciplines such as the social sciences, cognitive sciences, neuroscience and literary sciences. As will be explained in the following section, there is reason to include spatial design in this list of disciplines, and to add spatial narratives and spatial poetics to the list of narrative forms. Understanding how spatial narrativity relates to making sense of and sensing realities, i.e. sensemaking, could contribute to developing the role of spatial design in the challenging times before us.

[5] There are an infinite number of references possible for this. One example within regenerative design discourse is (Du Plessis & Brandon, 2014).

[6] This point is backed by a great number of authors which he refers to in his article.

2.3
Spatial Narrativity

Many have argued that spatial objects have linguistic, narrative and poetic implications. Spatial design, in particular architecture, has been discussed as a form of language since the 1650s (Forty, 2000). Within this discussion, the design process itself has been likened to a form of narrative building and storytelling (Ampatzidou & Molenda, 2014). Adrian Forty (2000) identifies three main themes in discourses on how architecture communicates, and adds there is a world of difference between:

- *Architecture being a language* – i.e. it has an identifiable syntax and grammar
- *Architecture being like a language* – i.e. it has similar characteristics to languages, such as its ability to contain implicit meaning(s), without necessarily having an identifiable syntax or grammar for example.
- *Architecture being comparable to literature* – i.e. it shares characteristics with literary compositions, e.g. it tells a story.

From his review of the over three century long debate on the topic, Forty concludes that while *equating* architecture with language or literature is often problematic, there is no doubt that these comparisons have been useful metaphors to describe how one can read and derive meaning from different forms of architectural expression. The enduring nature of the debate itself indicates that architecture holds sway in societal and individual narratives in one way or another (even though a definitive explanation of exactly *how* eludes us).

Parallels between architecture and language were largely rejected by the modernist movement, only to reemerge with the postmodern movement both within architectural theory and other fields of study. A prominent contributor to this postmodern discussion was the field of semiotics,[7] which looked to architecture as a way to prove the thesis that objects carried meaning in the form of symbols and signs. This thesis was, however, criticized heavily for neglecting how space is produced and how meaning is derived from the lived and embodied experience of it (Forty, 2000). However, from the perspective of a spatial designer, this critique reveals more about the limited view of architecture in semiotics than anything else. While there is no doubt that objects influence the experience of space, "architecture is a practice that arises from spatial thinking" (Van Schaik, 2015, p. 13) and, for this reason, cannot be fully understood or explained through 'object thinking'.

Space is the void, the no-thing, that both contains and emerges from the measurable things in this world – an object is surrounded by space and a room is created by enclosing space with objects (e.g. walls). Space lies in-between objects and people, it is part of not only the distance, but also the connection, between them. As it is always inside, outside, in-between and surrounding everything and everyone in our world it has a ubiquitous interwoven quality to it. I find that it is this dual quality of no-thingness and ubiquitous

[7] Semiotics is an interdisciplinary topic studied in linguistics, sociology, anthropology and life sciences.

connectivity that makes space difficult to definitively describe, know and measure. I posit that it is exactly this no-thing that sets the stage for the interaction and experience of things.

It is in and through space that humans and nonhumans exist and interact to form relationships that, in turn, inform and generate personal and shared narratives. These human and nonhuman experiences, interactions and movements through time add other experiential dimensions to the three-dimensional Euclidean qualities of space. To represent this interwoven and multidimensional nature of lived spaces *spatiality*[8] will be used in this text – the intentional composition of which is *spatial design* and the narrativity of which could be called ***spatial narrativity***.

In this text, spatial design is used to refer to the multidisciplinary[9] art and science of crafting places through the composition of objects, spaces, lived activities and experiences. And spatial narrativity is used to refer to how space communicates and is made through spatial experiences and practices, as well as the way in which spatial designers develop and communicate concepts and visions of a future place.

Gaston Bachelard argues in his seminal work *Poetics of Space* that poetry and storytelling are integral to the spaces we inhabit, making it perfectly sensible to 'read' or 'write' a space (Ampatzidou & Molenda, 2014; Bachelard, 1994 [1958]). Leon Van Schaik (2015) explains that Bachelard used poetry as an allegory "to capture his spatial experience in its full cultural richness" (p. 15). This allegory was embraced by many as a way of understanding and creating space beyond the "hard materialist thinking of modern architecture" (ibid.) of the mid-twentieth century. A sentiment one can find supported in Christopher Alexander's influential analysis of 'pattern languages' in the built landscape:

> When many patterns overlap in the same physical space: the building is very dense; it has many meanings captured in a small space, and through this density; it becomes profound. In a poem, this kind of density, creates illumination, by making identities between words, and meanings, whose identity we have not understood before…the connection does not only illuminate the words, but also illuminates our actual life. (Alexander, 1977, p. xli)

This rich description of the interweaving aspects of space suggests that spatial narrativity is irreducible to either the physical, spatial or psychosocial dimension and, like poetry, resists objective or singular interpretation.

In narrative studies researchers bear witness to how the situated[10] nature of a narrative strongly influences its ability to affect knowledge building, identity and learning (J. S. Brown et al., 1989; Reffat & Gero, 1999). As spaces are settings for human interaction and experience, it could be said that they communicate through their role in ongoing personal

[8] Spatiality is the "character, quality, or property [of being spatial] (1) Having extension in space; occupying or taking up space; consisting of or characterized by space. (2) Of, pertaining, or relating to space; subject to, or governed by the conditions of space." (OED, n.d.-i, derivative & defintions 1, 2)

[9] Including any professional whose primary focus lies in the formation and transformation of space, such as landscape architecture, urbanism, art, etcetera.

[10] Its location and circumstance and related to the notion of situatedness: "the dependence of meaning (and/or identity) on the specifics of particular sociohistorical, geographical, and cultural contexts, social and power relations, and philosophical and ideological frameworks, within which the multiple perspectives of social actors are dynamically constructed, negotiated, and contested." (Oxford-Reference, n.d., definition 1)

and social narratives. The importance of a space may, for this reason, lie more in how it potentiates personal and social narratives than what definitive story it tells.

When the layering of psychosocial experiences and cultural significance illuminated by Alexander and Bachelard is thick, a space is often called a 'place'. In fact, it would be fair to claim that spatial design is the art and science of crafting places through the composition of objects, spaces, lived activities and experiences. To understand spatial design and spatial narrativity better, let us now delve into the fuzzy, but significant, distinction between space and place.

2.31 Delineating Space & Place

The question of how to differentiate notions of space and place is a question of how we perceive and live in our physical and psychosocial worlds and can help to shed some light upon the nature of spatial narrativity. Not unlike the concept of sustainability, the concept of place is knowable in principle and yet widely variable in its interpretation and application. John Agnew (2011) points out that the over two-hundred-year discourse on space and place is complex and confusing and the differentiation between and use of the two terms varies greatly.

To adequately study the two phenomena, Agnew argues that we must establish a more coherent definition of place distinguishable from space. From a historical review of discourses using these terms, he concludes that one of the key distinctions between space and place is the institutional versus personal relationship we have to them. Place he defines as being a dialectic relationship of three dimensions: *location, locale* and *sense-of-place:*[11]

> **Location** is the answer to 'where?' in relation to everywhere else. It is not only an objective topographical measurement but also measures of economy and politics.
>
> **Locale** is the "[setting] where everyday-life activities take place" (Agnew, 2011, p. 23) defined by objective and subjective boundaries such as the walls in a room, edge of parks, streets in a city, an internet chat room, etc. Locale is associated with determinations of activities and is a place created from the configurations of sociospatial connections and relationships. It is a modality of place defined by "social life and environmental transformation" (ibid.), and can, for this reason, also occur momentarily in time and is not necessarily geographically measurable. I see it as the interlocutor between location and sense-of-place.
>
> **Sense-of-place** is the personal and emotional attachment to a place, which makes it unique and singular in its context. It is associated with "a strong sense of 'belonging' to a place, either consciously or as shown through everyday behavior such as participating in place-related affairs" (Agnew, 2011, p. 24). Agnew adds that, though there are other factors of influence, "some sense-of-place (with a locality, nation-state, or world) is a necessary prerequisite for social solidarity and collective action" (ibid.).

Agnew concludes that the concept of place as a fixed unit of space inherited from history is generally rejected in today's discourse. Current theoretical discourse focuses instead on

[11] Originally derived in *Place and Politics* (Agnew, 1987) but these definitions are from 2011.

"the construction of places through social practices" (ibid., p. 22). They are described as fluid, interconnected and dynamic, with an internal constitution and character that is diverse and inhomogeneous and yet capable of "express[ing] a certain communality of experience and performance" (Agnew, 2011, p.22).

One can summarize his analysis by saying that spaces are institutionally defined and their differentiation from place lies in the levels of interaction and engagement invested in them through lived experiences, i.e. the meaning we imbue upon them. Space carries fewer layers of personal meaning and associations for individuals and communities than place does. In other words, places are assemblages of object/void relations, situations and settings in our environment that have emotional meaning in human experience, interaction and memory.

Placehood can therefore described as an emergent psychosocial phenomenon from an assemblage of factual and ephemeral experiences of space that informs and is informed by personal and social narratives. Placemaking is, then, an assemblage of aspects and actions in a space that generates an emergent quality that Agnew calls sense-of-place. It emerges through associative and embodied experiences of a locale/location which make a space meaningful to an individual or group of individuals.

2.4
Schemas - Sensemaking Assemblages

Another aspect of narrativity that can illuminate potential roles and characters of spatial narratives and design thinking in relation to shifting paradigms is the notion of 'schema' across various fields of study. It is not uncommon that the term schema is used interchangeably with the term 'frame' both within and between fields of study. Whenever they are interchangeable, I use the term schema and will subsequently suggest a way to differentiate between them in design thinking. But let us first explore the origins and implications of schema in other fields of study.

Originating in literary analysis, a 'narrative schema' was described as the "canonical process structure of any given tale" (Bundgaard, 2007, p. 249). Through social and cognitive studies, narratives and schema are now used to describe nonliterary ways of interpreting, organizing and communicating. In this expanded view, schemas are the central aspect of a narrative mode of knowing (Czarniawska, 2004) that help us to organize our understanding of the world and our place in it. In this way, schemas correlate to paradigms and can therefore help to illuminate how these could be formed, transmitted and shifted towards and beyond conventional sustainability.

In cognitive sciences, schemas are described as the assemblages of embodied and situated knowledge[12] through which humans perceive, experience and act in the world (Arbib, 1992; Ignatow, 2007). They are, in other words, cognitive structures that both organize and are created by experiences of real and imagined environments and situations. As such, schemas

[12] A term often linked to Donna Harraway's (1988) discourse in Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.

are described as the "emergent properties of adaptive, connectionist networks" (Arbib, 1992, p. 1428). In other words, they are the core organizational structure of a temporal condition of relative permanence in the transitory associative network that is cognition. In this way, they could be considered a unit of knowledge, or snapshot, of temporal realities.

A schema is formed selectively and "in some ways constructs reality as much as it embodies it" (Arbib, 1992, p. 1428). As we continuously encounter new experiences, we simultaneously process these through our personal schemas, as well as add the experience to them (ibid.). New experiences create new associations and can create new, or alter old, schemas; however, creating a completely new schema is a complicated task, as new experiences are always filtered through old schemas.

This is echoed in Véronique Havelange's (2010) work which points out that there are a number of correlations between the modern understanding of "the ontological constitution of cognition" (p. 335) in cognitive sciences and Husserlian phenomenology. Her insights are particularly relevant to this study due to phenomenology's strong influence in philosophical design discourses. She points out that in cognitive science, cognition is no longer seen "as a linear input/output sequence…but rather in terms of a dynamic sensorimotor loop [where] actions themselves produce feedback effects on subsequent sensations. Action is thus no longer a simple output; it becomes actually constitutive of perception" (ibid., p. 349). Neither does perception precede action in a linear manner – that which is perceived, consciously or otherwise, is simply inseparable from action and their correlation is nonlinear and co-constructive.

Noncognitive processes in these sensorimotor loops have been shown to play a significant, often deterministic, role in actions and the attitudes of humans (Kahneman, 2011). As schemas are often noncognitive structures which simultaneously embody and construct our individual and shared realities and acts, a change of attitude and behavior necessarily involves an alteration of schemas. To investigate how this relates to spatial narrativity, two forms of schemas identified in cognitive sciences are particularly interesting to consider: body and image schemas.

2.41 Body Schema

While all schemas are built upon experiences with our environment, there is a particular schema which has been identified as relating to the mental structures of embodied experiences. This schema type is called 'body schema' which in its simplest form is the way the mind maps the form and movement of the body in relationship to its surroundings. However, Vittorio Gallese (2001) argues that the tendency to see body schema simply as a mapping of the body is oversimplified. He argues that the neural mechanisms involved in the unconscious processing of embodied experiences, not only govern how we relate to our own body, but also how we relate to other bodies of objects and people, i.e. the corporeal. The realities perceived through these corporeal bodies and things could, in turn, be called ***corporealities.***

Neuroscientific discoveries support several claims that have been made in phenomenological theory on corporealities, i.e. how we make sense of the world and the identity we hold within it through embodied experiences.

> Neuroscientific research…shows that there are neural mechanisms mediating between the multi-level personal experience we entertain of our lived body, and the implicit certainties we simultaneously hold about others. Such personal and body-related experiential knowledge enables us to understand the actions performed by others, and to directly decode the emotions and sensations they experience. (Gallese, 2005, p. 23)

Havelange (2010) and Gallese (2005) claim that there are a number of parallels exist between recent discoveries in cognitive sciences and phenomenology. While cognitive science does not verify every aspect of phenomenological theory, they argue, there is now ample evidence that embodied experiences of objects and spaces are connected to social experiences and social being. Havelange argues that we can no longer speak of social being as the abstraction of intersubjective experiences of sociality alone. The social realm is also a physical realm; social experiences are embodied experiences.

> Sociality implies a third element which creates the possibility for face-to-face relations and the institution of a symbolic realm. This 'third element' is to be found in the 'mind-laden objects,' the technical and cultural objects which are to be thought of as constitutive of socialization and history. (Havelange, 2010, p. 358)

Our built environment, including its lived places, are third elements that influence the embodied experiences of sociality and social being. We can therefore conclude that body schemas play an important role in understanding the narrative capacities of places and their potential effect on social narratives.

2.42 Image Schema

Images are affective ways in communicating ideas; they can tell a story, yet they rarely include the event sequentiality as is found in more classical structures of storytelling. Furthermore, images relate to body schema in the sense that they allow us to imagine the embodied experience of a space. The design process and communication with clients and future users is largely reliant upon different types of images that allow us to experience and evaluate corporealities that could be. In arguing for the importance of lived and imagined experiences of bodies and images to the understanding of space, Bachelard argues that:

> Phenomenology of the imagination cannot be content with a reduction which would make the image a subordinate means of expression: it demands, on the contrary, that images be lived directly, that they be taken as sudden events in life. When the image is new, the world is new. (Bachelard, 1994 [1958], p. 47)

This form of narrativity relates to what the cognitive sciences call "image schema [which] are imaginative and nonpropositional in nature and operate as organizing structures of experience at the level of bodily perception and movement" (Gibbs et al., 2004). However, image schemas are not fixed visual images in the mind. They are abstract mental structures that "consist of dynamic spatial patterns that underlie the spatial relations and movement found in actual concrete images. Mental images are…temporary representations while image schemas [sic] are permanent properties of embodied experience" (ibid., p. 1192). This type of schema is clearly of relevance in understanding the way both space itself and a designer's rendering of place can carry a narrative connotation.

Spatial narrativity gains another level of depth in regard to acting in and understanding the world when we see it through the eyes of cognitive sciences. The situated nature of schema, in particular image and body schemas, underscores the ability of nonverbal embodied sense experiences of places to influence personal and social narratives. As schemas are central elements of narrativity, it holds that the lived and embodied experience of space and images hold narrative qualities that are less linear and clearly constructed than a literary or storytelling narrative. To differentiate these, we can call them ***sequential*** versus ***nonsequential narrativity*** which have ***sequential*** and ***nonsequential schemas*** at their core.

2.5
Practicing Spatial Narrativity

Spatial design is one of several spatial practices involved in placemaking. It is a spatial practice whose raison d'être lies in making locations and spaces meaningful through, and for, human experience. In other words, making place through developing and influencing aspects of locale and sense-of-place to a physical location. The practices of designers always interact with the spatial practices of non-designers and users to create the lived experience of a place. As we have seen in the discussion of schema, our lived experiences in environments help to form our personal and collective narratives. Studies on the processes and practices of spatial design also reveal a presence of schemas and other narrative methods. Which in turn expands the understanding of spatial narrativity from the realm of experience into the realm of practice.

2.51 Design Schema through Framing & Reframing

Studies of design processes have found that spatial designers actively collect and develop schemas[13] as a way to find and create meaningful forms and expressions in design problems and develop design knowledge (Lawson, 2004; Lawson & Dorst, 2013; Paton & Dorst, 2010). These studies also describe how the methods of framing, reframing and schema development are used to understand, communicate, and develop proposals in situations of competing needs, interests, and concerns (Paton & Dorst, 2010). By abstracting an assemblage of complex relationships into a schema, designers can associate seemingly unrelated problems and situations with each other and thereby make progress in otherwise extremely complex sets of variable facts and values (Lawson & Dorst, 2013). In other words, schema collection and development are design methods[14] for operating within and between hypercomplex and situation specific problems.

[13] There are two plural forms for schema: *schemas* and *schemata*. This text uses the former as I have found that 'schemata' can be confusing as a plural form for many audiences.

[14] Schema is but one of three "factors in design expertise" that Lawson (2004) identifies; the other two being 'gambits' and 'precedents'. However, schema is the connecting and organizing element of the other two: "precedent [is] stored in the form of episodic schemata [and] used by experts to recognize design situations for which gambits are available." (Lawson, 2004, p. 443)

It is also argued that the design method of schema collection and development is a skill that is transferable to other professions (Paton & Dorst, 2010). This suggests, to me, ways in which design research and practice can contribute the general development of sustainability and beyond. This is reinforced by the correlation I see between schemas and Thomas Kuhn's (1962) notion of paradigms in that they both are cognitive structures that express as well as form core aspects of how we see and act in the world. These can further be correlated to the framing and reframing processes in 'reflective practice' that Donald Schön (1984) identified in his studies of design processes, as the very idea of a 'frame' (originating in artificial intelligence and adopted widely in other fields) was based on the idea of schema and paradigms (Paton & Dorst, 2010).

It is often difficult to distinguish between what a schema and frame are within the literature of narrative studies, cognitive sciences, and design inquiries. After pondering this through literature and design explorations, I consider it possible to circumvent a long discussion[15] on this in this dissertation by distinguishing schema as the noun and frame as the verb in design knowledge development. With this perspective, a schema is both a source and product of a framing and reframing process. By comparing Paton, Dorst and Lawson's papers[16] with other studies of design processes,[17] I have developed the following understanding of the roles and development of schema in the design process:

At the beginning of a design process, personal and professional schema from designers and clients are framed in relation to a design situation and used to initiate an exploration within and of it. This initial schema, functions as a probe to explore messy realities and possible-impossibilities in the design situation. Drawing on an example of a schema that Paton and Dorst observed, this schema could be 'round shapes in square containers' (Lawson, 2004) which refers to a range of shared and personal design knowledge within the design team.

The designer makes a 'move' by placing some version of the schema in the design situation, which in turn is 'evaluated' for its advantages, disadvantages and what it reveals about the design situation and the schema. The evaluation process is done using both professional and personal emotions, memories and knowledge (Solovyova, 2003), i.e. it is related to the schemas within each designer's cognitive network of associations. The knowledge gained is then 'reframed' and tested with a new 'move' and 'evaluation', and so on until enough knowledge is gained to establish an appropriate proposal for the design situation.

Through this reiterative framing-reframing process (Schön, 1984) the initial design schema develops and matures, shifts, or splits into more elaborate and detailed spatial narratives. These combine to build a core narrative, with an accompanying schema, which are used to communicate and discuss essential concepts of a proposal with a client.

(...continued on next page...)

[15] See Paton and Dorst's (2010) article on *Briefing and Framing* for a more detailed discussion on the similarities and differences between schemas and frames.

[16] The three referred to in this section.

[17] Most importantly: Donald Schön's (1984) framing-reframing process and Irina Solovyova's (2000) development of Jane Darke's (1979) primary generator-conjecture model.

(...continued from previous page...)

This project specific narrative (and associated schema) either becomes, or informs, a more generalizable schema (such as the very generalized notion of 'round shapes in square containers') that the designer, or design team, can use to transfer knowledge and experience from one seemingly unrelated design situation to the next and communicate complex sets of knowledge in design teams (Lawson, 2004; Lawson & Dorst, 2013; Paton & Dorst, 2010). These generalized schemas are also informed and developed through theory and design precedents experienced by images or places that involve body and image schema.

As we have seen in cognitive sciences and narrative studies, a schema is the core of a narrative as well as an emergent and temporal set of properties representing and connecting a vast cognitive network of associations. Irina Solovyova (2000) points out that the influence of a designer's experiential and emotional memories are highly influential in the design process and should not be overlooked in our descriptions of them. As we have discussed earlier, these psychosocial experiences and emotions are also organized through schemas, such as body and image schema. To differentiate schemas originating from non-design experiences and narratives from those originating in design practices, we could call the former ***personal schema*** and the latter ***design schema***.

These terms help distinguish between the more or less unconscious development of personal schema and the more conscious deliberate practice of developing schema for design practice. If schema can be considered a unit of cognitive knowledge, even in the most abstract of senses, then it follows that design schema is a unit of design knowledge. Despite their use in design practices, I doubt many architects are aware of the different forms of schema and their relationship to design and spatial experiences. As it is difficult to develop something one is unaware of, the exploration and dissemination of knowledge about schemas in relation to spatial narrativity could prove useful in developing and teaching design methods and the role of spatial design in shifting paradigms.

2.52 Spatial Syncretism – Poetics of Reframing Polarities

The spatial practices of designers require methods that can probe poorly defined problems and assimilate contradictory and disparate elements into assemblages of relatedness and new meaning. As discussed earlier, the complex situations of a site and competing needs of stakeholders requires spatial designers to develop methods for combining competing values and facts from different perspectives and disciplines. This aspect of design thinking has been called 'syncretism', or 'syncretic thinking' (Janssens, 2012).

Syncretism is a term originating in ancient Greece and was defined by Erasmus as "the positive union of seemingly disparate points of view" (Gort et al., 1989, p. 9). Though it is argued to be a key element of designerly thinking, it can also be found in the creation of new ideologies or religions (Douglas, 2004; Gort et al., 1989) and in the way that poetry combines words to generate new meaning and associations (Bachelard, 1994 [1958], p. 146).

> The syncretic mind...is able to associate apparently incomparable issues into new concepts and in doing so is able to proceed beyond common patterns of thought. (Janssens, 2012, p. 188)

As syncretism is a narrative (through poetics) and a practical act of creating new meanings and beliefs, it is reasonable to assume it could be useful for bridging the ontological differences in sustainability discourses[18] and for practitioners who aim to affect and shift reigning paradigms and metanarratives.

Gaston Bachelard (1994 [1958]), in his exploration on the 'poetics of space,' speaks of the "syncretism of sensitivity" (p. 146) as one of the crucial elements of poetry. It creates an environment for associated meanings in words and forms that keeps these "from crystallizing into perfect solids" (ibid.). By this logic, the syncretic thinking accredited to design thinking is a way in which spatial designers 'write' poetry through the creation of drawings and places, i.e. spatial poetics. Syncretism seems, then, to suggest at least one way in which spatial narrativity through design thinking can play an important role in hypercomplex problems such as sustainability.

As pointed out previously, designers operate in complex situations by framing and reframing schemas they have collected and created in previous design situations. Designers often use syncretic thinking in concert with acts of framing and reframing to generate a new perspective and/or configuration of a given situation. I, therefore, reason that syncretic thinking plays a crucial role in the development of schemas through framing-reframing processes in hypercomplex situations of conflicting values and needs. When a spatial designer generates a harmonious spatial experience, or corporeality, by merging conflicting concepts, needs and values, syncretism is present in a design – both as method and expression. As will be discussed later, syncretic thinking lies at the heart of this design inquiry through the very definition of its lacuna[19] which, simply put, is the coupling of opposites: waste-resource processes and placemaking.

While the concepts of design schemas, syncretic thinking, framing and reframing are all key elements in design communication and thinking, it is important to remember that these are tied to the physical manifestation of objects and space, and thereby also place. Spatial design is charged with bringing forth ideas and values into physical manifestations of human experience, i.e. corporealities. In difference to traditional poetry and narratives built from words, the narrativity of spatial poetics works on the mind-body level of cognition, or what could also be called the space-place-object-body-mind relationship. Hence spatial poetics created using syncretism could be called ***spatial syncretism***.

[18] Delineated in section 1.42
[19] Described in chapter 4

2.6
Shifting Paradigms & Metanarratives

Situated and embodied experiences have been shown to be inseparable from practically any thought and action (Gallese, 2005; Kahneman, 2011) and can therefore have a significant bearing on the ability for altering attitudes, habits and understandings of the world. As we have seen in the discussion of schema, our lived experiences in environments help to form our personal (subjective) and collective (intersubjective) narratives. When a narrative becomes a metanarrative, it behaves similarly to Kuhn's paradigm, so much so that one could be excused for conflating the two. A key difference, as I understand it, lies in that the notion of metanarratives comes from narrative studies and paradigms from the study of scientific practices.[20] However, for the purpose of this study, delineating their difference is less important than understanding their similarities.

Paradigms and metanarratives are social and cultural structures of sensemaking which appear to be permanent and well-established truths and tend to both embody and construct our shared realities. Considering the nature of cognitive schemas, one could argue that paradigms are essentially knowledge assemblages that are intersubjectively held at a given point in time and place. A metanarrative, in turn, is the unspoken and intersubjective contextual understanding from which other narratives develop and are understood in a particular time and place.

As we have seen, at the core of narratives and knowledge assemblages lies a schema; it then follows that at the core of a metanarrative and paradigm lies an intersubjectively held cognitive schema, which we could call a ***metaschema***. As these constructs are intersubjectively held, they can in turn be affected by a significant number of individuals altering subjectively held schemas in relation to the reigning intersubjectively held metaschema. Shifting metanarratives that foster dualistic views of society and ecology, then, necessarily involves the collective alteration of individual schemas.

Through the importance of narratives in in forming and communicating human understanding, spatial narrativity's role in the making and experience of socially shared spaces becomes particularly important in shifting paradigms. Furthermore, the identification of narrative practices in design thinking indicates that it is not only through the physical environment that spatial narrativity can provide some service in shifting paradigms towards and beyond conventional sustainability. Particularly interesting is spatial design's development and use of design schemas to transfer knowledge and probe hypercomplex problems through syncretism. This syncretic narrative approach to building knowledge and corporealities could prove useful in the endeavor to create an alternative future to that which is predicted if we do not shift current trajectories.

[20] Muddying the waters further in this regard, we see narrative studies and the study of scientific practices merge in the field of STS (Science and Technology Studies) and ANT (actor-network theory) which is highly concerned with ontological questions.

2.7
Reflecting on Future-Making Narratives

Designerly thinking and methods tend to operate outside of traditional scientific methods and reasoning. When studying the future, traditional science focuses on prediction and prognosis, which is a form of knowledge that builds futures based on the extension of known facts and trends (Janssens, 2012). To change the course of existing trends, however, one needs ways to understand and build futures based on what is desirable, not what is probable. In other words, a way to devise actions from future visions rather than present conditions

> As post-enlightenment creatures, we tend to assume that scientific thinking holds the key to everything of importance in our world. But the world of value is different from the world of science. The stuff of the one world can be quantified by real numbers, the stuff of the other world can't. We shouldn't assume that the world of *'is'* (of lengths and weights) has the same structure as the world of *'ought'* (of what we should do). (R. Chang, 2014)

Defining our 'common future' cannot be answered solely by asking what *is* and *will be,* but must also be answered by asking what *ought to* and *could be.* Defining our future through prognosis reduces "the space of possibilities…to the space of probabilities" (Janssens, 2012, p. 209). It is therefore also necessary to have methods to define what kind of future one is aiming for and construct narratives that guide us in that direction. These methods need to be able to include and explore what values and norms to maintain and which to shift.

Working towards sustainability, and beyond, requires a type of thinking which reflects on future possibilities, their implications on the present, and the ways in which we need to get from current realities to preferred ones (Holmberg & Robert, 2000). As a 'key competency' needed when working with questions regarding sustainability this type of future-thinking has been called 'anticipatory competence' (Wiek et al., 2011). Once we have an idea of where we ought and want to be, we can then relate that idea to current situations and figure out how to bring it into being. This type of future-oriented value-laden thinking is exactly the type of thinking that designers are so often engaged in (Janssens, 2012; Wang & Groat, 2013). When future-thinking consciously constructs an optimistic narrative of socioecological well-being, it has the potential to be every bit as influential as "facts and objective analyses" (Kidd, 1992, p. 4) in the movement towards sustainability and beyond.

When one aims for predictability, one requires stable circumstances and methods (Janssens, 2012) which is a luxury not available to us in hypercomplex situations that involve values and emotions. Nel Janssens argues that designerly thinking can help navigate uncertain, and unknowable, conditions similar to Lagadec's analogy of sailing in unchartered waters;[21] a condition for which she uses Irit Rogoff's (2003) notion of 'without' to describe:

[21] See section 1.1

> A state of simultaneously knowing and being unable to know....as having a lot of knowledge and data available but the frame needed to make sense of the data, the paradigm, is distorted and hence it becomes difficult to see the future that is emerging. (Janssens, 2012, p. 12)

To navigate such unforeseeability, designers use a mode of thinking that is more akin to anticipation than prediction (De Zeeuw & Janssens, 2017), generation more than documentation. While traditional science predicts future probabilities from documenting existing conditions and trends, designerly thinking anticipates future possibilities through generating alternatives to existing conditions from value-based visions of desirable outcomes.

Design is concerned with what we desire the future to be and how this relates to the present and past of the design situation i.e. how to change what *is*. Likewise, the call for sustainability (and beyond) is based on concerns for a future that *could be,* i.e. avoiding predicted futures based on present and past trends and proposing a possible future based on desired conditions. It is a future-thinking which, like the sustainability movement, uses utopianism as inspiration and driving force (Jabareen, 2008; Janssens, 2012; Pinder, 2013). Design thinking uses utopias in goal setting but it is also highly pragmatopian[22] (Janssens, 2012) in that it uses utopianism as a guiding force, but always based on current corporealities and with a concern for how to bring them into being.

In other words, alternate realities are created by exploring what possible-impossibilities (Pinder, 2013) that *could be* from a vision of what *should be.* Fry's (2011) call for 'futuring' as a remedy for 'defuturing' admonishes the design fields to more consciously and actively use utopian and pragmatopian visions and values that lead to socioecological well-being, rather than continue to design for and from the metanarratives and paradigms that underpin the dystopic future scenarios that current trends and conditions predict.

Even if the facts prove that known situations are the lesser choice, humans still tend to choose known situations over unknown situations (Kahneman, 2011). This fear of the unknown is an emotional response, not a logical one, hardwired into our brains (ibid.). As we have seen, spatial design uses various forms of narrativity to explore unknown possible-impossibilities and ultimately generate narratives of proposals for future corporealities through images, words, and physical models. With these tools of representation, futures can be experienced prior to their manifestation in 'reality', making the unknown a little more known, thereby making it easier for humans to shift over to new situations.

This suggests that design thinking can be useful in clarifying the vision and goals of sustainability and indicate what ecosociospatial relationships could provide the means to get there. Its specific contribution being to allow us to envision, experience and evaluate possible-impossible scenarios of socioecological well-being through different methods and expressions of spatial narrativity. By creating an experience of what has yet to come, a new world and paradigm becomes tangible; the unknown becomes a little more known and is thereby easier to bring into being. Likewise, through creating physical places from design schemas related this clarified metanarrative of socio-ecological well-being, the narrative move beyond words and into the body and becomes a corporeality.

[22] Pragmatopia merges pragmatism with utopianism. It "resists the escapism of utopia and the automatism of the pragmatic, and rolls out a new plane of events in order to enable action (pragma) to take place (topos)." (Janssens 2012, p. 212; Doucet & Janssens 2011, p. 10).

Contributions to Language & Concepts

Spatiality	the multidimensional quality of space created by experiences, interactions, and movements through time in three-dimensional Euclidean space
Spatial Narrativity	how a place communicates and is made through spatial experiences and practices, as well as the way in which designers develop and communicate concepts and visions of a future place
Corporealities	not only the state of being corporeal, but the perceived, and temporal, realities formed by embodied experiences of space and things
Sequential Narrative & Schema	are experienced by everyone in the same sequence as defined by the author
Nonsequential Narrative & Schema	can be experienced in various sequences by different people and on different occasions
Design Schema	schema developed for and from design processes
Personal Schema	schema that forms perspectives of the self and others from imagined and/or actual experiences
Metaschema	the schema of metanarratives that are part of, if not the base of, paradigms in societies
Spatial Syncretism	a form of spatial poetics that merges contradictory or opposing values into a whole

BUILDING A NARRATIVE BEYOND SUSTAINABILITY

Summary of Chapter 3

This chapter maps the logic behind the concept of regeneration as a path beyond sustainability from the perspective of spatial design. It contains a literature review which delineates similarities and differences in regenerative design discourses, with a particular concern for the understanding of, and approach to place.

It concludes by summarizing and conjoining concepts that I consider characteristic of regenerative theory. I also relate these to the discourses covered in previous chapters. The intention is to clarify the theoretical basis for the subsequent delineation of the lacuna investigated in this dissertation and as the starting point for divining characteristics, principles, practices of regenerative place and placemaking.

3.1
The Need for a New Narrative

Approaches to sustainability are accused of focusing on being "less bad" (McDonough & Braungart, 2002b, p. 45), i.e. for humans to withdraw and desist from intervening with ecological processes. Such an approach simply perpetuates and compounds the reigning dualistic human-nature paradigm by reinforcing that human activities are de facto bad for 'the natural world.' While there is no doubt we must reduce our negative impact, one of the key problems with an approach focused on austerity is its emphasis on the *negative* impact of humans rather than on the potential *positive* influence of human presence in ecosystems.

Sustainable solutions tend towards a reduction of measurable harm through technical means (Puig de la Bellacasa, 2011). Likewise, sustainable design strategies tend to apply technical solutions to design, or apply design to sustainable technology (Awan et al., 2006). While technical and measurable aspects are important, an overemphasis on them neglects non-measurable interactions and qualities that influence behavior, attitudes, and actions.

> The present tendency to treat the socioecological problematic as a mere technical or management problem causes a deficit in the fundamental reconceptualization of the way we inhabit our environment. (Janssens, 2012, p. 815)

As we have seen in the previous discussion on narrativity, this reconceptualization must involve the reframing of existing metanarratives through lived experiences.

Behavioral research has also shown that individuals and communities feel more motivated for action and engagement when the message is honest, yet positive (Bartuska & Kazimee, 2005) paradigms must come from an honest yet positive metanarrative, i.e. they must communicate hope and address intersubjective notions of 'the good life'[1] and 'well-being'. Studies also indicate that people are more likely to participate in changing behaviors, regardless of whether they believe or care about environmental issues, if there is a positive impact on the local community (Clayton et al., 2014; Devine-Wright, 2013).

> Local, place-based impacts may help overcome political polarization…place attachment, which crosses political lines, predicts willingness to engage in some adaptation behaviors…taking local customs and cultures into account when developing climate change messages and programs can help ensure that residents will be receptive to them. (Clayton et al., 2014, p. 34)

To participate in the creation of such places, spatial designers need a language and practice based on its own "intellectual culture" (Cross, 2001).

> While the directions are clear the process is far less established. Society and the design and planning professions need to continue to determine and agree upon clear definitions of the theoretical aspect of sustainability, and establish this into practice. (Bartuska & Kazimee, 2005, p. 221)

[1] Defined in a footnote in section 1.42, subsection II

One of the most common characteristics used to describe spatial design practice is its focus on generating future situations through discovering and creating previously unknown or unseen relationships (Wang & Groat, 2013). This is in stark contrast to efficiency measures typically heralded by conventional sustainability, whose primary aim is to reduce, minimize and improve *existing* and *known* relationships. Incorporating austerity and maintaining the status quo with a generative and utopian-seeking practice results in an awkward philosophy of sustainable spatial design.

The field of design needs to digest the concept of sustainability through its own set of criteria and concerns and come to "a common understanding of what we mean when we talk about sustainable design" (McLennan, 2004, p. 2). Such a concept needs to address the degenerative practices in society while simultaneously providing fertile ground for the creation of meaningful and engaging places that contribute to non-dualistic notions of 'the good life' and 'well-being'. The internalization and digestion of sustainability through designerly thinking not only can develop the practices of spatial design; it could also provide a different perspective on sustainability in general.

From concerns for the roles and relationships of spatiality to socioecological well-being along with growing critique of conventional sustainability, a variety of regenerative approaches have emerged from spatial design practitioners, researchers and theoreticians. This chapter is an overview of the regenerative design theories that have significantly contributed to the notion and practice of regenerative design that underpins this design inquiry. It concludes with a proposal for a conjoined discourse on what one can call *regenerative design thinking for socioecological well-being*.

3.11 A Term Beyond Sustaining

As discussed in the previous chapter, the language we use and the names we give things, help us form and understand the world we live in. The verb 'to sustain' evokes the sense of permanence which we find so alluring, however, 'to sustain' also suggests static (and potentially stagnant) conditions. Its danger is in a latent tendency to project a protectionist fear of change whose focus is "to maintain the status quo" (Du Plessis, 2012, p. 7). 'To sustain' indicates the supply of sufficient support to maintain current and basic conditions. It can also imply the narrow escape of misfortune, or the balance on the brink of it. While the notion of sustaining life as we know it is a worthy goal, it does not express the mechanisms underlying the way nature and societies come into existence and/or persist.

A healthy ecosystem doesn't balance on the brink of extinction, nor is it static; it thrives and evolves. Both permanence and static conditions are illusory conditions. Dynamic processes of change are implicit in the evolution and development vital for the continued relevance and survival of ecologies, societies and places. Ecological and social systems are upheld through systems of transformation, adaptation and evolution (Bohm, 1980). The apparent stability of an ecological or societal situation is created by continuous acts that uphold the existence of a system or phenomena (Bohm, 1980; Murdoch, 2006). In other words, life systems and situations persist through a continuous *regeneration* of effects and situations. What appears as permanent, or stable, is rather the impermanent entanglements

of actants[2] that persist due to a continuous re-enactment of their arrangement in assemblages[3] of thought and objects (Law, 2004b).

The term 'regenerative' begins to describe this continuous re-enactment and re-creation observed in studies on how a concept or thing persists through time. The term 'regenerate' has many definitions, most significantly in this context:

> "Formed or created again; spiritually reborn or converted; restored to a better, higher, or more worthy state" (Merriam-Webster, n.d.-i, definitions 1, 2, 3)

Design is commonly focused on *envisioning, creating* and *developing possibilities* (not merely maintaining or improving what exists). One of the most common terms used to characterize design "is embodied in one word – *generative*" (Wang & Groat, 2013, p. 25). The verb 'to generate' comes from Latin, *generāre,* meaning "to beget" (OED, n.d.-b, etymology); its modern English definitions include:

- to bring into existence; cause; produce; evolve (OED, n.d.-b, definitions 2, 3, 4, 5)
- to create by a vital or natural process (Merriam-Webster, n.d.-c, definition 1b)

The synonyms for 'to generate' are also noteworthy in relation to both design and engendering socioecological well-being. These include:

- to create; to evolve; to originate; to engender; to institute (Dictionary.com, n.d., synonyms)

I see design practices as an enactment of, and response to, humanity's need to *generate* changes in an ever-on-going evolution and adaptation to changing values, visions and circumstances in a world where everything is in flux. This drive 'to generate' change conflicts with the notion of maintaining things as they are suggested in the verb 'to sustain'. The linguistic connections between *generation* and *regeneration* suggest that changes in the design practice could be more effective through focusing on a shift from a generative into a ***re***-generative mode and thinking. Systems and design need to act *regeneratively* in order to continuously recreate conditions that *sustain* life, living and livelihoods in landscapes.

Together with the prefix *re-* (meaning "again"), the term 'generate' emphasizes the cyclical nature of healthy systems and the evolutionary process of re-creation. It also suggests breathing new life and prosperity into ailing systems that have suffered from mismanagement and reminds us that humanity not only has the power to destroy and survive, but also to *create* and *nurture*. A sense of stability is created through the implication of fertility and rebirth with a nurturing environment of growth and recovery, which is by no means static. This more generalizable theory behind regenerative design is sometimes referred to as *regenerative sustainability* (Du Plessis, 2012; Robinson & Cole, 2015). This is arguably a concrete contribution from design thinking to the advancement of theories on sustainability.

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[2] A narratology term from Greimas in 1966 (Bundgaard, 2007) and frequently used by STS (science and technology studies) to denote that actors (i.e. those who do action in a story) can be objects or creatures. 'Actors' is argued to be too strongly associated with humans (Latour, 2005).

[3] A notion from (Deleuze et al., 1987). More on this notion of assemblages can be found in (Fuglsang & Sorensen, 2006).

'To generate' is also closely related to, and arguably synonymous to, *poeisis* which is often used in philosophical and design discourses to connote an active and emergent way of coming/bringing into being. In ancient Greek, *poeisis* was used to speak of the human activities involved in making (Buchanan, 2007) but also "the self-sustaining and self-emerging process of nature" (Mei, 2015, p. 275). Heidegger's use of poeisis in relation to his notion of "dwelling poetically" (ibid., p. 269) has also been highly influential in phenomenology and design discourses.

This brings to mind Bachelard's (1994 [1958]) phenomenological understanding of the poetics of space discussed in the previous chapter. Through his influential interpretation, poeisis becomes an act of bringing forth, as well as revealing the true, or inherent, nature of a thing over time (Wheeler, 2017). Though these philosophical and linguistic correlations, I argue that regenerative design, as a term, more readily relates to the ephemeral and poetic aspects of space than the term sustainability could ever do. The connotations and secondary meanings discussed here arguably only serve to reinforce the ability for the term to inspire a rich variety of spatial narrativity.

Not to be confused with...

The term regeneration has also been used in the context of reviving derelict neighborhoods in the past thirty years and is often associated with various levels of gentrification. While a confusion of terms is possible, this dissertation rests on the shoulders of a wide body of regenerative theory and practice that is more encompassing than the socio-economic revamping of derelict neighborhoods that has ended up being the focus of 'urban regeneration' as defined by, for example, the World Bank (*Tools for Urban Regeneration*, n.d.). This confusion could, however, be used to start a debate on what other values a neighborhood could 'regenerate' beyond real estate values. This thesis is not about this contrast of interpretations of the term, however, after reading the following chapter, the reader should be able to imagine what such a debate might look like.

3.2
Representations of Regenerative Thought

The theory of regenerative design has matured since its inception just over thirty years ago. There has also been a growing interest in, and development of, regenerative design since the turn of the century. The entirety of this section is the result of a literature review conducted to uncover and distill basic premises of regenerative design. It is an outline of key contributions to the advancement and understanding of central principles and theories, as well as a delineation of different types of regenerative approaches. The focus lies on distinctive turns and strands of thought in the development of the first definitions and principles. The chapter concludes with a personal take on the conglomeration of these perspectives in relation to points from previous chapters.

3.21 Coining the Term 'Regenerative Design'

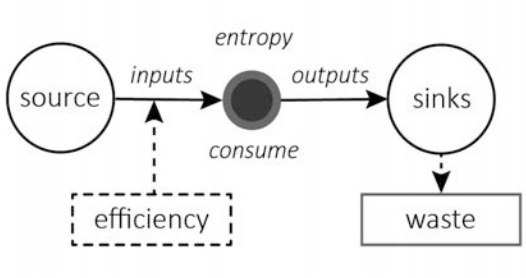
The term and basic premises of regenerative design were first defined in John T. Lyle's (1994) book *Regenerative Design for Sustainable Development*. Without directly refuting the term sustainability, he emphasizes the need for further refinement of the concept of sustainability beyond "maintain[ing] the status quo of natural carrying capacity" (Moore, 2005, p. 442). Lyle was inspired by the concept of *regenerative organic agriculture* [4] developed by Robert D. Rodale (P. Mang & Reed, 2013) and set out to define regenerative systems and their implications for society and the design of human habitat.

Basing his arguments on the premise that "human ecosystems" (Lyle, 1994, p. 22) dominate the world today, he argues that the built environment must include places, practices, systems and technologies that support and learn from natural ecosystems which are "inherently self-renewing" (ibid., p. X). He argues that society must move from its existing linear systems (fig. 3:1a) to ones which mimic and include regenerative processes of ecosystems defined by closed-loop systems (fig. 3:1b) of resources with "multiple pathways" (ibid., p. 43) for minimizing entropy and maximizing beneficial (re)use of waste for living things.

Linear Throughput Systems:

(Fig. 3:1a) A graphic interpretation of Lyle's (1994, pp. 5 & 52) explanation of linear throughput systems and conventional sustainability's approach to them.

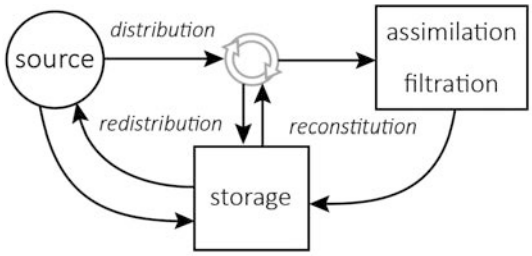
The aim of linear throughput systems is efficiency and includes degenerative linear flows of resources. Conventional sustainability tends to simply apply efficiency to existing linear throughput systems.



Regenerative Closed-loop Systems:

(Fig. 3:1b) A graphic interpretation of Lyle's (1994, p. 10) explanation of how regenerative closed-loop systems work differently from linear systems.

The aims of regenerative systems are effectiveness, symbiosis, renewal, minimal entropy, and integration with natural processes through multiple pathways.



The linear throughput system illustrates the *waste-making engine* of the ephemeral age's social and economic activities that have come to threaten socioecological well-being. The regenerative closed-loop system illustrates the *waste-resource engine* of ecologies that regenerative design proponents argue is the base reference model for an age of social and economic activities that can generate and maintain socioecological well-being – what could

[4] This agricultural approach has also been influential in the regenerative principles in 'permaculture' (Rhodes, 2015).

be called a ***nonephemeral age***. The core characteristic of such an age can be understood through Lyle's oft quoted definition of regenerative systems:

> A regenerative system provides for the continuous replacement, through its own functional processes, of the energy and materials used in its operation. (Lyle, 1994, p.10)

Lyle also stresses the importance of understanding the difference between a focus on effectiveness and efficiency in systems thinking[5]. A regenerative system's main purpose is to *effectively* support "the necessities of daily life: shelter, water, food and waste processing" (Lyle, 1994, p. 10). He differentiates this from *efficiency,* stating that the most common method used for achieving sustainability involves adding efficiency to existing linear throughput systems (fig. 3:1a). While efficiency may reduce energy and/or resource consumption, it can still be wasteful or inhospitable to life if systemic effects and temporal considerations are not taken into account. The *overall* effect of actions within complex system relationships over *time* must be explored. This is opposed to the fairly common practice of reducing known factors into simplified and isolated system relationships.

A key representation of time in regenerative systems can be found in Lyle's emphasis on managing storage, i.e. a pause in waste-resource spatial movements. This physical pause in space is needed to allow for biological processes to take place in converting biological wastes [6]into biological resources; storage allows for this. Storage is needed for non-biological resources to pause in wait for re-design, repurposing, reuse, or recycling. It is essential that we find moments of pause and accumulation in the temporal speeds that are creating the socioecological crises in the age of the ephemeral. The pause in movement allowed by space, is also spoken of as a key element that allows "a location to be transformed into place" (Tuan, 1977, p. 6), i.e. placemaking.[7] This spatiotemporal pause in the movement of daily living that allows past-time pleasures is arguably also part of the lure of some publicly shared spaces that are studied in this design inquiry.

While Lyle on occasion asserts the vital importance of human well-being, social issues, and place, he fails to address the social and cultural embeddedness of technology and human beings[8], particularly in relation to place and placemaking. Every attempt to do so is approached in a technocratic manner, relegating these issues to an integrated but practically subsidiary position to regenerative technology. The underlying message is that regenerative technology will supply us with the means to create healthy and dynamic societies and places. There is a clear message that technology is the driving factor that will lead to social change. I find support for this observation in Stephen Moore's (2001) identification of a type of technological determinism within Lyle's manifesto.

In this view on technology there is a risk, if not a tendency, towards a type of technophilia that could appropriately be called ***ecotechnophilic***. While technology is certainly important in any shift towards or beyond sustainability, the technological deterministic viewpoint is an incomplete understanding and vision of the way in which realities are made. A point that will be revisited throughout this dissertation.

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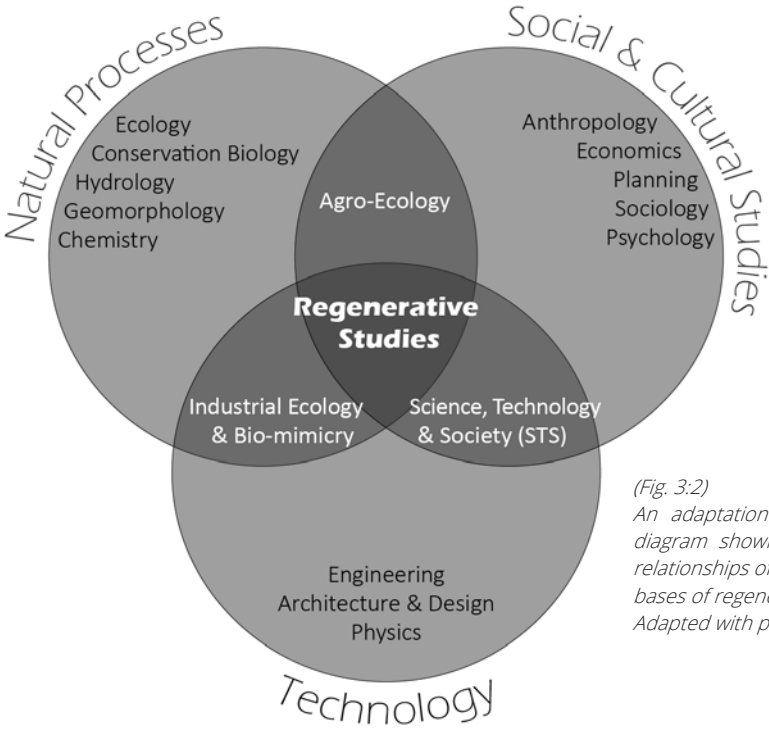
[5] This is a way of thinking that builds on general systems theory.
[6] Technological determinism is the tendency to view technology as prescriptive of human identities and actions.
[7] Discussed in more depth in section 7.31
[8] This is discussed further in relation to sociotechnology section 8.63 subheading IV

3.22 Knowledge Bases of Regenerative Studies

The publishing of Lyle's book corresponded with the opening of the Lyle Center for Regenerative Studies at California State Polytechnic University Pomona, USA. After twenty-four years of the center's cross-disciplinary teaching and research, the acting director of the institute, Kyle Brown, reflected upon what is unique and characteristic of 'regenerative studies' (2008, 2009b). He concludes that "the systems thinking integrated into regenerative studies by John Lyle and others, is a methodological directive that may offer some promise in crafting not exclusive, but somewhat unique, identity and commonality for regenerative studies practitioners" (Brown, 2008, p. 4). He adds that these aspects together with its "action-oriented normative perspective" (ibid., p. 6) differentiates it as a field of study from other fields. I see this perspective as part of the heritage of design thinking that Lyle brought to the concept of regeneration, as it aligns well with descriptions of the nature of design thinking discussed earlier.[9]

To illustrate what he identifies as the "common knowledge base of regenerative studies" (ibid.), Brown places the fields of study commonly used in thesis projects and curricula at the Lyle Center for Regenerative Studies into three realms of study (fig. 3:2).[10]



(Fig. 3:2)
An adaptation of Brown's (2009a) diagram showing components and relationships of "common knowledge bases of regenerative studies." Adapted with permission.

[9] See sections 0.1 and 0.22

[10] This is a diagram from the Lyle Center website (Brown, 2009a). When I asked Brown about its origins, he says it developed from a seminar paper (Brown, 2008). However, in the seminar paper the diagram is a triangle and the title *Humans* is used instead of *Social and Cultural Studies*.

The breadth of this knowledge base, he adds, makes it difficult to determine a clear identity of regenerative studies and also for any one project to represent all dimensions equally. Subsequently, he points out, the boundaries for regenerative studies or a particular inquiry, such as this one, becomes difficult to delineate. I can only concur after the many struggles of setting boundaries for this design inquiry. And while this may be problematic for an academic field of study or limited project, I see it as proof of the broad applicability of regenerative thinking outside of the design fields and its strength as a holistic theory that can lead society at large towards, and beyond, sustainability.

The three realms of priorities in knowledge used, and actions taken, can furthermore be seen as a challenge to the three pillars of priorities set by conventional sustainability. Not least of all in how economics is considered simply one of several aspects of the social and cultural realm.[11] As the three pillars represent a paradigm of power relationships that form the world in which we live, so also this diagram represents an alternative view of these conditions. Brown's knowledge bases are not only a description of priorities in the operational knowledge for research, education and projects in regenerative projects; they also expose the components of a mindset that characterizes regenerative design thinking (Svec et al., 2012), and is an important step in defining component relationships of a regenerative approach.

3.23 Cradle-to-Cradle & Eco-effective Design

In their book *Cradle-to-Cradle* (2002b), William McDonough and Michael Braungart popularized a set of principles of regenerative design that has made a considerable impact in industrial design and more recently spread into the spatial design fields and community development. McDonough and Braungart center their arguments on the difference between efficiency and effectiveness, which Lyle also points out as crucial to understanding the difference between linear and regenerative systems. They criticize conventional sustainability for focusing too heavily on 'eco-efficiency,'[12] which they argue is an approach which aims to do more with less and to be "less bad" (ibid., p. 45).

They contend that "eco-efficiency is an outwardly admirable, even noble concept, but it is not a strategy for success over the long term, because it does not reach deep enough" (ibid., p. 62); instead, they propose measures that are 'eco-effective.' As McDonough and Braungart point out, eco-effectiveness is also efficient and is inherently concerned with reducing or eliminating bad materials and processes. Eco-effective design, however, takes sustainability to a level of health and prosperity which eco-efficiency alone is unable to do.

Their Cradle-to-Cradle (C2C) approach divides regenerative waste-resource systems into two spheres: the 'biosphere' and the 'technosphere' (fig. 3:3). The principles derived from this distinction are powerful in their simplicity:

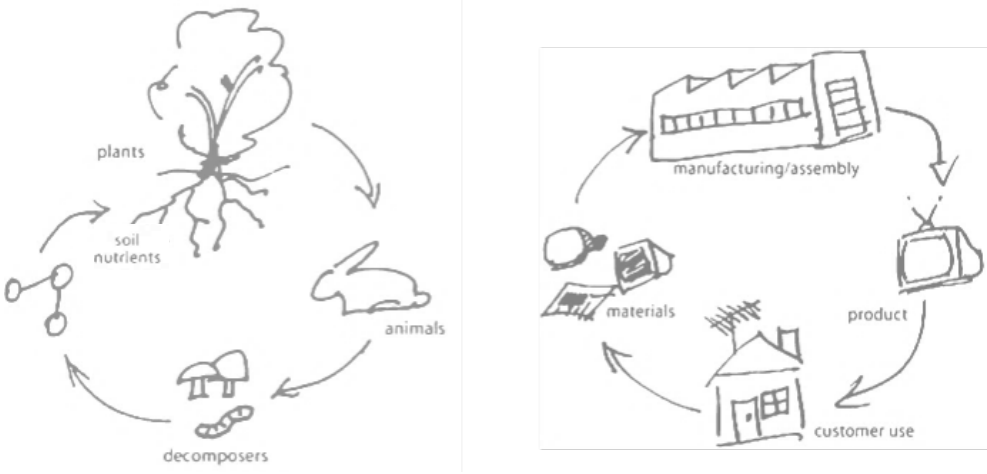
1) All things that can be made into food for some other living creature should go into the biosphere, i.e. the system of biological breakdown and regeneration.

[11] As discussed in section 1.43 subheading III (fig. 1:6a) where the three pillars diagram treats economy as a separate realm unto itself.

[12] The term eco-efficiency appeared in 1993 in publications by the Business Council for Sustainable Development as part of the mainstreaming process of sustainability (Najam, 1999).

2) All things that cannot become food should become part of the technosphere, i.e. the system of technical breakdown and regeneration of things and materials.

3) A third principle applicable to both spheres is to avoid excessive rates of entropy through 'downcycling,' which happens when items have a lesser value when transformed. One should instead 'upcycle' (McDonough & Braungart, 2013) which is to increase an item's value through transforming it.



(Fig. 3:3) The metabolic processes of the biosphere (left) and technosphere (right) according to McDonough & Braungart (2002b, n.d.). Reprinted with permission.

McDonough and Braungart acknowledge that some level of down-cycling and toxicity is unavoidable, or at least until we have a completely eco-effective society and industrial process in place (which they acknowledge will be long in coming). However, the overall message of their work that it is possible to design our way out of entropy.

While this is an admirable sentiment, even possible to an extent, any industrial society (re-evolutionized or not) will include *some* amount of down-cycling and toxicity. The entropy inherent in the second law of thermodynamics proves that down-cycling exists in natural ecosystems as well. The earth and natural organisms produce their own set of pollutants which are assimilated into the metabolic systems of the earth and storage systems (as Lyle calls them). When the pollutants exceed acceptable levels, extinctions and evolution take place. The goal lies in finding a balance. Regenerative design proposes to do so through not just reducing negative effects but also producing positive effects in these metabolic systems. C2C's influence is growing and its greatest contribution to design thinking and society to date has been to provide a regenerative perspective on the life of materials and objects in mainstream modes of mass production.

I. The Use of Compelling Narratives & Schemas

A great deal of the success of C2C is arguably due to a compelling narrative where *thriving* has been the central message. McDonough and Braungart eloquently illustrate this concept with the analogy of a cherry tree producing many times the number of flowers, fruit and seeds it needs in order to reproduce. Only some of these become trees; the rest provide multiple services to the ecosystem of which it is a member. This manifesto is littered with similar stories of eco-effectiveness and catching phrases that communicate basic regenerative design principles:

Imagine a building like a tree, a city like a forest.

Waste = food

Celebrate diversity

Use solar income

These phrases are, in essence, schemas that represent regenerative ways of seeing and acting in the world, which can be translated as sensemaking and world-making. As schema, each phrase can be seen as a poetic summary of a component narrative to a regenerative metanarrative[13] for society and design thinking.

II. A Call for an Industrial Re-evolution

With eco-effective measures in place, they see no reason to limit productivity, creativity and growth. This culminates in a call for an "industrial re-evolution [where] products and processes…resemble the living world" (McDonough & Braungart, 2013, p. 154). This living world is where abundance, diversity, and niche adaptation into metabolic cycles dominate and support a continuous re-creation. They argue that, though it is a complex design challenge, human beings can fit into this living realm and prosper without endangering ourselves, nature's ecosystems, and our shared future. While McDonough and Braungart do not directly refer to (or criticize) Lyle, their C2C approach adds diversity as a key concept in regenerative design theory.

McDonough and Braungart incorporate regenerative technologies with commercial interests. Contrary to many environmentalists who work and argue against industry, they prefer cooperation and dialogue over opposition. They wish to embrace the hubris of creativity and production that industry has harnessed over the past couple of centuries and direct it towards "good growth" (ibid. p. 78). The authors appeal to commercial interests by inferring that it is not consumption that is wrong, but rather the modes of production. The C2C discourse seems to imply that we can continue our current consumptive behaviors as long as everything we do is bio-degradable or recyclable.

In discussions on this topic with students and colleagues in projective explorations,[14] C2C was critiqued for cooperating and pandering too heavily to the proponents and ideals of consumerism and infinite economic growth. The opposition to this criticism is that

[13] See chapter 3 for a full discussion on schemas, narratives and metanarratives. See 4.42 & 4.43 on poetic measurement.
[14] See chapter 6.

cooperating with these industries is the way to affect a transformation of the linear systems thinking in mainstream manufacturing praxis into a regenerative systems thinking.

I would argue that both opposition and cooperation are necessary components in the work of shifting realities and therefore find validity in both sides of this argument. At the onset, it may be pragmatic to philosophically support society's voracious appetite, but it is unlikely to be the whole solution. I suggest that the re-evolutionizing of mass production into more regenerative processes must be done while also addressing the voracious appetite for 'the new' that underpins the age of the ephemeral.

III. Favoring Eco-technophilia Over Placehood

Though William McDonough is an architect and C2C's key area of application outside of industrial design has been the design of buildings and communities, it lacks any significant dialog on the role of place and other psycho-social dynamics and aspects of space. Even when these C2C principles are translated into guidelines for the built environment (Jørgensen & Lyngsgaard, 2013; Mulhall & Braungart, 2010) there is an overriding tendency towards technological determinism and ecotechnophilia. The presence of ecotechnophilia is much stronger in C2C than in Lyle's manifesto, however they both make place, and psycho-social factors appear as a byproduct of technology.

Technophilia emerged as a concept precisely when the throw-away culture began to dominate western cultures with in the 1950s and 1960s.[15] Nigel Whiteley (1987) explains that the strong "optimism and commitment to technology" (p. 10) at this time played a critical role in forming the throw-away culture of consumerism and style obsolescence. If we are to shift the dominance of the throw-away culture, I believe it is necessary that we consider all of the forces in society, not only (eco)technology, that have the means to make, or break, worlds. Developing and implementing ecotechnology is absolutely necessary, however, behaviors and attitudes of individuals in a society are not always governed by technology. Furthermore, the very effectiveness of a technology in a given situation is often governed by social norms and attitudes (Bunge, 1998).

I believe that technological determinism has led us to underestimate the importance of place, personal identities and sociality discussed previously in relation to criticisms of sustainability.[16] Through its origins in spatial design, I believe that regenerative design has a unique ability and opportunity to develop the notion of place in the ages we are living and those to come. It is a shame that Lyle, McDonough and Braungart fell short on this account. However, there are others who have seen this problem and whose discourse help to develop a basis for what I call regenerative placemaking.

3.24 (Nonmodern) Critical Regenerative Regionalism

Stephen A. Moore (2001) observes that while there is clear relationship between civilization, the built environment and place, there is not a clearly defined relationship between

[15] The term was first used in 1955 (OED, n.d.-k).

[16] Discussed through Seghezzo's "five-dimensional conceptual framework" (2009) for sustainability. See section 1.43 subheading III (fig. 1:7).

sustainable technologies, place and social engagement. He blames this on the influence of modern and postmodern dualisms on spatial design practices. This has led to a tendency to separate the notion of technology, and by extension sustainable technology, from place.

Echoing the previous discussion on ecotechnophilic tendencies, Moore criticizes prominent advocates of regenerative design for "fail[ing] to relate their ecological concerns to the cultural politics of placemaking" (ibid., p. 20).[17] He bases this argument on findings from Science, Technology (and Society) Studies (STS), most notably actor-network theory (ANT).[18] Using these studies as a base he argues that technology, like place, is a field of interacting social and spatial, or sociospatial, relationships. These, in turn, are also argued to be inseparable from ecologies. This reasoning reinforces my arguments for the meaning and need for the term ecosociospatiality previously coined and discussed in this dissertation.[19]

While the spatiality of place is easily understood, understanding technology as a spatial concept is more complex. Pulling on Latour's (1991) descriptions of technological networks, Moore explains that technology is not a "set of objects [but rather] the social networks that construct relationships between human knowledge, human practices, and nonhuman resources…Technology is essentially a spatial concept because its operation depends upon the mobilization of human and nonhuman resources that exist in different places" (Moore, 2005, p. 436).[20]

He also maintains that "it is simply a passive form of positivism (traditional science by another name) to imagine that ecologists can repair the ecosystem in isolation from political processes" (ibid., p. 440). Leaning on David Harvey's (1996) discourse,[21] he insists that regenerative systems involve both "biological *and* political feedback loops" (Moore, 2001, p. 8), and proposes an addition (in italics below) to Lyle's definition of regenerative systems:[22]

> A regenerative system provides for the continuous reproduction, through its own functional processes of energy, materials, and *the human practices* engaged in its operation. (Moore, 2001, p. 8)

He elaborates upon this stance through how he defines regenerative technology:

> First, regenerative technologies are socially visible and politically transparent... Second, where sustainable technologies require only that the status quo of production/consumption be attained, regenerative technologies require a net increase in life enhancing conditions. (Moore, 2001, p. 130–131)

Moore contributes to regenerative design theory through mapping its theoretical framework (fig. 3:4) in relation to architecturally relevant modern and postmodern ontological bias towards technology versus topography (space/place). Using this map of

[17] He refers directly to Lyle in his criticism without mentioning who the other authors he is referring to. As C2C is one of the most well-known regenerative design advocates out there, it is not unlikely that Moore is including its authors alongside Lyle when he says "*their* ecological concerns."

[18] STS is a branch of social sciences; this branch of study is also sometimes called more simply Science and Technology Studies. Actor-network theory (ANT) has become a central theory and method within STS. They are so intertwined that it is difficult to speak of one without inferring the other.

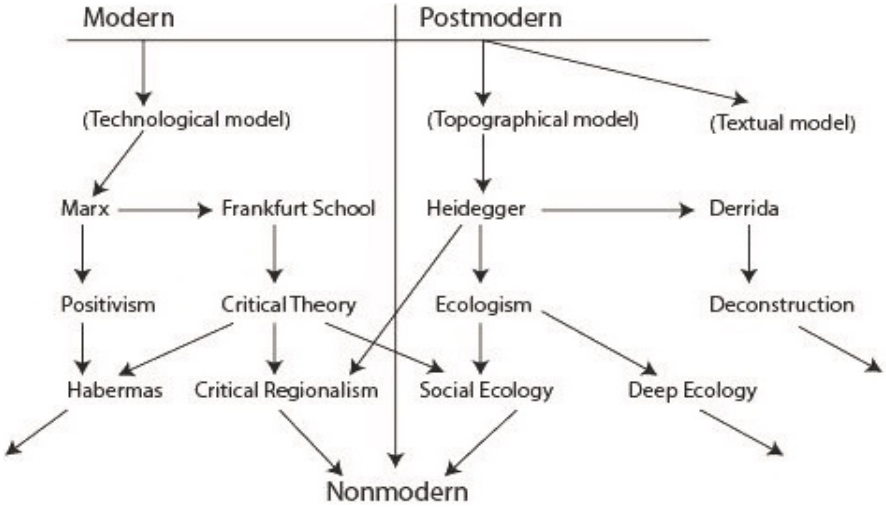
[19] First introduced in section 0.1.

[20] This harkens back to my argument that architecture is primarily a form of spatial design and cannot be reduced to a set of objects, or technologies, as Moore would say. (See section 2.3)

[21] In Justice, Nature and the Geography of Difference (Harvey, 1996).

[22] See section 3.21

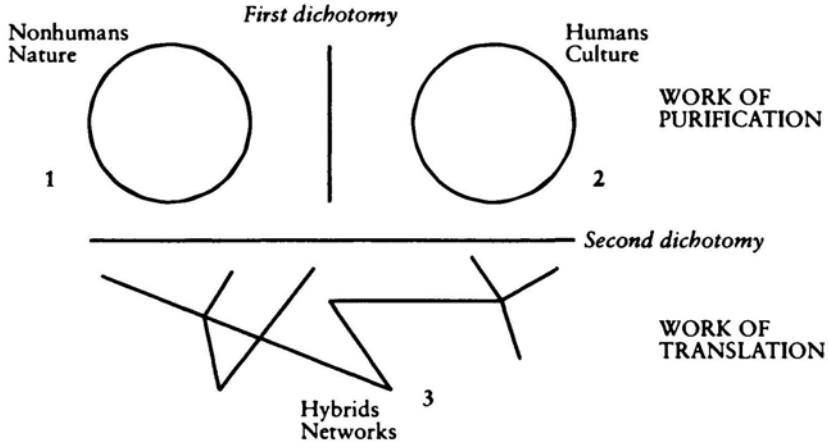
ontologies and theories he argues for the combining of critical regionalism with social ecology to help inform and advance principles of regenerative design. He argues that this combination helps to overcome the modern/postmodern divide and the "dichotomized principles of technology and place" (Moore, 2001, p. 7) in sustainable architecture and lays the foundation for a *nonmodern* approach.



(Fig. 3:4) Moore's (2001, p. 22) map of significant theoretical influences leading to a nonmodern approach to sustainable architecture, i.e. Critical Regenerative Regionalism. Reprinted with permission.

Moore's thesis rests on a nonmodern proposition that place, technology and society are dialogically interrelated and that a regenerative design approach cannot ignore their heterogeneous natures. Building on Bruno Latour's (1991) notion of being nonmodern, he illustrates how society is a dynamic process that transforms places and technology, which in turn is transformed by these.

Latour (1991) argues that *we have never been modern* as nonhuman beings and things have always been a part of being, and building, human relationships and identities. However, modernist thought sought to purify the messiness of the world into a more manageable worldview. Through a "work of purification" (ibid., p. 11) modernism imagined a dualistic dichotomy between humans and nonhumans – culture and nature that Latour argues lie at the core of the socioecological crisis of our times. However, this 'first dichotomy' (ibid.) in reality simply created a 'second dichotomy' that relegated all things that did not fit neatly into this dualistic purification into a third realm of hybrid networks that connected the separate realms of nature and cultures, humans and nonhumans (see fig. 3:5). However, this is also a fallacy as nothing in the world has ever been separate – all reality is hybrid.



(Fig. 3:5) Latour's diagram (1991, p. 11) showing how modern thought sought to understand the world through purifying it into a dichotomy of two realms, effectively separating humans from nonhumans and culture from nature. This in turn created another false dichotomy that relegates what is not pure to a hybrid, i.e. third, realm of networks. Reprinted with permission.

John Law clarifies this reasoning further through the notion of naturecultures:[23]

> Latour argues that the secret of modernity is not its purity, its dualist distinction between 'nature' and 'culture' (or 'science' and 'society'). Rather it is its insistence on this distinction and its purity while, as the same time, making endless hybrids, putative naturecultures. (Law, 2004b, p. 4)

Moore and Latour point out the ineffectiveness of postmodernism and antimoderns to overcome this dualistic dichotomy. They explain that these movements are mostly reactionary denouncements of the work of purification of modernism that do not let go of the anthropocentric humanist dichotomy that separates human and nonhuman realities. To be nonmodern is to accept the fallacy of both rationalism and relativism that separates humans and nonhumans and understand that realities have always been created through hybrid networks of humans and nonhuman beings and things influencing each other and their environments.

I believe this argument is made clear in the way that postmodern relativism champions the human perspective of realities, and so postmodernism can lead to a strengthening of anthropocentrism and with it a reinforcement of the modernist separation of humans and nonhumans. I see a parallel with this in how some environmental movements, such as deep ecology, could be said to counteract anthropocentrism with ecocentrism. Moore points to movements such as deep ecology in this regard (see fig. 3:4). Ecocentrism can also strengthen the human-nature divide by falling into the trap of demonizing human activities as unnatural and harmful for nature (i.e. nonhuman beings and environments). Advancing the steps towards a nonmodern approach to sustainability already taken by regenerative design, Moore argues, can help to counteract this unproductive pendulum of movements versus anti-movements.

[23] An important concept I will return to at the end of this chapter (section 3.33) and at in the concluding chapter of this dissertation (section 8.63)

Moore seems to have difficulty in deciding what to call his merging of critical regionalism with regenerative design and varies between three titles through different publications: *Critical Regenerative Regionalism* (2001); *Regenerative Regionalism* (2005); *Nonmodern Regionalism* (2005). I have chosen to combine these into one term, i.e. ***nonmodern critical regenerative regionalism***. Though the resulting title is a mouthful, I find it the simplest way to refer to Moore's manifesto in its totality. For his proposal is consistently rooted in the idea that a nonmodern approach to sustainable design "might consciously, and democratically, construct places that relate humans and nonhumans in life-enhancing and ever-changing practices" (ibid., p. 440).

By combining society, place, and technology he helps to advance regenerative theory beyond the realm of ecotechnophilia, and into the realm of human experience and sensemaking. This is illustrated clearly in how he differentiates sustainable architecture from regenerative architecture (Moore, 2005, p. 442):

> A *durable architecture* need only delay the inevitability of decay.
> A *sustainable architecture* need only maintain the status quo of natural carrying capacity.
> A *regenerative architecture*, however, must concern itself with the reproduction of the institutional agreements that tie humans to the ecological conditions of a place.

My overall impression is that Moore's principles for nonmodern critical regenerative regionalism[24] are not intended to substitute Lyle's strategies for regenerative design,[25] but rather develop and compliment them. Moore's key contribution is in providing an approach that helps one understand why and how to avoid the trap of technological determinism in regenerative design practices.

3.25 Regenerative Stories of Place

Regenesis is a design and research group that has made significant contributions to regenerative theory and methods. One notable contribution is their trademarked method for analyzing and defining a Story of Place® and the notions of place and community that lie behind it:

> Focused on patterns and patterning rather than data collection, this whole-systems assessment (cultural, economic, geographic, climatic, biological and ecological) develops understanding of how community and place work as an interdependent living whole. (Regenesis, 2006)

This is a method which they use in community development projects. They use it to help a community build a narrative that combines their intersubjective experiences with the history of the landscape and ecology of the place and develop a plan of coevolution with the local systems revealed in the process.

Nicholas Mang (2009) defines this 'regenerative story of place' as one that translates the complex and systemic nature of placehood into metaphors that help bring the place alive and "create a common sense of identity and caring" (ibid., p. 175). He then outlines "three critical elements of a good story of place" (ibid.):

[24] See Appendix II
[25] See Appendix I

1) it regenerates a shared sense of identity and meaning
2) it regenerates vocation and purpose
3) it inspires people to act and make the story their own

My conclusion is that this is a methodology for engaging in a community and co-creatively revealing and building a nonmodern understanding of place, community, and context from which an urban or regional plan can develop. It does so by effectively including nonhumans into the narrative of community. However, I find there is something contradictory in the act of trademarking the methodology with the humility and generosity of spirit that the method embodies.

3.26 Regenerative Pathways – A Narrative of Hope

Chrisna du Plessis and Dominique Hes (2015) emphasize the importance of fostering "ecological values" (p. 35)[26] that contribute to a narrative of hope for facing the challenges before us. They argue that these are core elements of regenerative sustainability. To achieve sustainability, our worldview must be one based on a "spiritual and emotional affiliation" (ibid., p. 26) with ecosystems. The spaces we design, and use, need to nurture this intrinsic part of what it is to be human.

Their work helps establish the relationship between regenerative sustainability and the philosophies of permaculture, deep ecology, biophilia and integral theory. Through discussing this relationship, they emphasize the spiritual and inseparable relationship between societies and ecologies. Central to their discourse lies both verbal (sequential) and nonverbal (nonsequential) narratives[27] that focus on the potential and actual positive outcomes of moving towards, and beyond, sustainability.

3.27 Regenerative Psychology

Nicholas Mang (2009) identifies what he calls a 'regenerative psychology of urban planning' where he reaffirms the central role of placehood in regenerative design thinking. He identifies that regenerative spatial design practitioners will specifically employ methods for heightening sensitivities to "[re-connect] to the spirit and essence of a place and [allow] it to source [their] planning and decision-making processes" (ibid., p. 171). I believe it uncontroversial to equate Nicholas Mang's essence or spirit of place with Agnew's sense-of-place discussed earlier.[28]

This underlying search for the spirit of place Nicholas Mang relates to a drive to spiritualize existence through "field regeneration" (ibid., p. 58). Which can be understood as a broadening of the definition of 'the good life' beyond the actualization of human potential and towards an actualization of socioecological potential for reciprocal well-being of human and nonhuman beings (ibid., pp. 22-28). This can also be seen as another example of regenerative design's nonmodern understanding of interactions and interdependencies in living systems.

[26] See Appendix III for the list of specific ecological values that Hes and Du Plessis have developed.
[27] First introduced in section 2.42
[28] See section 2.31

Regenerative psychology is the mindset that distinguishes regenerative design thinking from other design thinking practices. Though Nicholas Mang defines regenerative psychology from urban planning projects, I see it as potentially much more than a way to approach spatial design and planning; I also see it as a way to conduct any type of spatial practice from art to the everyday practices that contribute to the composite co-creative act of placemaking.

3.28 Measuring Regeneration

The act of measuring and monitoring regeneration in places is a worthy, but challenging, endeavor. However, the reductionism needed to produce lists and elements that can be monitored and measured can also be a hindrance for or contradiction to "a holistic approach based on living systems theory" (Tainter, 2012, p. 371) such as regenerative design. However, a bit of reductionism could prove useful in helping to clarify and "[assist] with uncertainties or [identify] constituent parts" (ibid., p. 369) and efforts at qualifying and/or measuring how regenerative a project is. For, in the absence of standards and forms of measurement, greenwashing[29] can thrive.

In an attempt to be specific yet stay holistic, many regenerative descriptions include a set of broad principles and categories of issues to address when working on projects. However, some guides are so specific and systematized that I see them as a stepping stone towards efforts to monitor and measure regeneration in a project.[30] This literature review has uncovered a few promising attempts to move from principles to measurement that will now briefly be described.

Maibritt Pedersen Zari (2012) compiles a table[31] of "ecosystem services for the built environment to mimic" (p. 147) as a starting point to establish a way to measure the level of regeneration achieved by a project. She argues that an ecosystem service analysis is a first step towards measuring regeneration, but also concedes that it is weaker in measuring the social and economic[32] benefits that are equally important in regenerative projects. However she also argues that this step away from the traditional focus on human measures is also needed as part of a larger shift in "mind-sets and goals for how built environments can and should function" (ibid., p. 155) in ecologies.

The Society of Building Science Educators' (SBSE) (2009) *Regeneration-Based Checklist for Carbon-Neutral, Zero Net Energy Design and Construction* is another compelling alternative. [33] The list was developed with the aim to integrate nature and modern building projects "at the highest possible level" (ibid., p. 1). It divides the criteria into the realms of 'planet', 'site', 'building' and 'culture' and rates a regenerative aspect by how often it is present in a project.

Measuring the levels of regeneration produced by a site is a worthy challenge, which has begun to be addressed in the aforementioned proposals, however it is not the issue that

[29] Definition of greenwashing in section 1.43 subheading II.

[30] Other than the lists of principles mentioned earlier in this section, more detailed working tools that get closer to categories of measurability are: the LENSES Framework (Plaut et al., 2012), the REGEN tool for regenerative thinking (Svec et al., 2012) and the C2C Criteria for the Built Environment (Mulhall & Braungart, 2010).

[31] See appendix IV

[32] She uses the three pillars of sustainable development to identify these two missing elements.

[33] See appendix V

this design inquiry sets out to tackle. Instead the drive has been to understand placehood and placemaking in relationship to socioecological well-being. It is this drive that first led me to develop my own personal notion of regenerative design and subsequently to the aforementioned discourses on regenerative design thinking. The review of these discourses makes clear that the relationship and formation of place has become central to the vast majority of regenerative thought and practices. This design inquiry is, therefore, more about detecting and defining measures of placehood in relation to regeneration than measuring the amount of regeneration present in places. Methods for this type of measurement are explored in subsequent chapters.[34]

3.3
Reflecting on Regenerative Thought

I will conclude this chapter with a summary of my interpretation of key elements within regenerative design thinking for socioecological well-being and relate these to topics addressed in earlier chapters. Some of the elements delineated here are commonalities between all of the texts related to regenerative design thinking, others are elements from particular texts, or groups of texts, that I deem contribute to a more robust and complete regenerative spatial design theory and approach.

3.31 An Approach for the Ages of Hypercomplexity

Regenerative design theory provides tools that help us to deal with conditions of a hypercomplex world. We can review these by dissecting Pamela Mang's (2001) description of the particular strengths of regenerative design and comparing these to aspects of hypercomplexity discussed in this dissertation.

> Regenerative Design…introduces into Ecological Design at least two additional streams—the Science or Art of Place, and the science of living systems. Regeneration is far more than simple renewal or restoration [it] include[s] three key ideas: a radical change for the better; creation of a new spirit; returning energy to the source.
> (P. Mang, 2001a, p. 3)

Regenerative design advocates place centered approaches for addressing the glocal[35] conditions of, and threats to, ecosystems and societies. Through centering its approach on "the Science or Art of Place" (P. Mang, 2001a, p. 3) regenerative design thinking addresses issues related to the ontological alienation and rootlessness generated by increasing levels of unsettlement in the world.

However, I would like to suggest a slight rephrasing of Pamela Mang's quote by replacing her 'or' with an 'and', i.e. the Science *and* Art of Place. It is unclear, to me, whether Pamela Mang's use of 'or' is due to an ambivalence as to whether spatial design is a science *or* an art,

[34] Described in section 4.42 and explored in chapters 5 and 6.
[35] Glocal = global + local.

or if it implies that one can choose one of two approaches to the understanding place. I argue, however, that spatial design and regenerative design's strength lies in the bridging of the measurable and immeasurable, i.e. of science *and* art, to which I relate Agnew's sense-of-place, Bachelard's spatial poetics and performative research.

Nicholas Mang describes four different types ('orders') of relationships to place (fig. 3:6) that are part of a "healthy relationship to place" (2009, p. 62). An anthropocentric mind-set inhibits cultures from embracing the spiritual and coevolutionary ways of relating to place (the top two orders); place is then only human nurturing and functional. A regenerative mind-set, however, embraces all four orders.

(Fig. 3:6) The "four orders of relationship to place" (Mang, 2009, p. 62) and the paradigmatic dividing line (dotted) that regenerative thinking helps anthropocentric cultures to cross, i.e. from being trapped in the bottom two orders to including all four. Reproduced with permission.

Regenerative thinking does so by rejecting the anthropocentric human-nature dualism that plagues debates within the age of ecological awareness. It instead argues that societies (i.e. humans) *belong* in ecosystems and ecosystems *belong* in society; the basis for which was laid down in Lyle's initial outline of the ontological view within regenerative design thinking:

> All ecosystems include human influence and most include human presence, we might as well think of human ecosystems as the ordering systems of life. (Lyle, 1994, p. 22)

As discussed earlier, Moore (2001) associates this view of the world with Latour's (1991) nonmodernism. By delving more deeply into this nonmodern view on the composition and interrelationships of the world, Moore develops a further understanding of what regenerative design is or can be. This link to nonmodernism can be useful for delving deeper into the understanding of regenerative design thinking and spatial practices, as I will do in this and the final chapter.[36]

Regenerative design rejects the premise that human presence and activity as inherently bad for ecology and insists that humans can, and do, have positive impacts on the earth's socioecological conditions. Through focusing on a "change for the better" (P. Mang, 2001a, p. 3) and fostering a "new spirit" (ibid.), regenerative design helps to address issues of 'eco-anxiety' and other psychoterratic syndromes (Albrecht, 2011). Its message is one of "designing for hope" (Hes & Du Plessis, 2015) through focusing on the positive effects

[36] The first steps of this understanding are explored in section 3.33 and built upon in section 8.63.

humans can have by supporting life enhancing systems. It shifts the focus of ecologism from pessimistic predictions and motivation through a sense of fear and guilt, to building optimism through envisioning and reinforcing positive outcomes, and motivation through a sense of care and expanded spirit of community through place. It is a state "where humans exist in symbiotic relationship with the living lands they inhabit" (N. Mang, 2009, p. 8) is the basis for defining, measuring and creating well-being and 'the good life'.

Rather than defining development primarily through anthropocentric economic measures, as is so often the case in sustainable development, regenerative strategies place a stronger focus on coevolution as the basis for developing a reciprocal well-being in socioecological relationships. Hypercomplexity increases the relevance of coevolutionary capacities, according to Sacha Kagan:

> In an age of hypercomplexity inextricably interweaving social systems and ecosystems for better or worse, interdependencies increase the relevance of coevolutionary capacities. (Kagan, 2010, p. 1097)

Coevolution implies dynamic dialogical processes of adaptations to changing circumstances over time. To design and live in a coevolutionary way requires humans to adopt a cross-species and cross-generational perspective of diversity and positive reciprocity.[37] It requires society to embrace and include means for forces of constructive and beneficial change with other living beings in reciprocal responsibility in, and benefit from, thriving living systems.

From this coevolutionary understanding of development and by grounding technical processes in principles of "the science of living systems [and] returning energy to the source" (P. Mang, 2001a, p. 3), one can see a movement that addresses the degenerative conditions of the age of the ephemeral. Regenerative Design's basic premise is to replace degenerative and high temporal rates of entropy with technology and practices that mimic and include ecosystems and promotes life and well-being. Ecosystem inclusion is more than 'greening' a building or plan, as one must consider a systemic view of local ecological processes and habitats for species. Ecosystem mimicry requires an alteration in industrial, architectural and private material economics and habits.

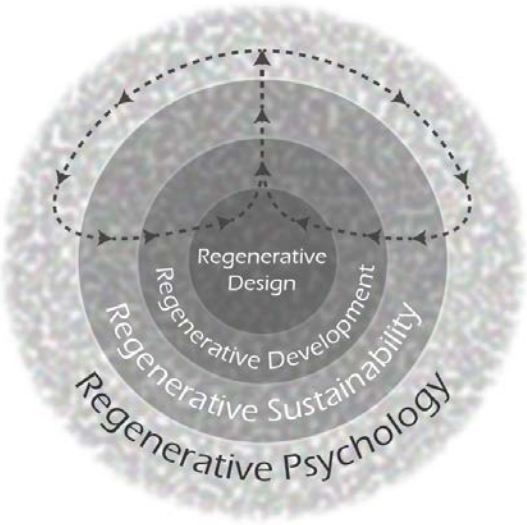
Material and technological systems are developed for each glocally situated place in order to help define *that* community's socioecological role and identity in living systems and continuous processes of change, i.e. the process of becoming and being in a world in flux.[38] This concept is diametrically opposed to the degenerative practices of the age of the ephemeral which "[devour their] own sources of sustenance" (Lyle, 1994, p. 5). This is not to say that society can design its way out of the second law of thermodynamics, i.e. eliminate entropy. However, it does propose that societies can participate more effectively (not just efficiently) in ecological systems and thereby reduce the rates of entropy that define the age of the ephemeral and threatens current living systems, forms, and civilizations.

[37] Building on the many links that exist between cultural and biological diversity is seen as a crucial element in achieving sustainability, according to a UNESCO report (Persic & Martin, 2008).

[38] See section 0.3 and 1.3, as well as David Bohm (1980).

3.32 Scales of Regenerative Thought & Practices

Within the contributions to the development of regenerative design thinking there are those who have ventured upon distinguishing between different types of regenerative thought and practices.[39] I suggest that there are four intersecting scales (fig. 3:7) which can be detected and defined using the spatial scope of their application.



(Fig. 3:7)
Four intersecting scales of regenerative thought and practices.

The broadest scale is regenerative psychology which serves as the base for regenerative sustainability which in turn underpins regenerative development and finally regenerative design. However, the timeline of when each of these terms were coined is in the opposite order, i.e. beginning with regenerative design and ending with regenerative psychology. Rather than being a subdivision of hierarchical concepts, one can see these distinctions as a depiction of the scale and breadth of four interlinking perspectives on regeneration from spatial practices and design thinking. The different scales will be discussed in more detail in the two subsequent sections, followed by a discussion on their interlinking and overlapping nature.

I. Regenerative Sustainability & Psychology

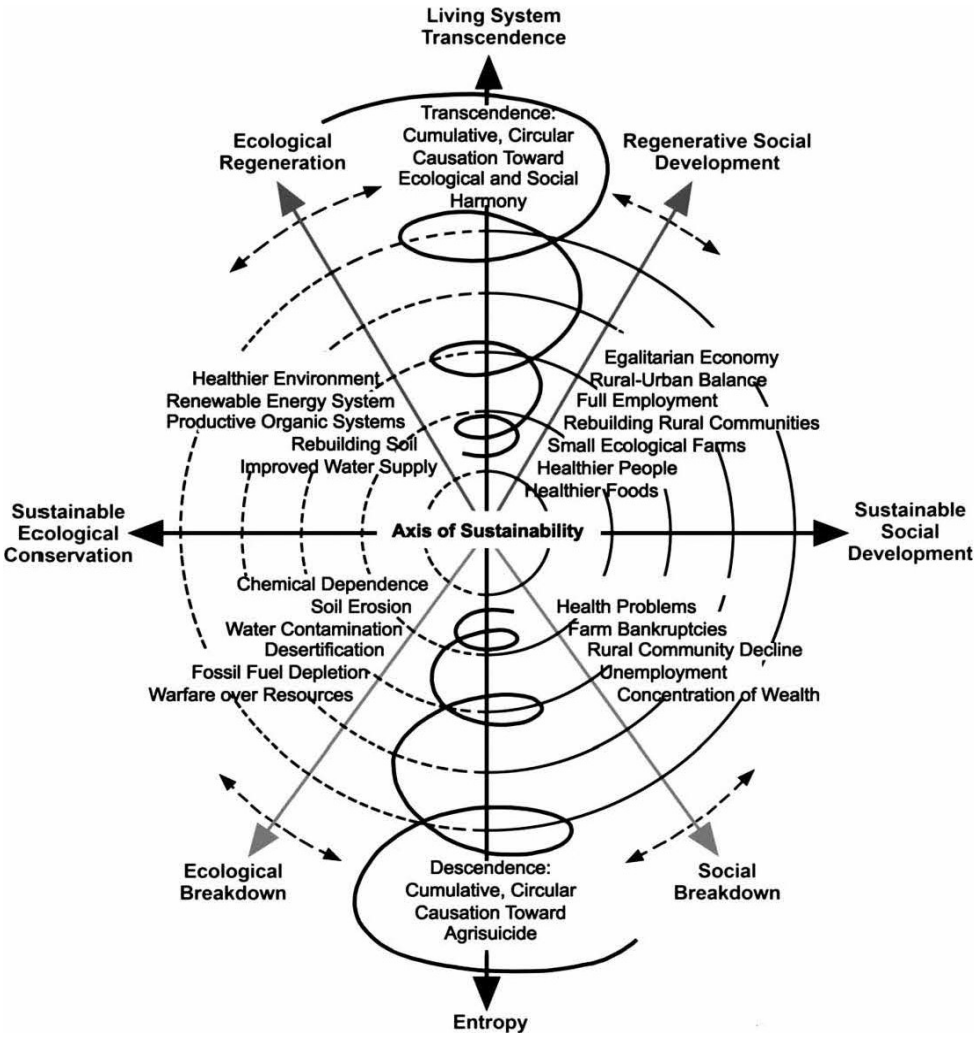
Regenerative psychology is the mindset that distinguishes regenerative design thinking from other design thinking practices, and I understand it as that which permeates all other scales of regenerative thought and practices. Though Nicholas Mang (2009) defines regenerative psychology from studying urban planning projects, it is much more than a way to approach spatial design and planning. It is a way to conduct any type of spatial practice from art to the everyday practices that contribute to the composite co-creative act of placemaking.

John Robinson and Raymond Cole (2015) distinguish the notion of 'regenerative sustainability'[40] as separate but related to the two smaller scales of regenerative design and development that I will discuss further in the following section. Robinson and Cole define

[39] The term 'regenerative thought' can be attributed to (Svec et al., 2012) and 'regenerative practices' to Lyle (1994).
[40] A term first used by Chrishna du Plessis (2012).

"the theoretical underpinnings of regenerative sustainability" (2015, p. 133) as a general concept for the planning of sustainable actions and community development that is less associated with processes of designing and building spaces and places.

Chrisna du Plessis (2012) describes it as a process which is connected to "grassroots efforts of people from all walks of life" (p. 8) and is a paradigm which "aims to restore and regenerate the global social-ecological system through a set of localized ecological design and engineering practices rooted in the context and its social ecological narratives" (Du Plessis, 2012, p. 19). She also underscores the importance of "the holistic living systems worldview" (ibid.) that underpins the regenerative sustainability paradigm.



(Fig. 3:8) Steve Larrick's (1997, p. 16) diagram of the "living systems model of community development". Reprinted with permission.

To describe this living systems view Cole (2012) refers to Steve Larrick's (1997) 'living systems model of community development' (fig. 3:8) whose overall dynamic he, in turn, explains as being regenerative:

> When positive things are encouraged to happen on a number of levels within a living system, there is likely to be a greater potential for circular cumulative causation toward a more healthy system on other levels of existence. When living systems are allowed to survive and thrive at the basic, fundamental levels, positive outcomes begin to take place that can far exceed initial expectations. Such is the regenerative capacity of the life of individuals as well as the life of communities. (Larrick, 1997, p. 15)

Not only is regenerative sustainability described as actions that exist in both grassroots and more top-down design and development projects, but also as a paradigm underpinned by a regenerative psychology (N. Mang, 2009). Within the notion of a broader, more inclusive, regenerative sustainability paradigm one finds room for practices such as art, day to day activities, and different types of activism, which may or may not be directly linked to placemaking. However, these practices can be acted out at the *scale* of regenerative design (site or object level), or regenerative development (local community, urban or regional level).

II. Regenerative Design & Development

From using regenerative theory and methods in a number of projects, Pamela Mang and Bill Reed (2013)[41] find reasons to distinguish between regenerative design and what they call 'regenerative development'. They define regenerative development strategies as those that identify and engage a larger scope and context for implementation of design strategies. They point out that much within these two scales of thought and practices overlap, making distinction difficult at times, however their difference is none the less significant.

> Regenerative approaches view development and design as two distinct yet synergistic processes, both of which play an essential role in ensuring that greater scope, neither of which is sufficient without the other. (P. Mang & Reed, 2013, p. 15)

The descriptions they provide for of each approach, and how they differ, is not unlike the way one might describe the interdependent yet distinguishable characteristics of architecture, urbanism and regional planning. While this distinction is fruitful to identify the needs of different types and scales of projects, I believe it is important that it does not lead to separation. Pamela Mang and Bill Reed present regenerative design and development as being corollary and complimentary theories and practices. I would like to stress that it is important that they maintain this overlap, and avoid dividing them into separate disciplines in the way that architecture and urbanism has become divided in modern times.[42]

[41] In this paper, they are representing the Regenesis group. (See section 3.25)
[42] For a discussion on the problematic distinctions between urbanism and architecture see (Cuff & Sherman, 2011).

III. Interlinking & Overlapping the Scalability of Regenerative Thought

Through my literature review of regenerative thought, it is clear that regenerative design is not limited to architecture and urbanism and also includes landscape architecture, community development, agriculture and product design and industrial systems. There is, therefore, a need to modify Mang and Reed's sphere of regenerative design to include site-specific landscape design and product design. Similarly, landscape design for urban or regional scales should be placed within regenerative development. Additionally, it is reasonable that regional development should encompass regional and urban community development as well as industrial development.

To this we must also consider practices such as art, day to day activities, and different types of activism, which may or may not be directly linked to spatial design and placemaking. I have suggested that these can be considered acts of regenerative sustainability and psychology, which are carried out at the the scale of regenerative design and development (i.e. in a place, a city or a region). I will use regenerative agriculture to illustrate how a practice can exist and take shape within all the scales of thought and practice:

> To begin with, regenerative agriculture is an expression of a regenerative psychology through its philosophy, principles and practices. It is an expression of regenerative sustainability when applied on a national or global level. Whereas it is a form of regenerative development when part of a regional plan for urban-rural relationships, or an overall urban strategy for areas of urban agriculture. When applied to a site or building, it is regenerative design. It is also regenerative design in regards to the design of products specifically for regenerative agricultural use or propagation, and are designed to fit into either a biological or technical waste-resource metabolism.

As discussed earlier, non-designerly everyday acts involved in generating placehood are acts of making in their own right.[43] I think of these acts as dispersed and temporally extended forms of co-creating a location's sense-of-place. I therefore consider them as important in sensemaking as any act of design might be. However, I believe it is useful to differentiate between *regenerative design thinking* involved in the design of places and things and the '*regenerative thinking*' (Svec et al., 2012) involved in the everyday use of these places and things.

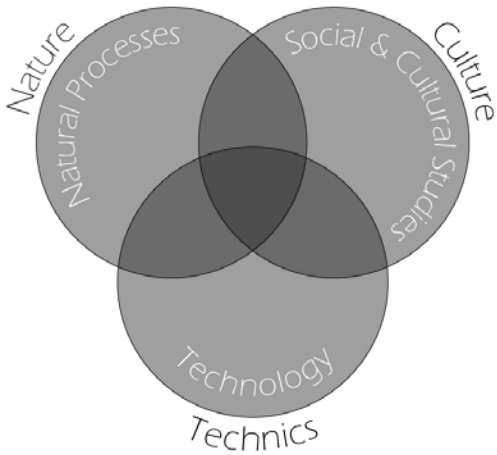
From the more expansive application of regenerative thinking, I see a clear implication that the theoretical underpinnings of regenerative design can inform practices and thought beyond the realm of design. I also see it as a clear indication of how a critical but constructive view originating from spatial design can help to inform trajectories and strategies for socioecological well-being in general. And through this broad applicability and the intersecting scales of regenerative thinking I see the basis for a general theory that addresses short-comings in conventional sustainability.

[43] See section 2.31

3.33 A Nonmodern Approach for Shifting Paradigms

As Latour (1991) argues, the dualisms propagated by modernism, and essentially unchallenged by postmodernism, lies at the core of the socioecological crisis of our times. Through the expansion of regenerative thinking into areas of application outside of design, along with its affiliation with nonmodern thinking, it is logical to conclude that regenerative ontologies and practices could help to bridge this gap. I would now like to discuss what I consider is further indication of a nonmodern ontology within regenerative (design) thinking; the evidence of which can be found in the relationship between Brown's (2008) three common knowledge (fig. 3:2) within regenerative studies and John Law's (2004b) delineation of 'natureculturetechnics.' Through relating the two, I see the details of a regenerative nonmodern ontology emerge. It also describes the nature of a design thinking and practice whose core rests in understanding and affecting the multi-dimensional nature of paradigms.

The overlapping knowledge of three broad bases "suggests a multi-dimensional intellectual space" (Brown, 2008, p. 3) in regenerative design, and parallels the hybrid realities Law describes as natureculturetechnics. By considering the similarities and differences between these, I see an opportunity to further understand and define the nonmodern tendencies in regenerative design thinking identified by Moore. I illustrate the similarity between them in the following diagram (fig. 3:9).



(Fig. 3:9) A diagram that places Kyle Brown's regenerative knowledge bases (see fig. 3:2) inside the corresponding realms of John Law's natureculturetechnics.

Brown describes the knowledge sought in regenerative studies as lying at the intersection of three realms: 1) Social and Cultural Studies, 2) Natural Processes, and 3) Technology. One can argue that the knowledge sought and studied in a particular field is also an indication of that field's ontological interpretation, or "ontological politics" (Law, 2004b, p. 3),[44] of what constitutes and forms realities. This is supported by how Law describes natureculturetechnics as an "ontology of relationality" (ibid., p. 2) emerging from various branches of STS on the

[44] Law describes Latour's notion of ontological politics as: "one, what gets rights to representation. And, two, how do those things with rights arrange relations between themselves in order to live well together" (2004b, p. 3).

way realities constructed and worlds are made. Natureculturetechnics, Law explains, is the combination of the component realms involved in "making the real" (ibid., p. 5), which is hybrid by nature. This "hybrid real" (ibid.) emerges and stabilizes from a myriad of possible realities that combine, compete, merge, die out, or remain in the shadows. This hybridity relates directly to Latour's description of nonmodernism discussed earlier (fig. 3:5).[45]

It also relates to Kuhn's notion of paradigms; which Law suggests is commonly misinterpreted. This common misinterpretation sees paradigms as socially produced phenomena and that the scientific knowledge produced within them is purely relative to the prevailing social constructs of the time. He argues that STS discourses have developed a more refined understanding and description of what Kuhn actually meant, namely, that paradigms are relational, not relative, ontologies. In other words, what is considered real, or true, at any point in time is produced from a network of relations between nature, culture and technics acting upon one another.

> And those relations have no status, no shape, no reality, outside their continued production. This means that the concern is with…how particular realities get made and remade...[and how]...they become obdurate and resistant. (Law, 2004b, pp. 2–3)

The key point is that paradigms are not merely intersubjectively held beliefs but are also embedded in the material world, and so are produced and reproduced through social and corporeal forms and interactions. In other words, shifting realities and paradigms is difficult but none the less possible through shifting relations in a web of natureculturetechnics. To explain further the component realms in this web, I will compare them to Brown's three realms of knowledge in regenerative studies (fig. 3:2) in the following three sections.

I. 'Nature' vs 'Natural Processes'

Law explains that 'nature' in STS discourses is, in part, used to refer to "an environment, a context, 'out there'" (Law, 2004b, p. 3). In this one can see a clear connection to the fields of study Brown places within 'Natural Processes:' Ecology, Conservation Biology, Hydrology, Geomorphology, and Chemistry (see fig. 3:2). A knowledge realm composed of these disciplines involves the study of things, beings, and processes of the environmental context[46] 'out there'. It describes a realm pertaining to life and habitat that would exist in the world regardless of human existence.

Law uses 'nature' and 'the natural' interchangeably, explaining that in STS these terms also imply "the real" (ibid., p. 4), i.e. what is considered inherently true about a thing in the world. In other words, *the nature* of a thing is its reality and *the natural* way for it to be in the world. 'Nature' or 'the natural' in STS discourses, is used to describe the obdurate truth that science typically sets out to discover. It is what, in modern scientific thought, is described as objective truth, independent of subjectivity and politics. However, STS discourses, including Latour's nonmodernism, explain there are multiple natures and possible realities in the world which may or may not be seen as true at any point in time.

[45] This is not only a connection I make, but Law repeatedly refers to Latour in relationship to natureculturetechnics. (Nonmodernism is discussed in section 3.24).

[46] Brown does in fact replace the heading Natural Processes with Environmental Context in another diagram he developed to discuss Regenerative Studies (Brown, 2009b, p. 8).

This does not mean that what is true is completely *relative* to human subjectivity, as postmodernism claims, only that human subjectivity acts in a *relational* network with nonhuman actors 'out there.' When these relationships become relatively fixed through time, i.e. obdurate, they are often perceived as objective truths that define what is 'natural' or a thing's 'nature.' These natures, though malleable in principle and variable over time, are none the less real at that point in time.

> Philosophically, this is a form of pragmatism. What is true about nature is what works, at least for the moment. In due course this is likely to change, but at any given moment we are where we are. (Law, 2004b, p. 1)

Law's 'nature' in natureculturetechnics is more expansive than Brown's natural processes. They are similar in that they indicate the nonhuman corporealities that humans live with and have an interdependent relationship with. However, the STS version of nature is also the very thing we see as real or true in the world – a political ontology produced from and producing naturecultures (Law, 2004b).

II. 'Culture' vs 'Social & Cultural Studies'

Law describes 'culture' as a "[shared interpretive] resource for making sense of [an]…unknowably complex world" (Law, 2004b, p. 1). I see a parallel to Brown's realm of 'Social and Cultural Studies' from the fields of study included within it: Anthropology, Economics, Planning, Sociology, and Psychology. These are fields concerned with topics that are more strongly related to the personal or shared subjective (i.e. intersubjective) understanding and making of worlds. It is interesting to note that Brown places STS in between the realm of 'Social and Cultural Studies' and the realm of 'Technology' (fig. 3:2). This is likely to reflect that STS is a branch of sociology that focuses on the study of science and technology. However, STS points out, science and technology are also cultural because they are shared interpretive resources. Law explains this in relation to paradigms:

> Scientific knowledge is a form of culture. Scientists in their communities solve the puzzles thrown up by nature, by the world, by using and extending their cultural resources, their knowledge or, if you like, their paradigms. (Law, 2004b, p. 1)

Though very similar, the use of 'culture' in natureculturetechnics adds another dimension of understanding to Brown's realm of cultural and social relevance. Central to STS's contribution to the social sciences is the argument that culture and social conditions are not only a product of sociality and intersubjectivity, but also integral to physical objects and embodied actions. Law explains:

> Culture is not just in the head. It's embedded in instruments and bodily habits as well. It shapes perceptual propensities and provides for classification. (Law, 2004b, p. 1)

In other words, culture is not something that happens only in the mind, it is embodied in forms and acts, but also in space.

I see here a clear correlation to Havelange's (2010) claim that sociality does not exist independent of third elements.[47] Though these observations seem uncontroversial to designers of objects, buildings and space, it has been a revolutionary insight in the social and cognitive sciences. It is also the reason why so many design inquiries find an affinity with STS ontologies and methodologies, and probably why Brown's diagram corresponds so well with Law's ontology of hybridity from STS discourses.

III. Technics vs Technology

Law uses the term 'technics' to refer to the culturally embedded "instruments and bodily habits" (2004b, p. 1) humans use to understand and interact with natures. More specifically, he describes technics as "patterns of practice [and] inscription devices" (ibid., p. 6–7) that enact and produce naturecultures. In other words, technics are physical actions and things that form and reproduce natures (realities) of a culture. A culture, in its turn, influences the use of different practices and devices – when technics and culture reinforce a reality (a nature), it becomes obdurate.

Within Brown's diagram (fig. 3:2) architecture and design are placed alongside engineering and physics under the realm of 'Technology.'[48] However, I find that subsuming architecture and design to the realm of technology is problematic. Technology, as a term and practice, has become so heavily associated with machines and mechanics (*mechanae* in ancient Greek) that it is typically considered diametrically opposed to artistic endeavors. This implies an *exclusion* of the more artistic contributions of spatial design and of art in general as a way of manifesting and making things in the world. As discussed earlier, one of the key contributions of regenerative design is its inclusion of the 'Art of Place' (P. Mang, 2001). I am left wondering where the more artistic and poetic knowledge and acts of making fit into Brown's diagram of regenerative knowledge bases.

As discussed on multiple occasions in this dissertation, the making of space and place in the built environment is not *only* a technical achievement of mechanical knowledge, it also relies heavily on embodied knowledge and skills involving emotions and values that have been associated with more artistic endeavors, not least of all poetics. Technics is a term that includes a wider range of practical knowledge involved in the creation of physical forms, mechanisms and space, such as architecture, design, and art. The Oxford English dictionary defines technic as:

> Of or relating to the arts or sciences; […] of or relating to technology. Also: of or relating to a particular art or science or its techniques (OED, n.d.-j, definition 1)

The realm of technics, then, includes embodied actions and knowledge enacted (bodily habits) alongside technological things (instruments) as a way of affecting corporealities. Technics therefore represents a combined realm of making, or bringing forth, that includes different types of practical knowledge involved in *techne* or the *mechanae*. Techne is described as the realm of art and craftsmanship through which the revelatory acts of poeisis

[47] Discussed previously in relation to phenomenology and cognitive sciences. (See section 2.41)
[48] By placing physics within the realm of Technology Brown also implies that physics is more closely related to non-living things and mechanics then to Nature and Natural Processes.

can occur. I therefore consider Law's use of 'technics' to more accurately represent what Brown implies by including architecture and design in the realm of technology. Law's use of technics expands upon Brown's technology; effectively including spatial poetics alongside spatial mechanics in designerly acts of placemaking.

As Moore (2001) points out, a regenerative approach does not preclude nor denounce new and advanced technology. However, we must be wary of neglecting other ways of affecting realities in a fervor of technophilia (or ecotechnophilia). Change is not only brought about by hereto unseen and unknown technologies; change is also about making visible and placing more emphasis on attitudes, activities and skills that exist but are *less* seen and *less* known. I see this in Moore's specific inclusion of "political transparency" (ibid., pp. 130–131) and definition of nonmodern regenerative technologies[49] and "human practices" (ibid., p. 8) in a nonmodern regenerative system. Using the term technics, therefore, reinforces that the knowledge and skills of caring, maintenance, and poeisis is are as important as those related to technological (mechanical) processes in the making of corporealities.

It does not surprise me that a nonmodern approach to sustainability is heavily rooted in design practices. Design is a field which typically does not consider the human condition and sociality as separate or independent from the interaction with the corporealities of objects and space, i.e. third elements. While sociologists, anthropologists and cognitive sciences have traditionally ignored the role of these third elements in sociality, designers see the third element as a vehicle to understand, affect, manifest and amplify aspects of sociality and the human condition.

From this very clear parallel between the knowledge bases of regenerative studies and STS's sociological investigations into the ontological relationality of making the hybrid real, I also see within regenerative design thinking a serious concern for understanding and affecting the way in which worlds are made and broken.[50] Explorations of regenerative placemaking in this design inquiry have added further depth to these correlations and are discussed in regards to what they imply for regenerative (design) thinking in the final chapter.[51]

3.4
Building a Narrative of Care

Within regenerative design thinking one can see a recurring focus on building narratives that emphasize positive and beneficial characteristics of human interactions in natures as a way to generate paradigmatic shifts towards conditions that foster socioecological well-being. Du Plessis and Hes (2014) speak of building a *narrative of hope* as an alternative to despair; McDonough and Braungart (2002b) of *thriving* as an alternative to surviving; Pamela Mang of *"a radical change for the better [and] creation of a new spirit"* (2001) and the list can go on.

[49] For Moore's definition of nonmodern regenerative technology see section 3.24.
[50] Referring to admonishments to increase ethical and political awareness in design practices. In particular Fry's claim that design "makes or breaks worlds" (2009, p. 25). (See section 2.1)
[51] See section 8.64

This focalization on conveying a positive and proactive attitude in regenerative thought can be seen as part of a ***narrative of care*** that reaches beyond a focus on doing less, or no, harm. This is a metanarrative in regenerative (design) thinking that not only nurtures positive feelings of attachment and acts of maintenance, but also is a critical and constructive stance in the way that realities are made.

To understand more fully the significance, and vital necessity, of care in committing and contributing to socioecological well-being, one can again look to STS discourses. And most significantly in Maria Puig de la Bellacasa's (2011) thoughtful discourse on 'matters of care.' She uses feminist thought to expand upon Bruno Latour's notion of 'matters of concern' which, in its turn, has expanded upon "the early [STS] insight that scientific and technological assemblages are not just objects ['and matters of fact'] but knots of social and political interests" (ibid. p. 86).[52] These insights have revealed that "interest and other affectively animated forces – such as care and concern - are intimately entangled in the ongoing material making of the world" (ibid., p. 87).

This entanglement underscores the importance of understanding what I define as ***emotive forces,*** that can drive and affect the development and effectiveness of solutions to the challenges of our day. Currently, the focus lies on developing scientific 'matters of fact' and technological solutions (Puig de la Bellacasa, 2011). But what becomes clear as one delves deeper into the implications and meanings of an "ethos of care" (ibid., p. 99), is that socioecological well-being in a human dominated world is unlikely to exist or persist without this emotive force.

There are several meanings of care and its Latin root (*cura*) is the same as that for concern, which connotes "trouble, worry and care" (ibid., p. 89).

> Understood as affective states, concern and care are thus related. Care, however, has stronger affective and ethical connotations. We can think on the difference between affirming: 'I am concerned' and 'I care'. The first denotes worry and thoughtfulness about an issue as well as the fact of belonging to those 'affected' by it; the second adds a strong sense of attachment and commitment to something.
> (Puig de la Bellacasa, 2011, p. 89)

Puig de la Bellacasa adds that a strong sense of attachment and commitment are important elements that include and connect us to the world and others. She argues that caring is not only about *counting* all of the voiced concerns of those who care, as Latour claims, but is also about *bringing forth* the voices that are neglected, devalued, taken for granted, or rendered invisible. She argues that caring adds another dimension of critical thinking and doing to that which concerns us.

> From this affective perspective, transforming things into matters of care is a way of relating to them, of inevitably becoming affected by them, and of modifying their potential to affect others. (Puig de la Bellacasa, 2011, p. 99)

In the acts of care that render visible the invisible, I see a relation to the act of bringing forth hidden natures that lies at the heart of poeisis.[53] This association is strengthened in how Puig

[52] A central theme in Moore's thesis. (See section 3.24)
[53] First discussed in section 3.11

de la Bellacasa points out that in difference to concern, care can be used as a verb (caring) which "involves a notion of [material] doing and intervening" (2011, p. 89). Caring can be seen as "an ethico-political commitment to neglected things, and the affective remaking of relationships with our objects." (ibid., p. 100); as such, one could call it an ***affective action.*** When care is used to include the concerns of unseen and/or neglected human and nonhuman beings and things, as in Moore's (2001) active inclusion of politics[54] in regenerative design principles, one can also consider it a form of critical thinking and practice. This form of care is seen in the places probed and projected in this design inquiry where invisible and neglected things, i.e. objects of waste, are made visible in social practices and/or making practices that bringing forth their hidden value.[55]

In feminist thought, caring is often described as a "devalued doing, often taken for granted, if not rendered invisible" (Puig de la Bellacasa, 2011, p. 92), but also in terms of directing attention to labor that is undervalued or devalued, i.e. "tasks that make living better in interdependence, but which are often considered petty and unimportant, however vital they are for livable relations" (Puig de la Bellacasa, 2011, p. 93). While this is an obvious reference to the forms of labor mostly undertaken by women and other minorities in society, I also see a clear association here with the essential and devalued 'doings' of nonhumans in ecological systems upon which all life is dependent. Zari's (2012) method for measuring regeneration through ecosystem service analysis[56] is, for example, a clear representation of care in regenerative design thinking which aims to detect and bring forth devalued doings of nonhumans in socioecologies.

As a form of 'material doing,' care fits squarely into the definition of technics discussed earlier[57] and further broadens our understanding of how corporealities are made, transformed and maintained. Furthermore, when this doing is enacted through engaging with and participating in "possible becomings…care can be a speculative effort to think how things could be different" (Puig de la Bellacasa, 2011, p. 100). In this way, care can be a form of prospective reasoning[58] that can contribute to shifting paradigms and future-making technics such as design.

Puig de la Bellacasa warns that one must not confuse or diminish a "commitment to care" (ibid.) by turning it into an "idealized moral disposition or...a fairly empty normative stance" (ibid., p. 95) that is applied to, or used to, accuse other ways of material thinking and doing. To avoid overlooking situated needs and assuming there is a universally applicable formula for caring, she suggests to formulate caring as an open and situated question:

> Caring is more about a transformative ethos than an ethical application.
> We need to ask 'how to care' in each situation. (Puig de la Bellacasa, 2011, p. 100)

This sensitivity to the variability of situated needs can be seen in various discourses on regenerative thought, which can be exemplified by REGEN's methodology of Story of Place.[59]

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[54] Though Moore (2001) speaks more actively about the politics of people, or 'think-politics' (Puig de la Bellacasa, 2011), his nonmodern approach also alludes to 'thing-politics' (ibid.), i.e. political forces embodied in, and enacted by, things.
[55] Primarily in chapters 5 and 6, with additional proto-regenerative spaces in chapters 0 and 7.
[56] See section 3.28
[57] See section 3.33, subheading III
[58] Discussed in section 0.22
[59] See section 3.25

However, Puig de la Bellacasa's warning should be headed in the development of regenerative sustainability in order to temper its normative tendency.[60] This can be done by remaining true to the critical thinking and a transformative ethos rooted in affective actions and emotive forces in place that are key aspects of regenerative thought. The deep understanding that STS discourses, such as Puig de la Bellacasa's, provides on the notion of care and concern in relationship to material doing and sensemaking, can therefore be a fruitful resource for students and professionals of regenerative sustainability and spatial design.

Contributions to Language & Concepts

Nonephemeral Age	an age that no longer is defined by throw-away culture and that treats waste as a resource and extends the lives of things
Ecotechnophilia	a love or enthusiasm for ecotechnology which can tend towards technological determinism, i.e. that technology is the determining factor to shift societal norms and bring about an ecological age.
Nonmodern Critical Regenerative Regionalism	A joint term to refer to Moore's variable titles that indicate a merging of the nonmodern values inherent to regenerative design with the values of critical regionalism.
Narrative of Care	a narrative that not only nurtures positive feelings of attachment and acts of maintenance, but also is a critical and constructive stance in the way that realities are made.
Affective Action	a way of material doing involving and influencing care and concern. An action that influences and enables meaningful states of being, or change, in someone or something. Actions that focus more on affecting people and being effective than being efficient.
Emotive Force	an emotional energy that motivates and empowers affective action. It could also be explained as the emotional component of subjective and intersubjective sensemaking, i.e. the emotional meaning we associate with a thing, action or state of being, e.g. how concerned are we about it and how much do we care

[60] A tendency observed by Brown in regenerative studies. (see section 3.22)

FOCALIZING THE LACUNA

Summary of Chapter 4

This chapter's purpose is to narrow the larger context of issues identified in previous chapters into a smaller area of investigation: the lacuna. It does so by identifying focalizations and research questions within the context of designing for hypercomplex challenges of today's ecosociospatial conditions.

4.1
Not a Gap...Exactly

The intention of the previous chapters has been to outline the context of a realm, a lacuna, into which one can delve seeking knowledge. This realm has been defined, so far, through gradually identifying concerns and potentials that emerge where design, hypercomplexity, ecology, sociality and spatiality intersect. The intersection of multiple discourses from different fields of interests reflects the interdisciplinary nature of sustainability and spatial design. However, describing the context is not enough to describe the lacuna. To move from the larger story to a smaller story, the lacuna must be defined more carefully.

The Latin origin of *lacuna* is a diminutive of *lacus* which means "pond, lake, basin" (OED, n.d.-d, etymology). Though a lacuna indicates a void, these are voids that suggest other dimensions and possibilities for knowledge seeking than the more traditional 'knowledge gap.' A gap indicates a missing link in a chain of logic, or a missing piece in an immobile set of variables. A lacuna is a multidimensional realm that leaves room for the imagination and exploration; it is not a missing item in a set. The lacuna is somewhat known from the onset; however, its mysterious depths and multiple vantage points suggests endless possibilities for exploration. One does not always seek to discover the unknown, one also seeks to rediscover the known, and so it is into the (un)known we journey.

The (un)known is continuously shifting; the re-evaluation and re-creation of its composition is the ongoing process that keeps it in play. David Bohm (1980) warns that we must be leery of falling into the common tendency to treat reality as a fixed, predetermined structure, and the appearance of a shifting reality as the mere product of a lack of knowledge of "permanent truths which we have yet to discover" (p. 63). Instead, we must keep in mind that reality *is* process and knowledge can only be "an abstracted form of becoming, [hence] there can be no absolutely invariant elements of knowledge" (ibid.) This is not to say that there cannot be enduring realities, or truths, in the process of 'becoming,' only that these 'truths' are always a product of a network of phenomena that hold it in play.

By reviewing the intersection of key topics that define the context of the lacuna, one can identify the focalizations of a smaller story worth telling. These focalizations are, then, the specific contours of the lacuna. The narrowing of this study through focalizations has not been done in a reductionist manner (which posits it can explain the whole through reducing it to its basic parts), but rather in the spirit of Law's (2004a) notion of method assemblages. This is an approach that does not aim to exhibit all the 'facts' of the situation, or even the whole picture. Its aim is rather to detect, resonate with and amplify "particular patterns of relations" (ibid. p. 14) which can increase the understanding of not only these bundles of relations, but also provide a window of understanding of otherwise incomprehensibly complex situations.[1]

[1] See section 0.3 and 8.2 for more on method assemblages.

4.2
The Lacuna Contours

From the literature review underpinning previous chapters one can conclude that the historical development of ecological awareness, unsettlement and ephemerality reveals an underlying concern over the conditions of, and access to, space and resources over time. This conclusion has led me to define this design inquiry's lacuna by the contours created by contradictory, but related, principles and acts of waste-making and placemaking, i.e. waste-resource and space-place transformations.

Furthermore, the review of literature on sustainability suggests that it is an issue that must be defined through practice, place and situation (circumstances). At the heart of the issue lies the question of how we want the future to be in a place. Any plan for sustainability, or beyond, must therefore include methods for understanding and making the future such as prospective reasoning[2] and the projective exploration[3] of possible-impossibilities – which are practices inherent to design thinking. Responding to this need, regenerative design thinking suggests an approach that uses place-based narratives and solutions aimed at reducing entropic conditions of resources and engaging people's sense of 'the good life' to a nonmodern understanding of community and ecosociospatial contexts.

Our relationship to places is not only part of spatial design's perspective on beyond sustainability, it also is part of a larger concern of ontological alienation/rootlessness in conditions of unsettlement which is arguably exacerbated by the accelerated rhythm of the new in the age of the ephemeral. Cognitive sciences and narrative studies indicate that embodied experience of environments, i.e. our situated condition, is crucial to how we understand, communicate and form relationships to other human and nonhuman beings and things. Shifts in paradigms are interlinked with shifts in intersubjective narratives and schemas; both of which are constructs influenced by situated conditions in places.

4.21 Intersubjective Experiences of Third Elements

Various studies in social and cognitive sciences indicate that an individual's experience of "positive co-benefits" (Clayton et al., 2014, p. 33) through "local, place-based impacts" (ibid. p. 34) can help to overcome controversies and inaction in socioecological concerns.[4] Co-benefits in a social setting are intersubjective as they are a concept and experience that "exists between conscious minds" (OED, n.d.-c). Though they are individually and subjectively experienced, they are a shared experience in so far as a co-benefit can only exist when more than one individual experiences a benefit. This emphasis on positive co-benefits across a range of studies (Clayton et al., 2014) is an indication of the importance of associating 'the good life' with any situated action towards, or beyond, sustainability.

[2] Introduced in section 0.22
[3] Defined and discussed in 6.21
[4] Clayton makes this statement with reference to numerous authors from their article review of other studies on the subject.

Paradigms are arguably intersubjective constructs of metanarratives[5] that influence, and are influenced by, individual and socially shared experiences. To affect the metanarratives within a paradigm shift, such as that which is required to move beyond conventional sustainability, subjective experiences in social settings must be engaged. Regenerative design discourse recognizes this. One of the central tenants of regenerative design theory is the need to develop and discover narratives of hope and positive reciprocity.

Cognitive studies reveal that 'social being' and 'sociality' are not simply intersubjective interactions between people but are interactions between people and "a third element which creates the possibility for face-to-face relations and the institution of a symbolic realm" (Havelange, 2010, p. 358). These third elements are "mind-laden objects" (ibid.), in other words we associate them symbolically with "socialization and history" (ibid.). This study posits that place is a third element which is the composite of mind-laden objects and spatiality.

4.22 Narratives & Schemas of Placemaking

A review of the historical development of the age of ecological awareness reveals that shared narratives on socioecological relationships have played an important role in changing attitudes and habits. Spatial design is argued to carry its own type of narrativity, including design schemas and spatial narratives, and plays an important role in forming the spaces and places that affect body and image schemas. These schemas have also been found to construct our individual and social identities and how we view and treat others. As an increased population on the move in the age of unsettlement affects local cultural institutions, ecological constitutions and the ontological sense of belonging, the need for more and new types of places for collective life and broader understanding of the common world will arguably increase.

What is perceived, communicated and understood is a crucial aspect of intersubjectively lived experiences and narratives. As spatial designers are co-authors of places, this also begs the question of what narratives current places support, and which stories they *could* support in order to shift towards, and beyond, sustainability. Bachelard eloquently claims that "inhabited space transcends geometrical space" (1994 [1958], p. 47). In other words, that the experiential and lived dimensions of space, i.e. Agnew's sense-of-place, cannot be described through Euclidian measurements.

Beyond measurements, the embodied experience of a place is lived in the mind's imagination and its schematic associations which help build threads of intersubjectively held metanarratives. As a core element in regenerative theory is to shift narratives towards an optimistic view of socioecological relationships in place, it then begs the question of how regenerative spatial practices and places convey an optimistic ecosociospatial narrative. This question, on a more basic level, relies on answering if places can, or do, have "optimistic or pessimistic personalities" (Kidd, 1992, p. 4).[6]

[5] See section 2.2 & 2.6

[6] Kidd argues that a narrative's optimistic or pessimistic personality determines its impact on shifting attitudes and habits towards sustainability. (see section 2.2)

4.23 Spatial Practices of Placemaking

Much of the work of spatial designers consists of managing the intersection of technology and materiality with space and place (Moore, 2001). It is uncontroversial to claim that central to spatial design lies the aim to create spatial experiences that are meaningful to individuals and societies; if one compares this to discourses on space and place,[7] one can safely say that placemaking is an act that lies at the heart of the practice of spatial design.

Placemaking is a spatially bound mode of sensemaking and world-making, and is bound up in the notion of sense-of-place. The acts involved in making a place are an interplay of measurable and immeasurable aspects, function and perception, chance and planning, presence and absence. Though placemaking is a spatial practice undertaken by all who use a space, the spaces made by spatial designers have an influential role in how the act of placemaking plays out. It is a development of the physical landscape through a co-creative process that happens through time and place specific decisions and acts of designers and non-designers. This interplay, Thackara argues, harbors great opportunities for addressing the complex problems of a technologically embedded society facing an ecological crisis.

> Design does not take place in a situation; it ***is*** the situation. As planners, designers, and citizens, we need to rethink our spaces, places, and communities in order to better exploit the dynamic potential of networked collaboration. (Thackara, 2005, p. 99)

Agnew's observes that sense-of-place is the base for community activism (Agnew, 2011), and hence a strong base from which to take actions towards socioecological well-being through the experience of "positive co-benefits" (Clayton et al., 2014, p. 33) discussed earlier. This point also ties in with the critique of the three pillars approach to sustainability coming from a social studies perspective (Seghezzo, 2009). Such a perspective argues that there must be a more substantial consideration for place, time and identity when devising an approach towards and beyond sustainability. From a review of cognitive sciences (Havelange, 2010), it is also clear that the social realm is not something that only happens between people; sociality is dependent on a third element[8] – a place and/or object– and is heavily influenced by body schema and image schema formed by our embodied interactions and interpretation of third elements and others.

Sense-of-place is described as an intersubjective experience influenced by a culture's ontological understanding of 'quality of life' and 'the good life' through its poetic relationship to 'being' (Moore, 2001, p. 47). This cultural understanding of 'the good life' is a metanarrative played out and represented through places that they feel a particular attachment to. Place attachment, which Agnew calls sense-of-place, is particularly relevant in addressing the ontological alienation present in the age of unsettlement through its connection to a sense of 'belonging' in the world.[9]

[7] See section 2.31
[8] See section 2.41
[9] See Agnew (2011) for a discussion on this.

4.24 Regenerative Potential of Publicly Shared Spaces

Public space is often seen as common spaces for collective life; this makes them particularly relevant when speaking of 'our common future' (Brundtland, 1987). Like all spaces, they can both affect behavior and identity. However, they have a particular potential for influencing larger groups when their location and locale support not only public access but also public use. Through their effect on our intersubjective experiences, such as sense-of-place and sociality, they also have the potential to influence shared attitudes and identities, which in turn underpin the very existence of paradigms.

There are many voices that claim that public space is "an essential ingredient in the sustainability of cities" (Tonnelat, 2010, p. 84), however, its traditional definition and forms as publicly owned space have been challenged by modern shifts in urban settlement norms and patterns. Public spaces are traditionally symbolic and practical nodes for social being and intersubjective experiences. Within a modern democratic ideal, they are places where self-expression and communal values are expressed, developed and represented across and through the passage of time. In this idealized form, they are also social spaces that allow for spontaneous meetings and gatherings outside of the private realm and are a vibrant stage for 'the good life' to be explored, expressed and enjoyed.

The classical form and definition of public space as outdoor spaces that are owned and managed publicly has been challenged by changes in forms of urban settlement in our times (ibid.). Not all publicly owned spaces support the iconic values that one would like to associate them with, and sometimes semi-private, private-public, and privately owned spaces are used as public domains for sociality. How much of an intersubjective experience a space can support arguably depends more on access and use; for this reason, Stéphane Tonnelat (ibid.) argues that public space should rather be defined by how accessible a space is to the public.

To remain focused on the shared aspects of public space, in particular the intersubjective experience of place, this study leans on Tonnelat's argument that public spaces are, today, best defined as spaces that are publicly accessible. This study, therefore, focuses on places that are on some level accessible to, and shared by, the public. However, to not confuse these with more classically defined public spaces, I therefore call them *publicly shared spaces.* This study is therefore also a reflection on the notion of 'public space' based on how a space affects identities and acts in, and of, the shared spheres of urban living.

4.25 Regenerative Waste-Resource Relationships

As has been made clear in the discourse on the age of the ephemeral and the age of ecological awareness, socioecological well-being relies on the sharing of resources equitably across social and ecological boarders. This, in turn, is directly related to the need to reduce the rate of entropy in waste-making and its physical presence in human and nonhuman habitats. Waste is generally thought of as something that must be removed from space, and as antithetical to the 'the good life.' But where do we move it to? The World Bank predicts that in the coming century both private and public sectors will increasingly need to take on responsibilities "for waste generation and disposal, specifically, product design and waste separation" (Hoornweg & Bhada-Tata, 2012, p. 3). Additionally, they predict that 'urban

mining' is likely to increase in the coming century. With these predictions in mind, I assert that spatial designers need to address how their particular practices could affect and be affected by considering waste as a resource, a source of life and a design inspiration in the creation of meaningful spatial experiences, i.e. places and processes of placemaking.

Lyle's (1994) initial treaty on regenerative design, has been the base upon which other theories have been built. At its core lies the imperative to alter linear waste-making systems into systems that treat waste as a resource conversion and "returning energy to the source" (P. Mang, 2001, p. 3). Human activities that benefit and mimic ecosystems need to be the basis for the new narrative. While regenerative solutions are not limited to deriving more effective[10] waste-resource systems, the incorporation of processes and thought (Lyle, 1994) that reformulate waste as food for the biosphere or the technosphere (McDonough & Braungart, 2002b) is something that must be considered in any regenerative project. A regenerative place is then, arguably, one that changes the ephemeral rhythm of the life and death of objects through our individual and social lives. As waste is something we generally push away from our living spaces, I also reason that the storage, use and processing of waste is the least desired aspect of a regenerative system in publicly shared spaces and spatial design; it therefore presents an interesting challenge and point of query.

4.3
The Quest in Question

The grander intention of this study has been to explore the abilities of spatial design, spatial practices and spatial manifestations to influence paradigms and define what socioecological well-being in a world beyond conventional sustainability looks like. Through a series of focalizations described previously, this original intent has landed in a quest to discover and develop characters and qualities of spatial practices and experiences that transform publicly shared spaces into places and contribute to a shift towards regenerative waste-resource relationships in individual and social lives. More specifically the quest is framed, in the following manner:

> How can potential and existing confluences of the practices and phenomena involved in transforming space-into-place and waste-into-resource support intersubjectively lived experiences of regenerative socioecological well-being?

This is an inquiry into our relationship to, and the relationship between, that which we move through and that which moves through our lives and into the lives of other human and nonhuman beings. Place and waste are, in many ways, treated as binary opposites in the conception of 'the good life.' Place is a space which has become meaningful and valuable to how we connect with and make sense of our surroundings. It is a space that plays an important role in 'the good life', both as something we wish to associate with and to have

[10] As opposed/in addition to being efficient.

near our homes and community centers. Waste is a resource which has lost its value and meaning in daily life and industries. In this loss of desirability and/or usability, we shun our association with it and desire to move it as far away as possible from the spaces we inhabit.

When conceptual and physical relationships become meaningful to us on a psychosocial level, we consider *space* to be *place* and *waste* to be *resource*. By focusing on how something as socially repulsive as waste can contribute to meaningful experiences of places and spatial practices, regenerative placemaking is pushed to its limits thereby leaving opportunity for reflection on its qualities, characteristics and principles. The overall quest of this design inquiry is, therefore, to discover narrative potential within these types of spatial practices. It is also to delineate operative principles related to these in order to contribute to regenerative spatial design thinking and practice. And thereby facilitate the creation of corporealities that embody and help realize a future age of socioecological well-being.

4.31 Questions for the Quest

The quest is initially broken down into three guiding questions:

~ What is the character and quality of spatial narrativity in places open to public use with regenerative waste-resource practices and elements?

~ What does this tell us about the potential use and development of regenerative design and spatial narrativity?

Which are meant to inform:

~ What key principles and poetics enable the identification and creation of regenerative places and the enactment of regenerative placemaking?

However, it is not the intention of this study to make a full inventory of all possible expressions and implementations of regenerative placemaking, but rather to identify regenerative ecosociospatial elements that are generated by the syncretic pairing of waste-resource to space-place transformations and what these can reveal about the goals and means needed to move towards sustainability.

4.4
Poetic Bases of this Method Assemblage

While, at first glance, it could seem reductionist to summarize spatial design as the art of making places and regenerative technics as waste-resource practices, it is not my intention to imply that these two aspects are the ontological constitution of regenerative placemaking. Instead, the transformations and corporealities of spatial and waste are used to search for possible-impossible poetics and narrativity in the confluence of these polarities. Each space chosen for rumination and experimentation therefore includes some manifestation of waste-

resource conversion along with some aspect of public living. As has been pointed out previously, these polarities are two important characteristics of regenerative design's proposal for moving beyond conventional sustainability.

4.41 Spatial Syncretism

From reviewing descriptions on syncretism[11] and its relation to the narrative qualities of space and design, one can argue that syncretism is the act of *merging* opposing concepts into "a new whole" (Janssens, 2012, p. 227). This strategy of pairing polarities, I argue, aligns with the need to create new meaning through the combination of conflicting values and needs, even opposites, in the journey towards and beyond sustainability. It is for this reason that this design inquiry explores a variety of ways that the opposing concepts of waste and public life can share space and be experienced as place in the following chapters of empirical investigation. When, as in this case, syncretism is a form and method of spatial poetics I have suggested we call it spatial syncretism.

4.42 Poetic Measurement through Schema Derivation

Schema derivation is a poetic method that acts as the base of this design inquiry's method assemblage. In chapters five and six, two performative methods (*the Directed Dérive* and *pedagogically framed projectivity* respectively) are developed and used to elaborate and explore the consequences of this initial poetic move. These performative methods are based on design research and practices that spatial designers use to derive design schemas for the collection, communication and transfer of design knowledge. I have previously reasoned that schemas can be seen as a narrative unit of knowledge with bearings on spatial poetics, and will now describe how these can be seen as a form of poetic measurement of placemaking and placehood.

4.43 A Measure of Poetics in Regeneration

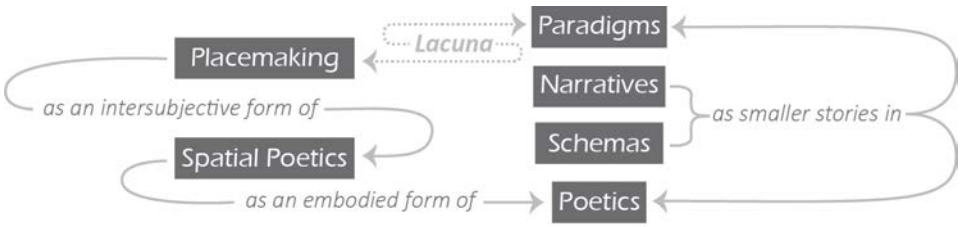
I understand spatial poetics as an expression and creator of meaning and emotions in a place; it is its embodied narrative of care and being in space. Central to regenerative theory is the focus on fostering positive emotions and meaningful experiences in places that foster socioecological well-being. As I have discussed earlier, place is in many ways poeticized space. For this reason, the type of measuring most relevant for placehood is one that detects spatial poetics. Wim Goossens, Nel Janssens and Arnaud Hendrickx (2016) definition of 'poetic measuring' is helpful in this regard.

> Poetic measuring frames encountering as an activity of measuring, the body as an instrument for measuring and embodied memories of earlier experiences as units of reference. (Goossens et al., 2016, p. 7)

[11] See section 2.52

This also aligns well with how the use of personal and design schema can be seen as a unit of knowledge in design thinking and processes.[12] I have further come to understand a schema as a condensed abstraction of core elements of a narrative and knowledge assemblages. Poetry can also be said to be an emotive and abstracted form of narrativity. This suggests that detecting and defining narrativity and schemas present in places and placemaking is a type of poetic measurement.

The presence and crossover of narrativity and schemas between different areas of inquiry in this study, not least of all in relationship to paradigms, further substantiates a divergence from more standard methods of measuring and towards an exploration of how to measure through acts of 'encountering' (Goossens et al., 2016, p. 7). More specifically, I have set out to encounter regenerative expressions in the nebulous but potentially strong correlations between paradigms, narratives, schemas, poetics, spatial poetics and placemaking. The following diagram (fig. 4:1) illustrates my understanding so far of this field of narrativity:



(Fig. 4:1) My understanding of the relationship between paradigms, narratives, schemas, poetics, spatial poetics and placemaking derived from exploring and developing this discourse.

I believe that in this relational field of narrativity one can detect forces of principles and actions that can help to bring about the paradigm shift that is needed to take us beyond sustainability and towards regeneration. Using this reasoning as a base, the following chapters aim to trace the practice and identify units of poetic measurement for regenerative placehood and placemaking.

[12] See section 2.4

Contributions to Language & Concepts

The (Un)Known	A realm or thing that is both known and unknown. A term that is used to indicate the value of reexamining what is 'known'. It is the idea that not only seeks to know what is unknown but also to unknow what is known – to rethink realities as we know them and acknowledge that realities are continuously shifting.

PROBING PROTO-REGENERATIVE SPACE

Summary of Chapter 5

This chapter presents an overview of key insights, characteristics, and questions that emerged from visiting over twenty of what I call proto-regenerative spaces. Among these insights is the identification of a method for probing places: the Directed Dérive. It includes a selection of narratives that emerged from using this method in my interaction with the spatial practices present in these sites.

The intention has been to see the effect of manifestations of waste as resource in different spaces where people gather and/or activities that are publicly accessible. Each visit is, in this way, an exploration into a type of syncretism, i.e. the combination of two spatial conditions that are conceptual polarities, in order to develop the poetic potential within schemas of publicly shared spaces where waste is regarded as a resource.

The chapter concludes a summary a reflection on methods used, public access and the powers of attraction and engagement, i.e. intentions and roles communicated to the visitor by the different places.

5.1
Exploring Regenerative Spatiality through Proto-regenerative Spaces

As theoretical connections were explored within the lacuna through textual resources, corporeal situations were also used to explore and ponder these connective theories further. As the design inquiry developed, attention was paid to any opportunity to visit publicly accessible spaces that exhibited some evidence of waste being treated as a resource. Not only was this to find sites that could be used for projective exploration, i.e. a basis for chapter six, but also to ponder the *feeling* of regenerative waste-resource systems in publicly shared spaces. In these visits, the goal was primarily to find inspiration, potential for and the existence of component parts of regenerative spatial practices, narratives and placemaking, as well as opportunities for poeisis through 'projectivity' (which will be described in the following sections). Only later did it become clear that this was a method for the exploration of subjective components of schema formation and placemaking.

These visits were initially conducted with the sole intention of ruminating on aspects of discourse and project development, chapters 1-3 and 6. In other words, they were not intended to be presented independently as they are here. However, through the compiling of insights on regenerative placemaking, it became clear how integral these visits were to this design inquiry. It also became clear that the way in which these sites were approached was a form of performative research methodology that could be called a ***Directed Dérive.***

I have chosen to call these sites ***proto-regenerative spaces*** in this dissertation. The intent is to make clear that this study does not assume, nor claim, that the combination of waste-resource and publicly shared space-place relationships necessarily makes a regenerative place. Their presence simply indicates, to me, that two key qualities of placemaking and regenerative principles are at play in a certain location, and their confluence are worth investigating in regard to regenerative placemaking practices. As explained earlier, one can also see the confluence of these polarities as a potential for spatial poetics through syncretism.

This chapter begins with the background and general principles of the Directed Dérive as method, followed by how the Directed Dérive was used specifically in this design inquiry. Whereupon a selection of the proto-regenerative spaces visited are described at varying levels of detail but always with a focus on describing the narrative understanding derived from the visit(s). It will then conclude with a reflection on roles of waste-resource interacted with place and on the Directed Dérive as method. These visits led to a wealth of thoughts and ideas, some of which must remain as potential for further study. Others have been developed and complemented by thoughts and ideas that emerged from this design inquiry's discourse development and projecting of regenerative place.[1] The most significant of these will, therefore, be summarized and reflected upon in chapter seven and eight as a conglomerate outcome from chapters one through six.

[1] Discourse development in chapters 1-3. Projecting regenerative place in chapter 6.

5.2
Methods...Applied & Derived for subjective explorations

Through examining the way visits were conducted, a pattern of how I found and approached proto-regenerative spaces emerged. This pattern was revealed through previous professional experience[2] with subjective cartography and performative mapping, which is also used in one of the projective explorations in chapter six.[3] Furthermore, it became clear that this pattern of discovery and exploration represented the way spatial designers build knowledge through encounters, i.e. poetic measuring (Goossens et al., 2016), and how these encounters inform and form their schemas of spatial experiences and practices.[4]

To navigate the immeasurable qualities of a place, the designer often operates from a collection of subjective experiences, observations and activities within and around a space. Rather than quantifying the separate experiences by objective means, the designer operates from her own subjective experiences and observations of activities of others' within and around a space. These subjective and sensory experiences are a type of explorative probes into messes of realities and are part of the practice of collecting and developing design schema. I have therefore defined this pattern as a performative research method for probing places that singles out particular aspects of spatial experiences to *drift* towards if and as they appear: the Directed Dérive.

5.21 Background: Origins of the Dérive

As the name implies, the Directed Dérive is an interpretation and development of the Dérive used by Situationist International (Debord, 1956, 1957).[5] I have chosen to keep the French term 'dérive' over its English translation, 'drift,' for two reasons: first, to connote the Directed Dérive's methodological heritage; second, the ultimate purpose of a Dérive is to *derive* (English meaning) a deeper understanding of the human experience of being in a place.

The Situationist International was an avant-garde group with members who came from and operated freely across realms of art, design, architecture, urbanism and politics. The transdisciplinary origins of the Dérive aligns with definitions and parameters of a

[2] In 2007, I conducted a workshop with artist Liz Kenueke on subjective cartography and performative mapping for architecture and urban planning students at Escuela Técnica Superior de Arquitectura de San Sebastián (ETSAS) in Spain. One of the exercises in the workshop we called a *Dérive of the senses*. Students were given instructions to walk an area several times, each time picking one sense to follow and map how different their journey was if they followed the attractions and repulsions given to them by that particular sense, i.e. their Dérives were directed by one sense at a time. The identification of the Directed Dérive as method comes from similarities between this 'Dérive of the senses' and the way in which proto-regenerative spaces were explored.

[3] Spatial design students were introduced to various subjective cartography and performative mapping methods for engaging people in public participation and co-creation (see project 6.34).

[4] See section 2.51

[5] The Situationist Dérive was first developed by the Lettrists International with Guy Debord as its key proponent and was carried over and developed by him into the later formed group Situationist International during the late 1950s. (Sadler, 1998)

performative research paradigm and method assemblages discussed previously in this dissertation.[6] Today, the Dérive is primarily being used in artistic projects, but is also occasionally used in spatial design practices.[7]

The Situationists developed and used the Dérive as an active revolt against the rationalization of lived space (and negation of place) in the modernist movement and the scripted life bounded within it by tradition, habit, schedules, and function (Sadler, 1998). Guy Debord (1956) describes the it as a method for the exploration and, more importantly, creation of lived situations outside of scripted norms through "playful-constructive behavior and awareness of psychogeographical effects" (ibid., p. 1). The Dérive had three purposes:

1) to reveal unexpected phenomena
2) to derive (English meaning) an understanding of underlying patterns of experience
3) to enhance these experiences of the physical landscape

Guy Debord explains the general principle and practice of a Dérive:

> In a Dérive one or more persons during a certain period drop their relations, their work and leisure activities, and all their other usual motives for movement and action, and let themselves be drawn by the attractions of the terrain and the encounters they find there. (Debord, 1956)

Debord explains that the key elements driving the Dérive were "psychogeographical contours" (1958, p. 1) of lived situations in (urban) environments, and the mapping of these contours was a way to "[discover] unities of ambiance" (ibid., p. 2). Through the joining of the word *psyche* with *geography* one can see parallels with what cognitive scientists today call *embodied cognition,* i.e. how the body and mind jointly interpret and create our experiences, thoughts and actions in the physical world (Kahneman, 2011). This suggests an interesting relation to the embodied natures of body and image schema[8] defined by cognitive scientists that correlate to discourses in phenomenology.[9]

In essence, the Dérive is a method for understanding and illustrating the phenomenological aspects of place experienced through image and body schemas. Debord's description of psychogeographical articulations is reminiscent of descriptions of sense-of-place as a "structure of feeling that pervades Being in a particular place" (Moore, 2001, p. 47).[10] Conducting a Dérive involves allowing one's subjective emotional reactions to places guide the discoveries of phenomenological effects of urban flows and structures. Through the Dérive, the Situationists built an experience and understanding of the city by allowing the city's effect on them dictate their movements.

Chance is put into play in a Dérive through 'probing.' Probing is a method often used by design and artistic researchers (Koskinen et al., 2011). A probe documents what emerges from the assemblage of information and experiences available, rather that mapping and hunting down all the facts. By allowing chance encounters to reveal realities of a place through acts of

[6] See sections 0.21 (performative research) and 0.3 (method assemblages).
[7] I have used it in both of these realms.
[8] See sections 2.41 and 2.42
[9] See section 2.4
[10] See section 3.32 on Agnew's three aspects of place.

probing, the researcher can approach a hypercomplex situation that is initially overwhelming and allow the situation itself to reveal patterns and aspects that are worth further investigation.

Debord tries to deal with the domination of chance in the Dérive and excuses it as an effect of the "[infancy of] psychogeographical observation" (Debord, 1956, p. 1). He argues however, that an objective knowledge about hidden structures of a city can be derived through layering Dérives from separate individuals. I take a slightly different stance on this logic: while some hidden structures of a place can certainly be objectively detected, the layering of multiple subjective encounters to see where they coincide will more likely uncover intersubjective rather than objective structures.[11]

One can also argue that the dominance of chance encounters in the Dérive, which Debord wishes to ameliorate, can be seen as a strength rather a weakness. Experiences in this design inquiry suggests that allowing for chance encounters makes the Dérive a method which approximates more closely the way in which places are revealed and how they engage visitors in everyday life. This is due to the fact that chance encounters are arguably the building blocks from which subjective and intersubjective narrative understandings of places are built.

5.22 Deriving the Directed Dérive

Where a Situationist Dérive is guided by chance encounters with any phenomenon that "discourage[s] entry into or exit from certain zones" (Sadler, 1998), the Directed Dérive is a journey guided by chance encounters with select phenomena which directs one to enter, exit or stay in a particular zone. Where the Dérive asks you to open your senses and follow *whatever* impulse (other than habit) directed by them, the Directed Dérive chooses which factors to react to and asks you to follow whatever impulse *it/they* give you.

In a situationist Dérive "the participant in the constructed situation [is] an autonomous agent within the structure of the work and not [being] limited to enacting a predefined script is key" (McGarrigle, 2010, p. 57). In the directed derive, however, there are criteria, which is a script of sorts, but it does not predetermine a path. Like the Dérive, it explores emergent phenomena through chance encounters. The difference is that the participant tunes in to certain predetermined aspects and follows these as far as they lead if, and as, they arise. One can see it as a type of way-finding method for exploring and discovering certain types of places and/or aspects of them, including the stories that the places tell a visitor. In this way, it can help one to understand how a place reveals and conveys its purpose and intentions to an individual.

The Directed Dérive, as used in this study, allows the stories of a place to reveal themselves through probing a site in the way an interested visitor might do. It allows qualities and characteristics to reveal themselves through chance encounters with people, information and objects. A visitor typically builds an understanding of and connection to a place through these types of chance encounters, not through collecting all 'the facts.'

The Directed Dérive, in this study, also gauges how chance encounters in these complex environments invite a visitor into a place, engage them and entice them to stay for longer periods and/or come back. This emotional attraction is the precursor of the attachment and care involved in a space being understood as a place in its fullest meaning. One can therefore

[11] The difference between objectivity and intersubjectivity is discussed in section 2.2

understand it as an important mechanism of placemaking. One can also see this attraction as the precursor to a feeling of intimacy that leads to a sense of well-being in a place, as does Bachelard:

> I…put my trust in the power of attraction of all the domains of intimacy. There does not exist a real intimacy that is repellent. All the spaces of intimacy are designated by an attraction. Their being is well-being. (1994 [1958], p. 12)

Attachment and engagement over time are not only qualities that help to build a sense-of-place but are also "necessary prerequisite[s] for social solidarity and collective action" (Agnew, 2011, p. 24). By gauging these qualities through methods such as the Directed Dérive, one can begin to understand this particular and potential effect of placemaking.

This method of allowing for chance encounters with a directed attention, rooted in predisposed interests, is similar to how spatial designers often explore places and activities when entering into a design situation or collecting schemas, i.e. building their design vocabulary and knowledge. This is an important way in which design schemas are built and developed through a type of directed chance encountering, which can also be related to the notion of poetic measuring (Goossens et al., 2016). The Directed Dérive, as well as the original Dérive, are methods that bring the poetics of lived experiences of space to the forefront and develop knowledge through encountering.

One could argue that through probing, testing and recording the human experience of a place in different situations, it is possible to predict the probable experience of identity in similar situations. However, absolute reproducibility and predictability is implausible. Each place and person can reliably be said to have an identity, and yet each one of us will experience and define that identity in varying degrees of accordance and in relation to a myriad of variables over time. Rather than being factual, the knowledge gained in a Directed Dérive (and a Dérive) is an understanding of the possible assemblages of phenomena in a particular situation, which in turn suggests the possibility of other assemblages of phenomena in related situations. The Directed Dérive simply allows one to be more selective of which phenomena to follow if and when they arise.

5.24 The Directed Dérive as Autoethnography

The way in which the Directed Dérive has been conducted in this design inquiry is arguably an autoethnographic approach. In ethnography, researchers often observe the behaviors of subjects through participating in their lives; a method called 'participant-observation'. Autoethnography builds upon this tradition, however it is the researcher's *own* lived behaviors and thoughts that are observed and documented while living them (H. Chang, 2008).

The intention of a narrative is to engage the reader, invite them to participate in the experience through explaining what was seen and experienced by the researcher (Connelly & Clandinin, 1990, p. 8). An autoethnographic way to do this is to focalize through first-hand accounts of experiences and perspectives. The accounts in the following cases have been documented on site with photographs, field notes, sound and film recordings as well as some sketching. The documentation of my behaviors and thoughts are complimented by conversations on site with organizers and visitors, as well as from leaflets or internet webpages.

Autoethnography relies not only on personal field texts, images, drawings, stories of others, etcetera,[12] but also use the *memory* of the experience (H. Chang, 2008). Through actively using recall and memory the autoethnographer places an importance on 'the whole'. This is significant in relation to inquiries that involve narrativity as reading and writing are said to be "driven by a sense of the whole" (Connelly & Clandinin, 1990, p. 7). Orienting oneself towards finding this 'sense of the whole' through memory is also said to be an effective way to derive the schematic qualities of a narrative (H. Chang, 2008; Connelly & Clandinin, 1990); it does so by blurring minutia and revealing more general schematic outlines of a lived experience. In seeking a way to communicate these narratives, the use of memory as a distiller of multiplicity has been crucial in this design inquiry.

However, using memory also carries inherent dangers of subjectivity that tend to omit and add things to recollected events (H. Chang, 2008). Extra care needs to be taken to avoid portraying subjective accounts as objective facts when communicating one's experience, while also being extra cautious of omissions or additions that may be essential or extraneous to the whole. The precautions taken in this design inquiry have been to make clear my personal background and intentions. While also alerting that the descriptions should be seen as pre-studies of elements contributing to intersubjective narratives of regenerative placemaking and placehood.

5.25 Principles & Guidelines Directing *this* Dérive

The following list of guidelines is distilled from how I interacted with most[13] proto-regenerative sites, which led to the identification and definition of the Directed Dérive as described previously. The guidelines seek to reveal how a place engages a visitor's interest and enrolls them in an activity on site. From the guidelines developed specifically for this design inquiry, three generalizable principles for how to set up a Directed Dérive emerge:

General Principles for Setting up a Directed Dérive

1) Site Selection and invitation:
How to select and qualify whether to visit.

2) Encountering and staying:
How to determine the level of engagement during a visit and what makes one stay or return.

3) Allowing for involvement and poeisis:
How to determine whether one gets involved in existing, or proposes new, spatial practices.

The following set of specific guidelines can be seen as the way in which these generalized principles were actualized in the proto-regenerative spaces studied in this design inquiry. Within these guidelines for interaction, I allowed the powers of attraction through my social and bodily senses to guide me through the experience. These, along with practical factors such

[12] See (H. Chang, 2008) for a more detailed description.
[13] Exceptions to this are: the municipal RCs visited as part of the projective explorations (chapter 6), i.e. Alelyckan and Bråta, were guided visits from staff on site that I organized for students.

as time, determined the length of my visit and my involvement in the situations I encountered. Though there were practical limitations on the length and level of engagement, the Directed Dérive still revealed the opportunity for, and a desire to, return or stay for a longer period.

Guidelines Directing *this* Dérive...

Site selection...

... is intimately tied to *The Invitation*, however it is the selection criteria which helps to determine whether to respond to *The Invitation* or not. My first attraction to a site is determined by whether there is a presence of waste being treated as resource in a publicly shared space.

The invitation...

...is the moment that a place makes itself known to a member of the public and communicates that it welcomes visitors. A site may make itself known and invite visitors through its physical form, an ongoing activity, special event, or through information spread via word of mouth or other media (such as a magazine article, website or flyer).

The encounter...

...is the step taken by the visitor after the initial invitation and is a transitionary stage that potentially leads to deeper engagement. It is when I, as a visitor, make a move to engage with the space or activity that has invited me in. My initial encounters have happened either through conversing with organizers of activities via email or through visiting the site unannounced. In the encounter, I allow my social and bodily senses to guide me. These tell me what kind of interaction and engagement the place asks of or offers to the visitor.

Staying...

All subsequent encounters with spatial qualities and social activities in a place then dictate the length and level of involvement of a visit. This requires an ongoing alertness to what qualities repel and attract my interest in staying and is intimately related to *Allowing for Involvement and Poeisis*. Even if I cannot stay in a place due to practical restraints, I notice what makes me want to stay longer and/or return. I do not get involved with any activity unless given verbal or nonverbal cues to do so.

Allowing for involvement and poeisis...

How involved one gets with any activity on site, or in changing the site depends on one's personal background and intentions for visiting the site in the first place. Though this 'step' is presented as the final element of a visit in this text, temporally it can occur at any point in time in the Directed Dérive, even at the time of initial invitation.

I have gotten involved when invited to participate in ongoing activities of waste-resource transformation. This is usually the point at which I discuss who I am and my personal interests. My professional background and research intent created an inherent interest in opportunities for designerly or artistic involvement, i.e. performative acts of poeisis. However, I did not act on inner visions unless the site/organization offers an opportunity, or asks me directly, to do a project with them that draws on my personal skills or talents. When these opportunities were specifically instigated by my skills and experience, i.e. the practice assemblage of me as a spatial designer, I have included them in the next chapter as a projective exploration. Due to time limitations, I did not act on every invitation, but the fact that the invitation existed shows the openness of a place to public involvement and co-creative efforts.

5.3
Distilling Impressions of Proto-regenerative spaces

A full description of each proto-regenerative visit and place is both impractical and counterproductive to the purpose of conveying a narrative. What follows are therefore condensed extractions of what was experienced in the probing of proto-regenerative spaces. Memory, described earlier as part of autoethnographic methods, has been a crucial tool in identifying that which lies central in my experience of the places. It is reasonable to conclude that these central elements, i.e. the lasting impressions, that remain after a visit are a representation of core elements of that place's narrativity and identity, and are key qualities contributing to its sense-of-place. While the levels of detail differ, each description seeks to convey the sense-of-place through a composite narrative. Occasionally this is expanded upon with key happenings and spatiality that left a lasting impression and informed my understanding of regenerative placemaking.

Reducing a longer narrative to a shorter one through memory is arguably a crucial step towards deriving schema(s) of the proto-regenerative spaces themselves, as well as for using in the projective exploration of what a regenerative place could be. From all of this, I have acquired a deeper understanding of the ways spatial narrativity and schemas are experienced and developed. In the work of building stories from proto-regenerative experiences, the nonsequential nature[14] of a spatial narrative has become a poignant insight. This nonsequentiality is due not only to the fact that multiple experiences enter via differing senses upon each visit and a multitude of possible narratives could be constructed depending on one's focus, but also because repeated visits layer upon each other to create one's overall sense of the place. To communicate this most clearly, a composite narrative must be constructed that is accurate in its message and content, yet not in the sequence in which it is presented. The constructed story from memories of composite experiences, can in this way be seen as a truer description of the sense-of-place than a factual sequence or record data.

I discovered this through repeated failures in my attempt to construct and communicate the experiences of proto-regenerative spaces for this chapter. This reminded me of something that Barbara Czarniawska once said about narratives in a lecture: "who is doing what is always less interesting than what is going on" (Personal Communication, 25-1-2016).[15] In other words, the stories had to become much more experiential than informational.[16] The following narratives therefore focus on impressions and reflections on what happened in the spaces. However, this process of testing different ways to summarize and communicate experiences contributed to a development on the understanding of ontologies in regenerative thought in

[14] First discussed in section 2.42

[15] A lecture on Actor-Network Theory (ANT) that was developed through and for STS research.

[16] At first, I made charts to express commonalities and general principles across sites (see Appendix VI). However, these killed the experiential qualities that lay behind the categories and subcategories. They were then complemented with a description that mixed objective fact and subjective feelings. See (Östlund, 2017). I presumed that the broadest mix of information types would give the truest picture, and yet it did not.

relation to Brown's (2009a) regenerative knowledge bases and Law's "ontology of relationality" (2004b, p. 2). These insights were developed further through projective explorations in the next chapter and leading to reflections on regenerative ontologies in this dissertation.[17]

5.31 The Situated Self & Glocal Conditions

The situation is multiple as is the self, so let us begin by unravelling a few of the basic elements of these. The full narrative of a designed and built landscape is a co-creative meeting of a spatial designer's realized imagination with the lived (embodied and situated) imagination of the users of a place. All users of a place have an experience which is influenced by their history and situation in life. To say I could ever view these places objectively would be a distortion of reality. The autoethnographic understanding of these places is, therefore, unabashedly influenced by my design and artistic imagination, research interests and personal ways of engaging with people and place.[18] Physical, social and practical circumstances determine my length of stay in any particular place, including who I am as a visitor.

As discussed at the beginning of this chapter, these places were approached with a curiosity to understand them from a visitor's and user's perspective, as well as seek possibilities for poeisis, i.e. bring forth a situation or quality through a design or other form of creative intervention and serve as a basis for the projective explorations. This autoethnographic enactment of a Directed Dérive, as previously suggested, are derived from acts of me as a spatial designer undergoing the designerly process of developing schema of possible and encountered realities that could be further developed through a project. By being open to chance encounters in the direct Dérive (previously referred to as S*ite Selection and Invitation*) the sites span a broader geographical area (fig. 5:1) than had been anticipated from the onset of this design inquiry.

The site locations have been determined by my personal movements, interests and opportunities (in and outside of work). For me, they jointly illustrate the globally interconnected living many people experience today. While not everyone has the privilege to have travelled as widely as I have, it is not unusual either. One can see this as an example of the hypermobility that Thackara (2005) speaks of in his discourse on the age of unsettlement.[19] It also relates to what one could call a glocal experience that many of us have of the places we spend time in. No longer is the context of a place only the adjacent and surrounding built and natural landscapes, there is also a global context which comes into play as places are populated and used for periods of time by people like myself. This global context is more ephemeral and partly created through the associations we make to other places we have visited in the world, but also through the way in which our presence as a foreign agent in a place adds a layer of identity that local inhabitants associate with the place.

However, the glocal relationships in these proto-regenerative spaces is compounded by the waste one encounters within them. Waste is an integral part of, or effect of, local use, attitudes and habits in a global spatial network of commodities. Not surprisingly, the waste encountered in these spaces were most often made in various locations around the world,

[17] Begun in section 3.33 and concluded in section 8.53.
[18] Which is divulged in preceding chapters, particularly chapter 4 and chapter 0.
[19] See section 1.2

not to speak of the network of extractions of resources that it was made from. It is therefore reasonable to assert that most waste-resource relationships have a glocal quality and character. I cannot help but associate this with the classic phrase (or slogan) 'Think globally, act locally.' This phrase can also be classified as a schema of a metanarrative that has emerged in the later decades of the age of ecological awareness we are living.[20]

(Fig. 5:1) The locations of the proto-regenerative spaces visited in this design inquiry are spread between five countries. Each dot in the adjacent map represents one or more locations. The spread of locations is a function of the hypermobility of my life and using chance encounters to guide me towards proto-regenerative sites of interest for this design inquiry.

One can see this as adding another layer to Moore's (2001) description of technology as spatial networks of material and knowledge interactions.[21] In essence he argues that technology is a dimension of spatiality that is often overlooked. A waste-resource relationship may or may not be technological, however it *is* a set of material and knowledge interactions, and therefore most definitely technics. It is a technic particularly related to care. Waste can only be seen and treated as a resource if it is cared for in some way, and if there are people in the society who have knowledge on how to care for its collection, storage, reuse, repurposing, or metabolic re-composition.

5.32 Proto-Regenerative Spaces Visited with Dérives

The following places were visited according to the guidelines for this study's Directed Dérive. I have often contemplated whether this portion of my design inquiry in fact is one large global Directed Dérive or if it is a conglomerate of a number of separate Directed Dérives. My conclusion is that I have undertaken a global Directed Dérive that has spurred a number of local and place-specific Directed Dérives.

[20] See section 1.4

[21] He bases this on STS studies and discourses. (See section 3.24)

Kenya

Kibera Public WC & Community Kitchen, Nairobi
Kick Innovation Center, Kisumu
Masai Market, Kisumu

India

Waste Warriors Headquarters, Bhagsu Nag
Upper Dharamsala Clean, McLeodganj
Nek Chand Rock Garden, Chandigarh

Spain

Restaurant Semproniana, Barcelona
Restaurant La Camarga, Barcelona

Germany

Prinzessinnengärten, Berlin

Sweden

Ebba's Corner (Ebbas Hörna) Shop, Gothenburg
Emmaus Shop, Gothenburg
Things from Back Then Shop (Saker från förr), Gothenburg
Welcome Back (Välkommen Åter) Shop, Gothenburg
Myrornas Shop, Gothenburg
Barabicu Restaurant, Gothenburg
Brewdog Pub, Gothenburg
Materia Café, Gothenburg
Alelyckan Circular Systems Park (Krettslopspark), Gothenburg
Ale Recycling Center, Surte
Bråta Recycling Center, Härryda
Neighborhood recycling receptacles, Gothenburg
The Bike Kitchen (Cykelköket), Gothenburg
Chalmers Re:Cycle event, Gothenburg
ReTuren educational center, Gothenburg
Majornas Mega Flea market (Megaloppis), Gothenburg
Freecycle Exchange Event, Gothenburg
Community Allotment Gardens, Gothenburg
Stadsjord Urban Agricultural Garden and Market, Gothenburg
Frihamnen's Sauna, Gothenburg

5.33 *Proto-Regenerative Spaces Presented*

The proto-regenerative spaces portrayed in narrative form in this chapter have been selected according to the features described in the following list. To further distinguish these from other sections and projective explorations, I refer to their number as dérive numbers rather than section numbers.

Bhagsu Nag Waste Warriors Headquarters (dérive 5.34)

Activist interest / Educational interest / Tourist interest / Cleaning up community's public spaces / Grass roots answer to a lack of adequate waste management and culture / Maintaining recreational areas and landmarks of ecological and cultural importance / Main practice is recycling but also encouragement of up-cycling and reuse practices

The Bike Kitchen (Cykelköket) (dérive 5.35)

Activist interest (space shared by several groups working for socio-ecological paradigm shift) / Place of co-creative learning, repair and reuse / Product design interest / Connected to another proto-regenerative space (Chalmers Re:Cycle)

Prinzessinnengärten (dérive 5.36)

Activist and commercial interest / Urban agricultural interest / Community garden open to the public / Highest concentration of regenerative principles of any place visited / Emphasis on ecologically regenerative systems / Example of *Community Allotment Gardens* (fig. 5:40)

Majornas Megaloppis (Mega Flea market) (dérive 5.37)

Activist and commercial interest / Temporary marketplace / Event that transforms the experience of an entire district in a day / Improves local private and business economies / Example of *Marketplaces* (fig. 5:40) / Is connected to other proto-regenerative space-typologies visited (*Neighborhood Receptacles* and *Boutiques* in fig. 5:40).

Frihamnen's Sauna (dérive 5.38)

Architectural and urban design interest / Whole buildings and landscape features from waste / A regenerative approach to 'urban regeneration' (or urban renewal)

Two proto-regenerative spaces are portrayed in other parts of this dissertation to illustrate key points discussed there. However, they are none-the-less guided by the same Directed Dérive as described in this chapter. They are both an example of *Bars, Cafés, Restaurants* (fig. 5:40) and have been selected for very similar reasons, as seen below:

Barabicu (dérive 0.45)

Commercial interest / Relationship to adjacent public square / Architectural and interior design interest

Brewdog Pub (dérive 7.24)

Commercial interest / Architectural and interior design interest

I. Space-Saving Measures Used in the Following Narratives

~ A few abbreviations have been used for efficiency in the following narratives (listed in the order that they appear):

W-R = Waste-Resource
WW = Waste Warriors
SW = Sweden
CTU = Chalmers Technical University, Gothenburg, Sweden.
RC = Recycling Center

~ To understand, analyze and communicate the different forms of W-R technics on site, all of the possible terms have been boiled down into a basic list. The reasoning behind this selection is explained and discussed further in section 7.22:

Reuse: An object is used again for its original purpose.
Repurposing: An object is used again for a different purpose than it was originally created for.
Material metabolizing: An object reduced to raw material(s) to create an entirely new object.
Nutrient metabolizing: An organic material reduced to nutrients to enrich soil and plant life.
Remediation: A damaged or lost ecosystem, habitat or species is repaired or reintroduced.

~ Most photographs are taken by me with the exception of:

5:4 which has been retrieved from the public domain.
5:36 and 5:37 taken by Fernström. J (2015). Reprinted with Creative Commons permissions.

5.34 Waste Warriors at Bhagsu Nag

Situation: *Non-profit organization run with employee and volunteer labor to clean up the town and surroundings of Bhagsu Nag (commonly called Bhagsu), India.*
Financed by: *Donations, selling recyclable material, fee-based collection of recyclables from businesses.*
Type of W-R technic(s): *Mainly material metabolizing with some repurposing activities.*
Type of public access: *Temporary events in places with unlimited public access.*

I wake up early and walk out onto the small, terraced field in front of the WW headquarters. I can see my breath and the mountains surrounding Bhagsu gleam in the morning sun. We will be hiking up to the nearest peak, called Triund, in a few days to clean the hiking path and stay the night. The path is one of many nature paths that extend from the main roads of Bhagsu. I am told it just so happens that our hike to Triund will coincide with a Tibetan celebration for the Dalai Lama and a lot of Tibetan refugees will be there partying all night. But today we are carrying out a smaller excursion to clean up the valley leading to the town's main tourist attraction: Bhagsu Nag waterfall.

The WW staff stir and greet me with sleepy waves. We breakfast and start to collect all the materials in preparation for the volunteers who begin to arrive an hour later. We set out down towards the center of town where business owners are opening their shops and greet us, especially the WW staff, heartily. I ask if the business owners or other community members ever help out with the cleanup efforts. Tashi explains that strong community ties are essential to their work, however most locals are busy with running businesses and WW volunteers are generally tourists. Educating the children is their strategy to educate local adults and they have also recently begun a recycling pickup service with local businesses. One of her main jobs as the director is to constantly build knowledge and support of the "three Rs" (Reduce, Reuse, Recycle) in the local community. Her comment makes me think of the WW mural with this message that greets you on the winding mountain road to Bhagsu from McLeodganj, where the Dalai Lama lives.

The main street leads us windingly up to the nature path to the waterfall passing a jumble of shops, street vendors, restaurants and a temple. and a public pool. A chai vendor gives all of us a cup of fresh chai tea to warm us up and prepare us for the day's work. As we near the path to Bhagsu falls another WW mural appears with Hindu deities urging us to respect and to use the waste bins along the path. I learn that these bins are there thanks to a donation from a local hospital and are managed by WW. Tashi asks me if I would like to help freshen up another mural on the elementary school wall tomorrow, and I joyfully accept. She adds that they often do workshops for the kids and after school events as they see the children as the best way to educate the parents. As a result of my positive response to this, she decides to do an afterschool event while I am there. A couple other of today's volunteers enthusiastically ask to also join in on such an event. In these events, Tashi explains, each staff member and volunteer help kids make things out of waste and we should think about what we can teach the kids to make out of waste at 'our station'. Tashi also tells me that as a long-term volunteer, I am welcome to do some other type of project using whatever knowledge or skill I can contribute with. We agree to discuss possibilities at a later point in my month-long stay as I will have understood what they need better by then.[22]

There is a remarkable amount of waste in the valley, and we crawl up and down steep hillsides with our bags, the waste bins are not being used as they should. The sun warms us and the sound of crashing water from the falls and river only add to the beauty of the mountains

[22] This resulted in project 6.32

(Fig. 5:3)
Hiking the valley of Bhagsu Falls is the most popular tourist attraction near the city center and is kept clean by WW volunteers.

(Fig. 5:8) Triund (the top of a nearby mountain) is another popular hiking/cultural destination for locals and tourists. WW volunteers maintain this path and the mountain top. We experienced a Tibetan celebration for the Dalai Lama while there.

(Fig. 5:4) At the end of a hike, bag contents are sorted into recycling categories.

(Fig. 5:5) WW volunteers create and maintain many activist murals around town and along hikes.

(Fig. 5:6 & 7) At the popular weekend after-school event each volunteer created a W-R activity. I taught kids how to make boxes out of two liter soda bottles.

(Fig. 5:9) Steep inclines along the hiking trail to Triund challenge dedicated volunteers, but we persevered! Bhagsu Nag and its valley can be seen in the distance.

that fold around us. The contrast with the busy market street is poignant. Nearly everyone passing us on their way to the top of the valley ask us who we are and what we are doing, and a few tourists stop and help a little. Tashi breaks into her knowledge proliferation routine and is not shy to criticize the bad waste habits of modern Indians with the increase of plastic products and packaging. I am amazed that there is so much waste in the valley considering WW does a volunteer clean up hike up to Bhagsu falls and to Triund every week. It is incredibly gratifying to not only be in this beautiful place, but to also feel like you are contributing to its health and other's enjoyment of it.

At the end of the day, we rejoin at a resting area to have some chai and dump every bag out onto the ground so that we can sort according to recycling categories. At first it is a shock to be faced with picking through piles of waste. It is quite a different thing from picking it up one by one from nature and placing it into the bags. It is as if the collection into bags has made the waste even more detestable. The WW staff chuckle a little at our expressions, but soon we are just as unmoved as they are at picking through the piles of waste and sorting them into piles of resources.

I find there is a level of confrontation that this picking and sorting creates within me that brings home the effects of our modern lives on a bodily level. It is not a conceptual repercussion of modern living 'out there,' nor is it simply the act of somebody else's bad habit of using the waste bins, it becomes more personal somehow. I would never throw away trash in nature, so as I cleaned the valley, I felt a bit removed from the items I picked up, however these piles now represent what I could just as easily have purchase and 'responsibly' thrown into a waste bin. The initial disgust of picking through waste piles quickly subsides and I am struck by how quickly our perception of the task changes to a positive feeling of purpose. Once sorted, we carry the bags back to WW headquarters in wait for distribution to various places of recycling, with the exception of the materials used for after school activities.

The longer I stay in the area the stronger my sense becomes that WW is a node in a spatial spread of assembled relationships, knowledge and practices of creativity and maintenance around waste-resource flows through the community. I have a sense of being in a nebulous network assemblage with various levels of collaboration and knowledge building that connect locals with visitors through discarded things. The waste itself is a constant; the actual objects are always changing and moving, yet the waste is ever present in the publicly shared spaces of the community and thanks to the work of WW is continuously being shipped off to be treated as a resource. The caring for waste-resource flows in the community is occasionally made physical through murals, signs and waste bins around town and in natural areas, with the WW headquarters hidden behind hotels and private homes silently serving as the central node from which it radiates.

Through my engagement in waste-resource activities in and around Bhagsu I have gotten a sense of not only the town and the surrounding wilderness areas, but also of the network of villages it belongs to. A few children say they walked two hours to get from nearby villages to take part in the popular Saturday after-school event. What a child's two-hour walk is in actual distance is impossible to know, but Tashi confirms that some children come from villages that are quite a distance away. As a visitor my sense of this place is more spread out, or regional, with the WW headquarters as a central node. It is a functional tie for gathering and sorting waste to be sent to recycling centers and an occasional international and local social gathering point. It functions as a central yet discrete node from which a glocal network of sociospatiality and waste-resource material flows collect, move through, and extend from.

5.35 The Bike Kitchen (Cykelköket)

Situation: *Non-profit organization run by volunteers for salvaging and repairing bicycles. Gothenburg, SW*
Financed by: *Grants, funded events, donations, selling new parts and membership fees.*
Type of W-R technic(s): *Reuse, material metabolizing, nutrient metabolizing and repurposing.*
Type of public access: *Time-limited public access.*

I have fixed what I came to fix on my bike and now mingle a bit with people – some are close friends, others are acquaintances and others I am meeting for the first time. The space is teaming with people from all over the world and the work spills out on the sidewalk outside the center. Some are locals, others are new to town, others are only passing through on a larger bike tour. The concept of a Bike Kitchen is not unique to Gothenburg, one can find similar organizations in cities around the world. And while some communication and sharing of information sometimes occurs,[23] each organization is independent from the other. Besides doing an array of events around town, the Bike Kitchen also occasionally holds small introductory courses on how to tune and repair bikes. I help a couple of teenage refugees from Syria and Afghanistan. One of them had gotten a bike to fix up at a Bike Kitchen event held at his refugee housing and brought his friend so that he could also find a bike to fix and take home. There are also a few university students, new to Gothenburg, who are fixing the bike they got at the Re:Cycle event[24] held at Chalmers and organized in cooperation with the Bike Kitchen. One of the Bike Kitchen regulars shows up with salvaged food donated from a local grocery store or restaurant and I switch to helping make dinner for everyone.

Abandoned bikes are collected from housing companies, the municipality and other organizations when these clear out storage units and bicycle parking areas in the city. Members get to pick two bikes per year to fix and take home, but non-members are free to use the tools and salvaged bike parts neatly organized in various containers around the workshop. Bike Kitchen volunteers pick up the bikes using in-house transport bikes with trailers. The moving bikes with trailers are available for anyone to book and borrow, as well as a handful of loaner bikes for visitors in town. Some of the bikes received are beyond repair and volunteers dismantle them for parts. What is not available as a salvaged part one can purchase from the Bike Kitchen's supply of new parts.

The first time I visited the Bike Kitchen I came with a friend[25] to tune up my bike for the summer and it was in a different location. Since then, the Bike Kitchen has moved into 'the transition workshop' (*omställningsverkstan*) which they share with other organizations focused on (re)making, (re)using, sharing, borrowing and giving old or used things. They describe it as "a [Do It Yourself] meeting place for a sustainable transition culture."[26] The Bike Kitchen occupies just over a third of the space, by the entrance and is also the main attraction. This location is more conducive to socializing than the previous space. Here one

[23] During this study, the Gothenburg Bike Kitchen organized a Scandinavian meet up of other Bike Kitchens for mutual learning and socializing. My band was to be the evening entertainment and the Cyclophone was created in honor of this concert. (See project 6.33)

[24] The Chalmers Re:Cycle event is also listed as a proto-regenerative space (section 5.32). It is a bi-annual event that transforms a courtyard at the university with hundreds of bikes, students cueing to get a bike and an array of businesses and volunteers to help them fix their bike. I helped organize one of these events and have visited several events in following years. Just like at the Bike Kitchen, the broken bike becomes a fulcrum of sociality in the courtyard of cues and repair stations.

[25] Isabelle Ordoñez whose invitation to play at a Scandinavian Bike Kitchen meet-up initiated project 6.33, and who also invited me to get involved with the creation of the Chalmers Re:Cycle event.

[26] www.facebook.com/omstallningsverkstan/about/ (Accessed 13-9-2017)

(Fig. 5:10)
The Transition Workshop. At the fore are bike wagons that can be borrowed by anybody, and bikes that are especially suited for them. A hangout area with swop shelves, and other organizations' spaces beyond. Towards the back is where my band played during a hangout (project

(Fig. 5:11) The Bike Kitchen's workspace at the entry of the Transition Workshop and bike repair activities often spill out onto the sidewalk.

(Fig. 5:12) Fixing a bike often becomes a group effort between strangers. When tools are shared, clear organization is a top priority.

(Fig. 5:13) Organization is key when finding the right salvaged part. Unrepairable bikes are stripped of usable items and stored here, free for the taking. What cannot be salvaged is sent to the local RC.

(Fig. 5:14 & 15)
The very popular bi-annual Re:Cycle event at CTU. Students line up to get a free bike and help each other or get assistance to repair it.

has a couch, benches, a kitchen and enough space to serve the food I am currently cooking in the kitchen. Another advantage of the current location is that it is heated and there is enough space to work on the bikes in-doors all year long.

The physical space is nondescript and bare without the tools, bike parts and furniture. The activities flow over the benches that mark the boarder of the workspace and double as work surfaces. The separate spaces of couch hang out area, office and area for parts flow into one another and the workspace. The kitchen and storage for salvageable bikes are hidden from view, but are just a doorway away. I cannot say that the space is beautiful aesthetically, but there is a certain utilitarian aesthetic that appeals to me and the interconnectedness of the spaces works well both functionally, experientially and socially.

Though this space is a base for Bike Kitchen events that pop up for a day in various places around the city, and there are other Bike Kitchens in Gothenburg[27] and in the world, my experience of the place is heavily grounded on what happens between the walls of this space. The most tangible connections to the world outside of these four walls are social interactions between internationals and locals in between these walls, some of whom are bike enthusiasts travelling with knowledge of other Bike Kitchens but most of whom are local and may never have fixed a bike in their life. It makes me ponder this increasingly glocal aspect of shared spaces in today's hypermobile world.

There are really three reasons I visit: 1) when my bike needs some work; 2) with a friend who hangs out here frequently; 3) to introduce the Bike Kitchen to somebody who needs a bike, moving trailer or tools. Every time I am here, I feel a strong desire to come back soon, and yet I remain a sporadic visitor and volunteer. I am not an official volunteer, i.e. a 'Kitchen Master' (*Köksmästare),*[28] but always help out when I can and am not alone in this. The broken bike and the act of figuring out how to fix it becomes a fulcrum of sociality. Friendships are made and romantic relationships begun.

5.36 Prinzessinnengärten

Situation: *Run, built and gardened by employees and volunteers. Berlin, Germany.*
Financed by: *Donations; financed projects and events in other places; sales on site of vegetables, seeds and seedlings; sales of prepared food and drink from catering business.*
Type of W-R technic(s): *Reuse, repurposing, material metabolizing, nutrient metabolizing and remediation.*
Type of public access: *Time-limited public access*

From the busy and dense urban intersection Prinzessinnengärten is a wall of vegetation (and a few billboards) with an open gate. I have arrived earlier than my friends I am there to meet and wander around. From my last visit several years ago I mostly remember the main walkway edged by various planters of salvaged materials, otherwise called waste, that leads to a small grove of saplings with seating areas beneath. This is the social heart of Prinzessinnengärten and the main gathering space for people who visit. It is surrounded by various structures also largely constructed from salvaged materials, but the main attraction is the pizzas that they make in one and the beers served in another.

[27] Begun with the support and inspiration of volunteers from this (first) Bike Kitchen.
[28] These are volunteers scheduled for opening hours, managing the space and helping people. I have attended the training to become a Kitchen Master, but I have not included myself into the schedule.

(Fig. 5:16) View of the main promenade looking towards the entrance with table tennis in the forefront. Crates are filled with vegetables, herbs and flowers.

(Fig. 5:19) Greeting the visitor is a small building with information about things going on, the garden and gardening in general. Inside the shed is a swop library for leaving or taking a book. Nearby there is a man selling seeds and seedlings.

(Fig. 5:17) The main social area of the park with pizza restaurant and bar.

(Fig. 5:18) In one of the buildings near the eating area a student studies and friends play pin ball. Along the wall large containers for capturing rain water for the garden.

(Fig. 5:20) Tucked away from the public areas are more gardens, composting areas and small buildings made from waste. These are private studios or workshops used by the volunteers who run the park.

(Fig. 5:21)
The garden is enclosed by a wall and a gate. One barely notices this because the wall is so green. This portion of the wall is very sculptural and made from salvaged wood.

Adjacent to the eating area there is an open structure where I find people working or studying alongside a group playing fuzzball. This is just one of several examples of play equipment for children of all ages on site. Interestingly enough the equipment for the youngest children is nearest the beehives and the plant nursery; one of these adjacencies seems appropriate, the other less so…I walk around and explore beyond the most popular areas of the park. Amongst gardening containers with rainwater collection systems connecting them, I find large compost piles of gardening waste. Apparently, this organic waste used for gardening purposes is not only from Prinzessinnengärten but also neighboring properties. Other piles of waste appear at the farthest end of the park from the main entrance. These are clearly materials waiting to become planters or a piece of some structure or other on site. Here there are also a couple of buildings that look like private studios and an open workshop space where a woman is welding old bicycle parts together.

The park offers a variety of different spatial experiences of different scales, many of them are delightful but I am also struck by how much messier the garden feels than five years ago. The place is lush with plants, but I notice that there seems to be a bit more weeds than vegetables in the planters this year. Some spaces I feel are made for public use, but others are clearly for the use of regular volunteers and employees. I circle back to climb the tower structure and get a view of the garden from above. I meet Dietrich at the base of 'the tower' where he was wrapping up a co-writing workshop he calls "Story-Gardening" and invite him to join us for pizza later on. He is part of the regular volunteers and tells us that though the pizzas are intended to be made with what is grown in the garden, they often have to buy supplies from other local organic gardens and farms to meet the high demand. He also confirms my suspicion that the up-keep of the park has suffered in the past year's uncertainty of whether the city was going to sell the lot to private developers or not.[29]

It reminds me of the 'guerilla gardens'[30] in the East Village of New York City that I visited the 1990s. Like Prinzessinnengärten, people simply occupied abandoned lots in their neighborhood with various forms of gardening and structures. Like Prinzessinengärten, waste was a common building material and many had composting systems. Though much smaller than Prinzessinnengärten, and had varying levels of public access, the East Village gardens were also a welcome change of pace and materiality in the hard and hectic urban environment. On a hot day, like the day I visit, the trees at Prinzessinengärten create a cooler microclimate and provide a welcome relief. Today only a fraction of the community run gardens I saw in East Village remain. I hope the volunteers and users of Prinzessinengärten are more successful than many of the gardens in New York were at winning the battle against private interests and profit-oriented political decisions on land use.

[29] Over 30,000 people supported a protest in 2012 to keep the space public leading to the senate and city district to extend the lease until 2017 (Prinzessinnengärten, n.d.). At the time of my visit in the summer of 2018, I am told that the lease has been secured once again for a period of time.

[30] Guerilla gardening is a term often used for gardening done in areas without official permission.

5.37 Majornas Mega Flea Market (Megaloppis)

Situation: Annual neighborhood flea market on the last Sunday of every May. Gothenburg, SW.
Financed by: The local Renter's Association (Hyresgästföreningen) with additional support from local businesses and the city of Gothenburg.
Type of W-R technic(s): Reuse
Type of public access: Temporary event with unlimited public access.

Sunday morning, I leave my apartment building to get a few things for breakfast. I am awoken from my sleepy thoughts by a street teaming with people and things. I had forgotten it was the annual flea market today and delight at the festive spirit that has taken over my neighborhood. Every year, three adjacent neighborhoods in my part of town are transformed overnight into an open-air marketplace. I have to weave around people to get anywhere.

The sun is shining, people are strolling past other people's oddities for sale. The strangest items evoke my imagination and I start building stories in my mind of what intended uses they might have had with their original owner. I discover a pair of sandals of a make I remember coveting when they were new in the shops but could not afford at the time. With my new treasure in hand I wander on aimlessly, just enjoying the lively atmosphere. A display from the renters' association informs us of the wastefulness of modern consumer culture and how this event, in addition to being a social event, is intended as an alternative to the throw-away norms in modern consumerist culture.

People from all over the city have come to our neighborhood for the flea market. The ATM machine has a long waiting line and the cafés and restaurants are busy. I run into some friends selling things outside of their flat. They tell me that the serious shoppers came early and bought a lot of what they had to sell. Amazing how much money one can make off unwanted things, they remark. Further down the street, I pop into a local boutique[31] for 'retro and antiques.' The owner, who knows me as a regular customer, tells me how busy they have been today. The flea market is not competition, but a benefactor.

I run into some friends sitting outside the café next door and we show off our 'finds' and catch up on each other's lives. I make a comment on the renters' association's display and how funny it is that in some ways we are all walking around looking at each other's waste. "Waste?" they ask, "What waste?" I explain that if the owner could not sell or donate these things, it is likely they would be thrown away, i.e. the items for sale are diverted waste. They slowly nod in understanding. One laughs and says that seeing these treasures of ours as waste diverted from the incinerator made him feel even better about his bargain shopping. I am surprised I had to point this out, but it underscores how the concept of 'waste' ceases to exist when the social and spatial setting presents them as having value.

As I make my way home, the crowd thins out and stragglers stroll around looking for the very best deals or things they can take home for free. Some of these are the poorest in our society, but others are simply opportunists. The neighborhood receptacles[32] are overflowing with the items that did not sell; in fact, extra containers have been brought to cope with the amount of donations at the end of the day.

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[31] 'Boutiques' is a type of proto-regenerative space listed in fig. 5:40. It is called "Saker från Förr" (Things from Before) and is one that I have visited frequently.

[32] 'Neighborhood receptacles' is a type of proto-regenerative space in the list of Dérives (section 5.32). It includes publicly shared areas with recycling, compost and donation receptacles. They are shared spaces for disposal and do not contribute significantly to the sense-of-place where they are located. There is rarely any social interaction around them and I leave them with little more than a sense of civic duty and of having rid my house of unwanted things. However, the graffiti form of 'tagging' witnesses that others see these receptacles as canvases (fig. 5:27).

(Fig. 5:22) The crowds overflow from the sidewalks into the streets. The event attracts a lot of people from outside of the neighborhood.

(Fig. 5:23) Each person sets up their area where ever they find a spot; first come first serve. The wide sidewalks around the central round-about (Maria Plan) is popular.

(Fig. 5:24) Another area which is popular is around the community pool (empty at this time). Kids play around in the empty pool, people lounge in the grass, a band plays somewhere in the back and people browse and buy things from one another.

(Fig. 5:25) At the central roundabout the renters' association has an informative display of how much waste is generated by throw-away fashion. The messages on the bags: "13kg of textiles are bought per person/year and 8kg of textiles are thrown away per person/year."

(Fig. 5:26) The local restaurants and shops get a huge increase in business on this day. Including "Saker från förr" which sells second-hand items and antiques (also a proto-regenerative space listed in 5.32). The picture is from inside the shop.

(Fig. 5:27) At the end of the day the neighborhood donation receptacles are overflowing (also a proto-regenerative space listed in 5.32). There are also a number of extra collection containers put out by the organizers of the event to collect what was not sold.

I pass one of the donation receptacles that I often use[33] and meet a man filling his car with abandoned things. He tells me that he drives from Romania to Sweden every year to collect the leftovers from this event. He has two second hand shops in Romania and this is a good source of items that are exotic and/or of high quality. I applaud his entrepreneurship and help him fill his car. I leave thinking how these types of marketplaces, shops and boutiques offer the opportunity for an object's value to be renewed and thereby extend is circulation here or abroad.[34] They are places of pause that exhibit things and attract people using the principles and pleasures of consumerism to thwart, or at least ameliorate, the throw-away culture of our age.

5.38 Frihamnen's Sauna

Situation: *An attraction point to an industrial area slated to become a residential area; Gothenburg, SW*
Financed by: *City of Gothenburg (Designed by Raumlabor)*
Type of W-R technic(s): *Reuse, repurposing and remediation.*
Type of public access: *Time-limited public access.*

We get off of the bus and look around trying to figure out in which direction across this paved wasteland we should walk in order to find the famed sauna built from waste. There is not much to guide us but after checking our mobile map, we head off across the paved landscape dotted with fences and warehouses. As we near, we start to see the sign of a different type of activity in the area marked by structures made of waste for various purposes. One is for a gardening project, another is a pub, a third is a playground and amongst these the cockpit of an old tugboat marks the entrance to the area of our destination. The staff checks off our names from the booking list and they point us towards the dressing room a distance away along the boardwalk.

The care and craftsmanship are immediately apparent to me from the instant I place my foot onto the wooden path. We pass a small pavilion built of old windows for the exchange of books with a chair inside and a bench outside shaded by a small arbor of woven strips of wood. The sun dapples through the tree branches above and the silhouette of the sauna is clear but quietly waiting in the distance. We pass it and a cold-water pool on our way to the women's changing room whose main feature is the curved wall made of glass bottles. It is a spectacle of light both from within and without. The bottles necks capture the sun light and channel it to the bottoms which, in turn, make a convex wall of glowing glass to shower in.

A warm peace reigns under the birch trees and radiates with the sun reflecting off the water and contrasts with the paved wasteland we just came from. The area is scattered with benches from which to enjoy the view of the river and rest in the small oasis of bath, sauna and shaded walkways. The sauna rises from an old docking pier and we climb the stairs to reach what we came here for.

[33] There are several donation receptacles in my neighborhood, each belonging to a different charity organization. This one belongs to the local chapter of Emmaus. Donating to it gives me a stronger sense of being part of the cycle of reuse since both I and many I know frequent their shops.

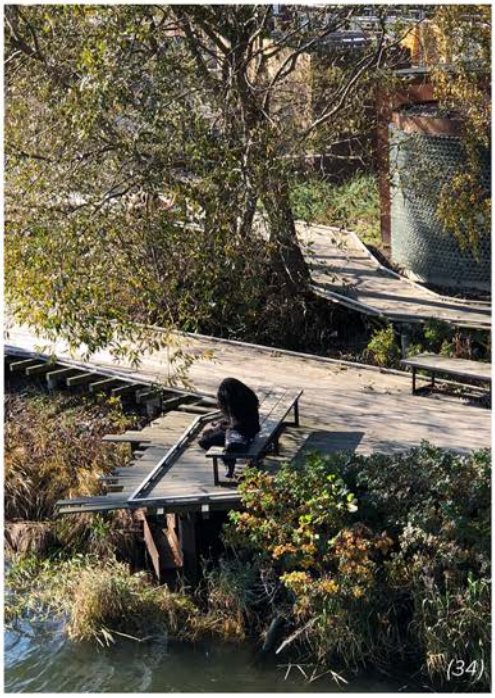
[34] Besides this man's entrepreneurship, many charity organizations will sell things in local charity chops as well as send items to other countries to be used or sold there.

(Fig. 5:28)
The entrance of the area is defined by a salvaged cockpit of an old tugboat. Here the visitor registers with the people managing the area. In the background the sauna is prominent in the riverscape, and a ship passes by. Leading up to this point is a large paved area with other installations such as planters and a playground made from waste.

(Fig. 5:29)
The boardwalk is intricately detailed into a puzzle of oddly shaped boards.

(Fig. 5:30, 31 & 32)
The first building is a small swop library where one can leave or take a book. It is built from salvaged windows, with birch trunk columns and strips of woven salvaged wood make an arbor over a bench with a view of the sauna.

(Fig. 5:33)
The sauna in the background is built on an old concrete pier. In the forefront, friends sit in on one of several benches nicely placed in nature with a view of the river. (Fig. 5:34 is the same spot.)



(34)

(Fig. 5:35 & 36) The main feature of the changing and shower rooms is made from glass bottles. The necks face the exterior (right) and channel light into the interior (bottom) shower room.

(35)

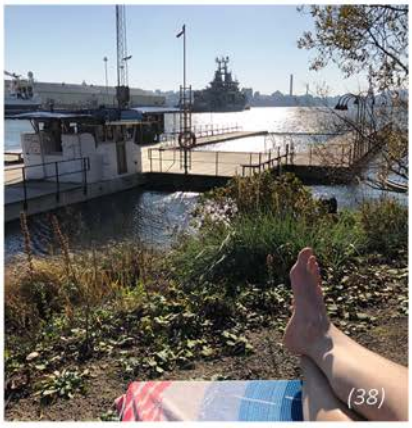
(36)

(Fig. 5:34) A peaceful resting spot in the reeds of the river viewed from the sauna.
(Fig. 5:37) The interior of the sauna. Behind the photographer is a large window wall with a vast view of the river activities.

(Fig. 5:38) A filtered river water bathing area defines the end of the sauna area. It was added after the sauna was built. Benches are good sunbathing spots.

(Fig. 5:39) Next to the changing rooms and at the end of the sauna's pier is a small cold pool which was the only place to bathe before they installed the river pool.

(37)



(38)

(39)

The height of the sauna offers other idyllic views of below and beyond. The sauna room itself is full of small clusters of friends who share our booking time, and we sit and let the heat do its work of relaxing our muscles. It is fairly quiet, but an older man strikes up a conversation with me and tells me that he travels half way across the city to come here once a week. 'The luxuries of being retired' he says. He likes to meet people from all over the world who come to experience this strange sauna built from waste. Though the sauna was intended as a temporary building, he hopes it will become permanent even when the area is rebuilt into a housing district. I agree with him. After building up sufficient heat, my friend and I cool off in the small pool of cold water back on land and rest in sunlight overlooking another bathing area with filtered river water at the edge the sauna area.

The careful puzzling of found and formed materials and objects lends a special quality to this space. I get the sense of a mindset of serious playfulness underlying the design and construction of this place. From speaking to one of the architects, Sam Caravallo, I know that many design decisions were made as he and his team found materials and built it. The care of detailing, ingenuity in repurposing and the patina of age inherent to the salvaged materials tie the many different elements and materials together. Also the integration with the pre-existing natural and industrial landscape and the constant presence of the river and urban backdrops create layers of connections that ties a visitor to this place's physical and historical context.

Some temporary spatial interventions have throughout history become so dear to the local community that they have become permanent; I certainly hope that Frihamnen's sauna is one of those. Other proto-regenerative spaces that I have visited have outlasted their demolition date: Nek Chand's Rock Garden was illegally built in a public park from the remnants of the three villages destroyed for the construction of the city of Chandigarh. Local and global protests stopped the city from demolishing it, and it is now a rich source of income for the city. Also Prinzessinnengärten's permit has been extended, for the time-being. Let us that the communities' attachment to these places ensure their continued existence.

5.4
Reflecting on the Probing of Proto-regenerative spaces

It is difficult to separate most insights on proto-regenerative spaces from those gained in projecting regenerative places discussed in the following chapter. Not only is this because the visits were happening parallel to the projects presented in the following chapter, but also because many insights from visits have been reinforced and developed through the projects, and vice versa. These insights and reflections are therefore presented jointly in chapters seven and eight. However, a few reflections are best suited here; beginning with a reflection on methodology and ending with reflections on two aspects that affect the use of the publicly shared spaces: accessibility and attraction.

5.41 *Reflecting on Using a Directed Dérive*

Through the Directed Dérive, I have sought knowledge through correlation, emergence and chance encounters, which is the way in which narratives (and the knowledge they contain) are built in everyday life. I suggest that the Directed Dérive is a useful method for explorative pre-studies of a topic and/or space in order to uncover questions and qualities worth investigating further with other methods.

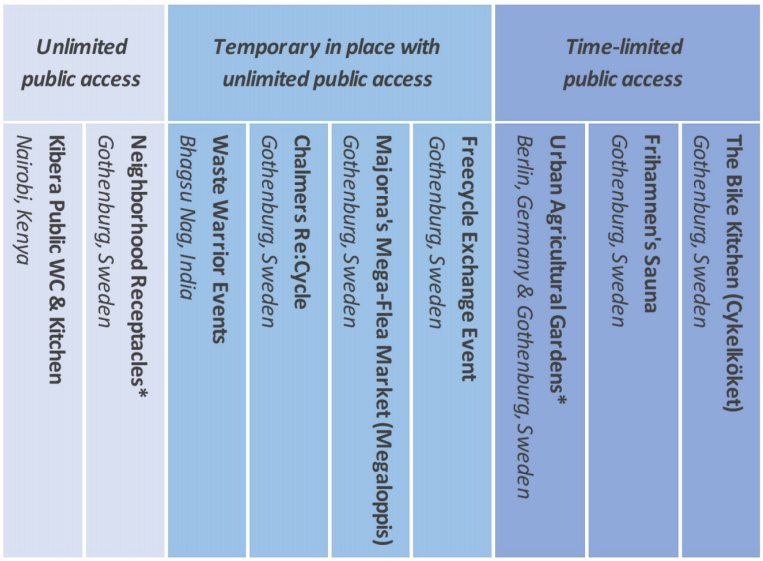
I also consider this method to be a powerful tool to reveal how emergent phenomena cluster into a narrative from which one can detect or derive a design schema. It does so by setting up conditions similar to how a spatial narrative is revealed to a visitor, how it engages a person into contributing to that narrative, and how it entices a visitor to stay or return. All of which are elements that help a visitor care about a space and contribute to its interpretation and transformation into place. Through chance encounters and connectivity, a narrative emerges that provides a perspective that can shed light on the situation and its emergent qualities. In my situation, these chance encounters often spur ideas which are then explored in projective practices[35] and in this way are part of the development of suggestions for alternative futures.

Because of the method's drifting and immersive nature, I have found the question of documentation to be a challenge. Excessive documentation in sketch or photograph places you into a fixed role as observer, making it more difficult for you to get involved in the activities that the place itself offers and may also lead one to dominate the narrative in the space. The drifting also created, for me, a less coherent set of data to compare between the different sites. However, much of this is a consequence of the fact that the definition of this method was under development *as,* and *after*, the visits were occurring. I therefore contend that many of these issues could be ameliorated with more planning at the onset of a Directed Dérive.

[35] Presented in chapter 6.

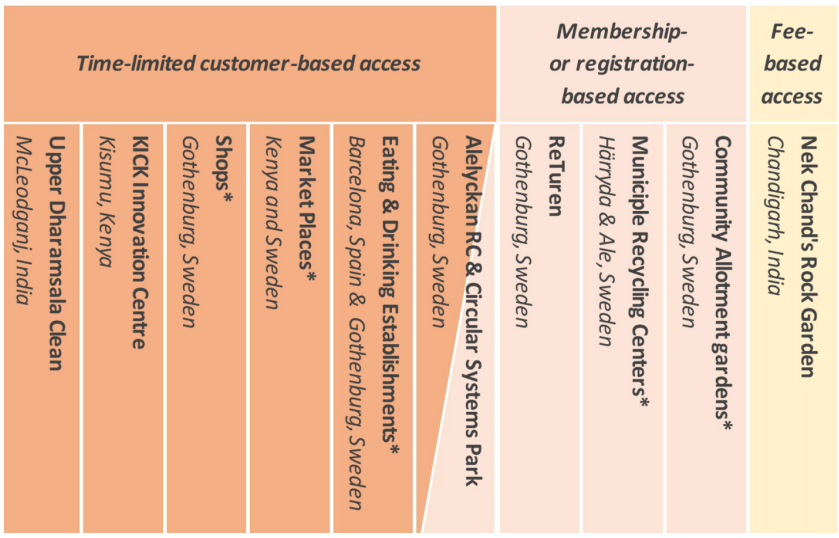
5.42 Public Access to Proto-regenerative Spaces

Public access is a central aspect of publicly shared space.[36] The following charts (fig. 5:40a & b) categorize the proto-regenerative spaces visited according to level and type of access available to the public[37] and reveals that unlimited access is rare. The blue portion represents where access is only limited by opening hours; the orange portion represents where additional limits exist according to economic or membership requirements.



(Fig. 5:40a)
The blue portion of the table represents where accessibility is least restricted (only time-based).

**Starred headings represent a group of spaces that are so similar in nature that it is unnecessary to list them separately (also in fig. 5:40b).*



(Fig. 5:40b) The yellow-orange portion of the table represents where accessibility is more restricted due to the requirement of some qualifying agency that the user must possess (e.g. financial, identification, etc.)

[36] See section 4.24

[37] This does not include accessibility according to location, i.e. the distance to neighborhoods or urban centers. This issue of central versus periphery location is discussed in section 7.33.

From observing, being involved in, and talking to those who are more deeply involved with these spaces, it is clear that the activities or objects on site require management as well as varying levels of security which in most cases leads to limited accessibility. The spaces that include waste-resource conversion or redistribution require upkeep and active management either to make sure that materials and equipment are used and stored properly or to keep them from being stolen. It is therefore reasonable that accessibility is limited in different ways. Where the waste-resource creates the space, or spectacle, to be enjoyed through social diversion, such as Frihamnen's Sauna, access to the space may be limited and managed to ensure visitor security and/or avoid improper use or damage.

I have found that some form of public ownership, partnership and especially financial support[38] is often an important factor in the ability for many spaces to exist, but it does not guarantee unlimited and free public access. The extreme of such an example is the Nek Chand Rock Garden; it is publicly owned and yet one must pay a fee to enter during limited opening hours. One must even pay to volunteer in the ongoing expansion of structures and spaces made from waste at this site. However, this lack of unlimited accessibility and need for management does not seem to be a detriment to the social worth of these publicly shared spaces. In fact, many times I witnessed how the management and guidelines for use seemed to set a framework within which sociality thrives. This is particularly true in spaces where things are made from waste and/or there is a central premise of activism. As is illustrated by the way various activities around salvaging and repairing bikes at the Bike Kitchen, or the collecting and recycling of waste from public spaces through volunteering for Waste Warriors, generates social interaction. In these spaces the waste-resource object is a fulcrum of sociality and beautifully illustrates what Havelange (2010) identifies as the third element in sociality.[39]

In other cases, the user's role in transforming waste into a resource is more passive and unconscious, and yet these spaces contribute heavily to the vibrancy and sociality of the urban landscape and its public spaces. Many of these are privately-owned spaces, such as shops and eating/drinking establishments, have an indelible imprint on public living. Their presence affects the character of adjacent public spaces as the social activities and energy generated within them spill out onto streets and squares. While the access to these privately owned spaces is limited to potential and paying customers, publicly-owned spaces adjacent to them are not. While ownership is far from irrelevant, the vibrancy of a publicly shared space is arguably more due to other aspects than ownership that encourage public use. As intersubjective narratives are built through shared experiences, what attracts people to a space and engages them in its narrative is arguably more relevant to placemaking, practices and theories that aim to shift reigning paradigms.

[38] Many of the waste-resource activities I encountered are financed by a mixture of the selling of products and materials, volunteer labor, donations and municipal funds.

[39] Introduced in section 2.41

5.43 Powers of Attraction & Engagement

From observations, conversations and experiences in proto-regenerative spaces one can detect several factors of attraction and engagement that arguably contribute to the intersubjective identities of these spaces and thereby contribute to their 'placehood.' Attraction and engagement help to convert a space into a place by increasing its significance in the life of a visitor/user. These factors can also be seen as intentions and roles communicated to the visitor through spatial experiences, and thereby help to form its narrative.

Attraction and engagement factors can naturally coexist and overlap, and it is reasonable to assume that the more factors a space has, the higher its overall power of attraction and engagement is. Figure 5:41 illustrates where these were detected, but first let us review the definition of each factor that is created or supported by the waste-resource elements on site.

Unique Aesthetic or Design

The uniqueness of an object or space attracts the visitor to be there, e.g. buy the object(s), observe them or use the space they produce.

Making Practices

A shared workshop with materials and/or tools for making and/or repairing objects.

Arena for Sociality

This is when the main purpose for being there is to meet and meet up with others.

Economic Benefit

There is an opportunity to save or make money with commodities or activities.

Socioecological Stewardship

An opportunity to contribute to societal and/or ecological well-being.

Part of Living Infrastructure

A person is there to carry out necessary daily, weekly, monthly or annual activities.

Leisurely Entertainment

Relaxing entertainment that is not necessarily social, e.g. shopping, bathing, gardening, hiking, sightseeing.

A Happening

A temporary transformation of a space with activities and objects that draw attention.

Learning Opportunity

Workshops, events and active help to learn something new, e.g. how to make and repair things, composting, gardening, academic or creative endeavors.

Contact with Nature

A direct experience of and/or interaction with nature and other living things.

While each category above has various aspects and manifests differently on any given site, a few aspects are worth mentioning as they are contributions that are particular to spatial design and regenerative processes. They are also worth mentioning because they share the quality of being simultaneously subtle yet significant in the factor of attraction and engagement that they pertain to.

- An **imaginative layered spatiotemporal experience** from connections to previous uses, times, and spaces. Patina, period designs and obsolete uses stir thoughts of previous eras and passing time. Connections to other places is created by recognizable or mysterious origins of objects and materials. (Aspect of *Unique Aesthetics or Design*)
- **Energy is generated** for the activities on site, e.g. gas for cooking, compost for growing. (Aspect of *Part of Living Infrastructure*)
- **Volunteering** is a common activity that either attracts people to a site and/or keeps them coming back. In many cases, these sites would not exist without the temporary and long-term dedication of volunteers. (Aspect of *Socioecological Stewardship*)

This list exposes that many places that deal with waste-resource issues lack direct contact with nature and therefore also space for nonhuman species. While this can also be said of the built landscape in general, this fact certainly reduces the regenerative qualities of the spaces I visited. The exceptions to this were Frihamnen's Sauna, Waste Warrior Events, Neck Chand's Rock Garden and the spaces that make up the two categories of gardens (*Urban Agricultural* and *Community Allotment Gardens*).

Regardless of the general lack of physical connection to nonhuman beings, many of the volunteers, employees and visitors I spoke with told me they felt they were doing something good for the environment by reducing negative impacts of human habits on ecologies. While this is certainly an indirect, even abstract, connection to nature, one cannot deny that these individuals, including myself, were concerned for ecologies and nonhuman well-being while engaged in a waste-resource practice. This is arguably an important aspect to consider when defining the role of waste-resource in regenerative placemaking.

Another aspect that is clear from this analysis is that the proto-regenerative spaces studied generally do not entirely produce the energy or materials needed for their own operation.[40] Once again the exception to this observation is Kibera Public WC & Kitchen which produces cooking gas from human waste, with a possible partial exception for the gardens that compost to enrich soils on site.

While it is reasonable that each site could produce *some* amount of energy and materials for its operation, the question that arises is if it is reasonable to require that a place produces *all* of it? Another question that arises is if salvaging materials from used and unusable things to repair or make new things could be considered a certain form of producing material. For it is not only highly unreasonable, but impossible, to require the Bike Kitchen, for example, to produce bike materials and parts from scratch. Instead, it seems more reasonable to consider a place's actual and potential role in larger urban and regional cycles of energies and materials in a regenerative society. However, it is also reasonable that the goal in such a society should be to always keep the cycles of regeneration as local as possible.

[40] A key principle of regenerative systems defined by Lyle (1994). (See section 3.21)

Factors of Attraction & Engagement in Proto-Regenerative Spaces

	Unique Aesthetic or Design	Making practices	Arena for Sociality	Economic Benefit	Socioecological Stewardship	Part of Living Infrastructure	Leisurely Entertainment	A Happening	Learning Opportunity	Contact with Nature
Nek Chand's Rock Garden	X			X	X		X			X
Community Allotment Gardens*					X		X			X
Municipal Recycling Centers*					X	X				
ReTuren Educational Center		X		X	X				X	
Alelyckan Circular Systems Park	X	X		X	X	X	X		X	
Eating & Drinking Establishments*	X		X				X			
Market Places*				X			X			
Shops*	X			X	X		X			
Kick Innovation Center		X		X	X				X	
Upper Dharamsala Clean	X			X	X		X		X	
The Bike Kitchen		X	X	X	X				X	
Frihamnen's Sauna	X		X	X						X
Urban Agricultural Gardens*	X		X	X	X		X		X	X
Freecycle Exchange Event				X	X			X		
Majorna's Mega Flea Market			X	X	X		X	X		
Chalmers Re:Cycle		X		X	X			X	X	
Waste Warrior Events		X			X		X	X	X	X
Neighborhood Receptacles					X	X				
Kibera Public WC & Kitchen				X	X	X				

(Fig. 5:41) Diagram of the factors of attraction and engagement that I detected in the proto-regenerative spaces I visited. It is reasonable to conclude that those with the most factors have a higher power of attraction. (Colors in the diagram reflect the public accessibility described in fig. 5:40a&b)

** While the attraction factors for the spaces in starred (*) categories are similar, they are not the same. Yet, any factor found in an individual space is marked, as this denotes the potential of the category as a whole. Additionally, some factors are not widely experienced by all who visit, making it difficult to decide whether they should be marked or not. For example, when there is job training (Learning Opportunity) which includes how to make and repair things from waste (Making Practices). Likewise, a place of employment benefits the employees economically but not the visitor. However, when these activities contribute significantly to the overall identity and function of the space, I have resolved to include them.*

5.44 Publicly Shared Spaces of Care & Contribution

Publicly shared spaces are arenas for the experience and expression of public living and identities, determined exactly by the fact that it is where friends and strangers see one another. In most proto-regenerative spaces, not only was there social well-being through sociality, but there was also a sense that the work being done was for the benefit of society and ecology at large. This is a manifestation of what I have previously described as a narrative of care. Care is integral to creating and maintaining these proto-regenerative spaces. Not only did I find a lot of practical care in the form of repairing or maintaining the usability of an object, a space and/or an activity, but also a great amount of emotional caring for the well-being of people, community, ecologies and, last but not least, the actual things themselves.

Though one can conclude that most proto-regenerative spaces visited contribute to well-being through their sociality, it is difficult to qualify from a Directed Dérive whether a space "produces a net-increase in life-enhancing conditions" (Moore, 2001, p. 130) for *all* species according to regenerative principles. Regardless of the method used to study this further, more definition and careful contemplation on what qualifies as life-enhancing is needed in order to determine such a measure of a place. And yet, the values and activities encountered in these proto-regenerative spaces could certainly be considered life-enhancing. These are: sociality, community building, ecological stewardship, volunteer engagement, empowerment, goodwill, skill and knowledge development, donation, recreation, and economic activities. A concurrent theme, i.e. schema, one can derive from the presence of these values and activities is:

> The enactment of a narrative of care for socioecological well-being through sociality and regeneration in publicly shared spaces.

This theme is developed further through projective explorations and elaborated upon in a conjoined reflection on all placemaking explorations.[41]

Reinforcing this narrative of care was the dedicated contribution exhibited by volunteers and many employees I met. As stated earlier, many of these places require a high degree of management. Managed, organized and semi-organized activities often proved to be an instrument or element around which people gathered and social interaction occurred.[42] This indicates that a common project, shared interest and/or cause initiates and can engage people in public life and create a sense of belonging in place.

Another form of caring is expressed in the frequent need for oversight through volunteers and/or employees. Theft comes into play when valuable items are on site, such as at RCs. Many places, such as at the Bike Kitchen, also need to manage the organization of materials and tools. This need for management creates restrictions of access either through time and/or membership. However, the limited accessibility of a space does not necessarily discredit its role as a space for collective activities and public enjoyment.

Places with managed activities were often affective in engaging the visitor's creativity and activating a sense of belonging through social interaction. Relying on volunteer labor requires added strategies for increasing and managing the level of engagement from visitors. A

[41] In chapter 7 and most significantly in section 7.42.

[42] This relates to the large discussion on "the proccess of commoning – of joint action, of creating things together, of cooperating to meet shared goals" (Bollier & Helfrich, 2015).

common feature amongst the people I met who work with projects that actively help to collect and renew resources is a passion and enthusiasm for their work. As mentioned earlier, they often expressed a sense of doing something useful for the ecological well-being. Many also expressed that they felt their work benefited the quality of life in the city through sociality, economic opportunities and/or through improving the physical experience of being there.

This sense did not stop with the volunteers and employees, also a number of visitors expressed similar sentiments (represented in high rate of socioecological stewardship in fig. 5:41). This suggests that a sense of contribution to society and/or ecology is an important power of attraction and engagement. When volunteering was possible in a proto-regenerative space, it allowed me to more easily explore design thinking in waste-resource processes in relation to placemaking. A few invitations to contribute in such a way developed into projects that form part of the following chapter's exploration of design practices in regenerative placemaking.

Contributions to Language & Concepts

Directed Dérive	a journey guided by chance encounters with select phenomena which directs one to enter, exit or stay in a particular zone.
Reuse	an object is used again for its original purpose.
Repurposing	an object is used again for a different purpose than what it was originally created for.
Material Metabolizing	an object is reduced to raw material(s) in order to create an entirely new object.
Nutrient Metabolizing	an organic material is reduced to nutrients and materials to enrich soil through feeding microorganisms, insects, mycelia and plants.
Remediation	a damaged or lost ecosystem, habitat or species is repaired or reintroduced.

PROJECTING REGENERATIVE PLACE

Summary of Chapter 6

In difference to the previous chapter, this chapter explores regenerative spatial practices through projectivity, i.e. by doing projects that propose changes to situations rather than simply experiencing and engaging with situations. This shift in perspective and methodological exploration is a natural part of a designerly approach to research.

This shift is also the operationalization of regenerative design principles through a practice assemblage which represents ways that a spatial designer may use different practices to engage in and affect aspects of placemaking.

6.1
Exploring Regenerative Spatiality through Regenerative Places

To approach the intersubjective phenomena of regenerative placehood and placemaking, this chapter explores the lacuna in project settings where the development of intersubjective understanding is integral. Working on projects with clients, students, and other designers or artists is a process of co-mingling individual subjective narratives and schemas to co-create intersubjective understandings of the situation and projected future situation. This co-creative process frames and reframes situations loaded with variable and conflicting measurable and immeasurable realities, i.e. a hypercomplex mess of realities, with the goal to syncretize them into more desirable future realities.

The projects undertaken in this design inquiry propose, envision, make, or contribute to spatial narratives where waste is treated as resource in space that is shared by the public. The various projects explored construct a practice assemblage (fig. 6:1) that represents a broad variety of ways that a spatial designer can engage in and affect aspects of placemaking. It is, in essence, an exploration into the operationalization of regenerative design principles using the parameters of the lacuna to (re)frame (uncover and craft) schemas (bundles of relationships) of ecosociospatiality and technics. It is, therefore, not only an exploration into the making of a regenerative place but also a regenerative spatial design practice.

6.2
Methods...Applied & Derived for Intersubjective Explorations

As is common in the development of design knowledge (Janssens, 2012), this design inquiry explores the topic of research from a variety of project settings. Exploring a topic through projects, i.e. 'projectivity' (ibid.), is the most emblematic of the three practices that contribute to how designers build theory, i.e. through pedagogy, experience and projects (see fig. 0:1). Projectivity is the performative aspect of design inquiries that is the basis for their inclusion in Haseman's (2007) definition of a performative research paradigm.[1]

Two broad forms of projectivity have been used, and combined, in various settings presented in this chapter. These settings are either being part of the project oneself or framing and guiding student projects in a pedagogical setting. The following method descriptions provide a broad, not prescriptive, understanding of the methodologies used in this chapter. Variations on these are described in relation to specific projects in subsequent sections.

[1] See section 0.21

6.21 The Projective Nature of Proflection

Through projects, designers reflect on, challenge, question and change current relationships of variable and sometimes conflicting facts and values by imagining future scenarios that rearrange these. Through various mediums of expression, they create an experience of a future possibility that is real, but not reality. This experience of an unknown future allows us to make a value judgement upon its relative attractiveness to current and known situations and set course accordingly. As I have argued earlier,[2] research methods based on this type of "anticipative reflection" (Janssens, 2012, p. 17) are arguably useful in addressing the challenge to define and generate a future beyond conventional sustainability.

From these aspects of design thinking, Nel Janssens develops a methodology she calls 'Utopia-Driven Projective Research' (ibid.). To develop knowledge and theory, she argues, designers 'proflect' on what *could be*. 'Proflection' is a combination of both the noun and verb form of 'project' with 'reflection' and can be summarized as: the act of *projecting* alternative futures through *projects* and *reflecting* on their *prospective* merits. One does this, she explains, through three component methods:

- **Projectivity:** the combined meaning of working with *a* project (noun) *to* project (verb) a vision of a future.
- **Imagineering:** the conceptual and practical combination of "letting your imagination soar, and then engineering it down to earth." (ALCOA, 1942)[3]
- **Prefiguration:** the creation of experiences of the future through various drawings and models. To this, I add the written and verbal descriptions that accompany drawings and models. Drawings, models and words work together to explore and express visions of future spatial experiences.

Proflection is, in other words, a reflection on the desirability of future possibilities through imaginative processes and representations in projects. As is clear from the title of this methodology, Janssens argues that a pragmatic form of utopian thinking, or 'pragmatopian' thinking is integral. Her arguments for its value align well with Pinder's (2013) association of spatial design thinking to Lefèbvre's (1996/1968)[4] notion of possible-impossibilities and prospective thought. One can therefore consider it a designerly approach to prospective reasoning.[5] Within their arguments for the value of utopian thinking in developing future alternatives also lies the reason for its importance in the work towards sustainability and beyond.

Both Janssens and Pinder argue that spatial design processes keep the utopian aspect pragmatic by grounding it in current conditions. Utopia is not necessarily a destination but more of a driving force that "strengthen[s] the emphasis on comprehensive goal setting" (Janssens, 2012, p. 19) in a project situation. The focus lies on developing possible-impossibilities that provide perspective on values, facts and opportunities in contrast to seemingly locked realities and thereby help to "reframe our thoughts and open

[2] Section 2.7

[3] Though this term originated with the aluminum company ALCOA, it is also attributed to the Walt Disney Company (Wright, 2008).

[4] Though I refer here to a single source, Pinders discourse is based on a number of Lefèbvre's texts.

[5] See section 0.22

up other vistas" (Janssens, 2012, p. 17). Factors that are arguably crucial for shifting paradigms in a complex systemic crisis.

As previously discussed,[6] both design processes and shifting paradigms involve an activation and formation of different types of schemas originating from different professional and personal experiences. A design process develops schema and the prefigurations express them allowing a future user of an object or space to relate to it through their own schema. These interactions allow for the possibility of several levels of intersubjective narratives and associated schema to develop, and thereby also potentially change, within a design team, between future users and designers, as well as between future users alone. As the use and production of schemas are an integral part of narrativity and the design process, it is reasonable to consider them a product of the process of proflection described above. When schemas are brought to bear in the projects presented in this chapter, they are a proflection on the spatial narrativity that could exist in the intersection of concerns that underpin this study's lacuna.[7]

This study explores projective processes grounded in real contexts, sites, clients and needs and develops a variety of proposals for combining regenerative waste-resources and publicly shared spaces. Regenerative theory has been the utopic vision driving the projective explorations and seeding the intersubjective spatial narrativity developed in different design settings. However, the form and level of imagineering, prefiguration and proflection in each project varies. I therefore consider that the common denominator for each exploration is 'projectivity.' However, from a macro-perspective, they all play a part of this inquiry's broader proflection on regenerative placemaking though the lens of the lacuna.

6.22
Pedagogically Framed Projective Research & Projectivity

In the history of design education, teaching practitioners and researchers have often used pedagogical settings to explore concepts (Akner-Koler, 2007). This practice has often been considered an asset to education as students engage with leading edge thought and realistic project settings. As performative research has matured as a field, this traditional practice of involving students in research inquiries has continued to be "a way of doing more 'self-defined,' practice-based, explorative research" (ibid., p. 54).

Cheryl Akner-Koler (ibid.) defines this tradition as 'pedagogically framed research methods,' adding that it has also been a way to work around the general lack of funding for performative research. In addition to these observations, I have found that the academic setting allows one to compress the architectural design process temporally into a time frame that is more manageable for research than is often possible in professional practice. Another advantage, is that it allows one to explore and reflect on the development of the profession itself through the topics and methods we teach future practitioners.

For all of these reasons, I have pedagogically framed most projective explorations in this design inquiry. By doing so, I have merged Akner-Koler's and Janssens' research

[6] See sections 2.5, 2.6 and 2.7
[7] See chapter 4

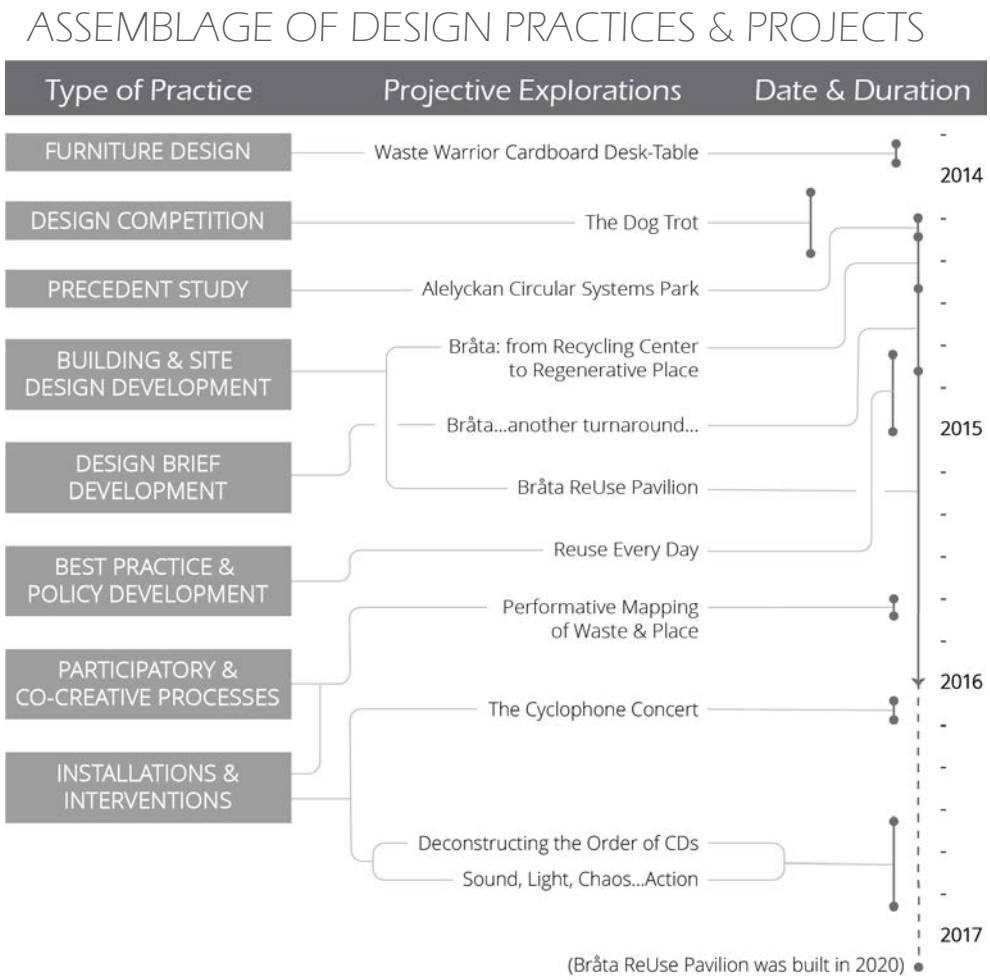
methodologies into: ***pedagogically framed projective research***. I have done this by placing the lacuna into the hands of students through various types of projects in pedagogical situations at the School of Architecture at Chalmers University of Technology, Sweden. By doing so the students have become engaged in critically examining and exploring theoretical questions through spatial design practices, research, discussion, and reflection tasks. However, a project can also be pedagogically framed for the purpose of exploring alternatives for later development in professional practice, i.e. without any relationship to scholarly research. In this design inquiry there are projects that bridge practice, pedagogy *and* research. I therefore suggest ***pedagogically framed projectivity*** as the design method that can be used in either design research or design practice, and as a bridge between them.

6.3
Exploring Projectivity Through an Assemblage of Design Practices

In this chapter the lacuna is explored through different project settings that elicit a variety of placemaking practices in an assemblage of spatial design practices. This has not been unlike the process of 'sketching' to test numerous possibilities in order to develop and understand some underlying and strong theme to develop in a proposal. It is the process through which a designer uses situations and personal experiences to help develop design schemas. One advantage of working in this way has been to further develop an understanding of the topics which form the lacuna. Another advantage has been to explore a design-oriented performative research method that follows how design schemas emerge in the spatial design practices.

This exploration has taken place in various forms and settings. Figure 6:1 illustrates the practices, projects and their relation in time throughout this design inquiry. It is important to remember that discourse development and proto-regenerative probing was occurring at the same time as these projective explorations (fig. 0:2), and how these three strands of inquiry jointly led to the realization of the central role that narrativity plays in this study's lacuna. A metaphor for this would be to liken these three forms of explorations to the different sands needed to form the magnifying lens needed to examine those very same grains of sands more clearly with. Hence, the projects are exploratory in nature; approaching the lacuna in a variety of ways in order to understand its nature and potential. Another driving factor has been to explore and understand the nature and potential of design-oriented performative research.

This assemblage of practices is based on my professional, pedagogical and personal skills and spatial interests. Some are common architectural practices and others are less common, but still relevant to my practice as a spatial designer. The less traditional practices (*furniture design*, *participatory and co-creative processes* as well as *installations and interventions)* come from a long history of theoretical and practical explorations of architects and are therefore not uncommon elements of a spatial designer's assemblage of practices.



(Fig. 6:1) The assemblage of design practices as explored in this design inquiry, based upon my own professional, pedagogical and personal skills and interests.

6.31 Variations on Methods Used in Projects

All projects in this design inquiry focus on interacting with or transforming the corporeal experience and use of spaces, however, the project modes and methods vary. This section briefly describes these variations in relation to each project; some of these are briefer than others and are described further in the project presentations that follow.

Most of the projects in figure 6:1 have been developed in a pedagogical setting; with the exception of *Waste Warrior Cardboard Desk-Table* (project 6.32) and *The Cyclophone Concert* (project 6.33). These projects are instead the result of one of the guidelines for my Directed Dérives in this study, namely: *allowing for involvement and poeisis*.[8] They are included in this chapter because this particular Directed Dérive guideline is representative of

[8] See section 5.25

the point where a designer moves from a mindset of experiencing to one of generating, i.e. when a designer transitions from *collecting* schemas to *developing* schemas.[9] It is when the probing of a proto-regenerative space becomes performative. Both projects work with the activities on site, they are a dance of sort seeking to compliment, not change, ongoing dynamics. One could consider it a type of bottom-up design role, where the designer engages with some aspect of a space and contributes to or intervenes in it through objects and acts.

In the case of the *Cyclophone and Bike Kitchen Concert*, my role is not particularly architectural but crosses over into the more artistic realms of spatial design. The project begins with the design of a musical instrument and ends with a musical performance. The conjoined projects *Destructing the Order of the CD* and *Sound, light Chaos…Action*, while pedagogically framed, similarly cross over into the more artistic realms of spatial design by first transforming a space with waste-resource, chaos theory and placemaking principles and later building upon this with musical accompaniment.

While music production is not part of the day-to-day practice of design, music has a long history of being poetically associated with architecture (Stechow, 1953). As is represented by a well-known dual metaphor attributed to various sources:[10]

'Architecture is frozen music' — ' Music is liquid architecture'

The use of music in these projective explorations explores this poetic metaphor.

My band, *Ljudlabbet*[11] (The Sound Lab), includes three architects and creates 'improvisational soundscapes' from a variety of instruments, many of which are made by the band members from repurposed materials, i.e. 'waste.' In this way, waste-resource conversion plays a central role in the instruments designed by architects and used to form soundscapes which temporarily transform the experience of a space. These projects can therefore be seen as a representation of the spectrum of practices and practitioners that the term spatial design can embrace, as well as how performative a spatial exploration can be.

While these projects included generative processes that more or less reflect components of the proflective equation, it would be fair to say that they are not highly proflective in themselves. In other words, their future-orientation lies in the design of a more immediate use and temporary experience. However, they are part of my overall imagining and testing of possible-impossibilities for a future society and design-thinking based on regenerative principles. I, therefore, propose that these projects as a whole are a form of performative sketching, i.e. prefigurations, in my overall proflection on regenerative placemaking and regenerative spatial design practices.

This is also true for the pedagogically framed *Performative Mapping of Waste & Place* (project 6.34) where students designed an event to initiate contact with the community in which they would be doing projects. Though the students were exploring subjective

[9] See section 2.51

[10] While both of these phrases are often attributed to Johann Wolfgang von Goethe, the actual source of both metaphors is unclear. 'Architecture is frozen music' has also been attributed to Friedrich Schiller and Friedrich Wilhelm Joseph Schelling. 'Music is liquid architecture' has also been attributed to Robert Browning (in his poem "Abt Vogler") and John Ruskin.

[11] Members are: Karl Johan Sellberg, Ásgeir Sigurjónsson, Therese Larsson, Martin Wolkesson, Eskil Varenius and myself (three of these band members are architects).

cartography[12] as a method for co-creative and participatory processes, the methods they used to design the installation and event follow the equation of proflection. Subjective cartography is the mapping of subjective experiences and perceived realities; when performed in public by many simultaneously it generates experiences, encourages conversation, and superimposes perceived realities through the very act of documenting them. The map itself is an instigator and stage for interaction, and rarely documents the full value of what transpired during the event.

Participatory methods, such as these, come from a history of designers striving to understand and build intersubjective narratives of a place and its future possible-impossibilities with users. The students' reflections on this event highlighted the crucial relationship between storytelling and the identity of a place, as well as their value in transmitting place-based knowledge to others. With the backdrop of other explorations in this design inquiry, these insights revealed spatial narrativity and associated design schema as the lens I needed to use to discover, describe and poetically measure regenerative placemaking and placehood.

There are also more traditional architectural projects in the array of projective explorations which align more directly with the equation of proflection. The first of these, *The Dog Trot* (project 6.35), took the form of a design competition done by two second year architecture students under my supervision. The core design challenge of the competition required a design inspired by the vernacular function, social use and cultural significance of the porch in the American south while using 'waste' as a building material. This project was, for this reason, an opportunity to explore waste-resource principles in relation to Nonmodern Critical Regenerative Regionalism.[13]

The second exploration is a set of pedagogically framed projects related to the non-pedagogically framed *Bråta ReUse Pavilion* (project 6.38). Four additional projects relate to, or grew out of, this project (see fig. 6:1 and Appendix VII) and a building (built outside of the scope of research, but based on drawings and work done here, see Appendix X). These are described in the following list:

1) Alelyckan Circular Systems Park[14]

A workshop in Sustainable Building Design Studio to introduce regenerative principles through a recycling center that includes a range of strategies to encourage reuse. Students were asked to study what regenerative and placemaking elements existed and could exist at Alelyckan. This workshop was a pre-study of place-typology, technology and theory which informed their final project (project 6.36).

2) Bråta: from Recycling Center to Regenerative Place (project 6.36)

The student's final projects of the Sustainable Building Design Studio explore how to transform Bråta Recycling Center into a regenerative place centered on a pavilion built of and for reused materials. The base of the design problem is presented by a client in a real situation

[12] Subjective cartography and performative mapping are terms that I developed to describe these methods. However, I subsequently found that other artists and designers use the same terms for similar practices. Situationist discourses, often connected to the Dérive, have influenced many of us who work with subjective cartography and performative mapping.

[13] See section 3.24

[14] This is an inexact but best possible translation of the Swedish term '*kretsloppspark*.'

with real needs. From this base, the students were given the freedom to "let their imagination soar" (ALCOA, 1942). Each design project was proflective, however in the overall development of the ReUse Pavilion these projects serve as pre-studies for a design brief (project 6.37) and design development (project 6.38).

3) Bråta...another turnaround... (project 6.37)

This project marks the transition phase from the utopian freedom that students had towards a more pragmatopian vision and pragmatic criteria for future design, funding and construction. Site analysis and proposals from the Sustainable Building Design Studio (project 6.36) were distilled into a synthesis of discussion topics for a design brief for the ReUse Pavilion (project 6.38).

The synthesis of the studio work had a triple function: to translate utopian visions into more pragmatic considerations for discussion with the client; to transfer knowledge to new design team members; and to analyze and develop knowledge towards regenerative placemaking. The synthesis also included future possibilities for the center as a whole to suggest how the pavilion could be a seed for a broader shift on site.

4) Reuse Every Day (*Återbruk var dag)*

An opportunity was given to students from the Sustainable Building Design Studio (project 6.36) to do an independent study in relation to the ReUse Pavilion (project 6.38). Two students chose to study the practical impediments and possibilities for incorporating waste as a building material in architectural projects through a case study and propose ways to increase reused materials in design and construction. They analyzed systems of demand, supply and regulations resulting in suggestions for improved links in these systems, as well as incentives and criteria to facilitate reuse.[15] This pedagogically framed project is neither proflective nor performative, however, it can be said to be driven by a desire to realize a prospective vision of regenerative design practices. The project is a thematically similar yet methodological divergence from all other work in this design inquiry. This contrast helped to crystalize this design inquiry's focus on more poetic methods and measurements.

Together, these five projects (including *Bråta ReUse Pavilion*) act as an extensive investigation into the interplay of design pedagogy, practice and research. They, therefore, dominate the projective practice exploration descriptions that follow.

[15] The full report (in Swedish) by Klara Mörk and Anna Gustafsson (2015) is available at Chalmers Publications online: http://publications.lib.chalmers.se/records/fulltext/213487/213487.pdf

I. Space-Saving Measures in the Following Project Descriptions

~ In a project there are a myriad of smaller narratives that build towards the larger narrative. As part of the analysis of each project, I have taken a macro look at the text, images, discussions and/or experiences related to each project and derived key '*Design Schema(s) or Narrative Components*.' The few times schemas come from students directly, it is indicated with quotation marks with the people being cited at the top of the page or referred to by group number.[16]

~ Due to space limitations, project descriptions are condensed to basic elements. Additional details about the projects are revealed in other sections, but primarily in section 6.4 and chapter seven.

~ To understand, analyze and communicate the different forms of waste-resource (W-R) technics in a project, all of the possible terms have been boiled down into a basic list. This list was presented in section 5.33, subheading I, and the reasoning behind this selection is explained and discussed further in section 7.22.

~ A few abbreviations have been used for efficiency. I reuse those from the last chapter (section 5.33, subheading I) with the addition of:

MPDSD = Master's Program Design for Sustainable Development[17]
C2C = Cradle-to-Cradle

~ All photographs are by me and students, who have approved the use of their images.

~ Digital addresses to uploaded films and other material online are active links in the pdf version of this document that will take you directly to the material online.

~ Sections and plans are not to scale.

[16] See Appendix VIII for the name of the students in each group.
[17] Later to be renamed: Master's Program for Architecture and Planning Beyond Sustainability.

6.32 FURNITURE DESIGN

Waste Warrior Cardboard Desk-Table

Project Situation: *Poeisis portion of dérive 5.34 at WW headquarters, Bhagsu Nag, India.*
My role(s): *Designer and builder*
Produced: *Sketches and full-scale mock-ups of construction details.*
Type of W-R technic(s): *Repurposing.*

Project Brief:

I was asked to make something connected to WW. Through my experience with them and discussions about their needs, the idea for a portable desk-table emerged. It was to be made from waste to inspire people to think about waste in a different way. As a table it was to display pamphlets with information during events at the WW headquarters and other locations in the region. Between events it would serve as a computer desk in the office.

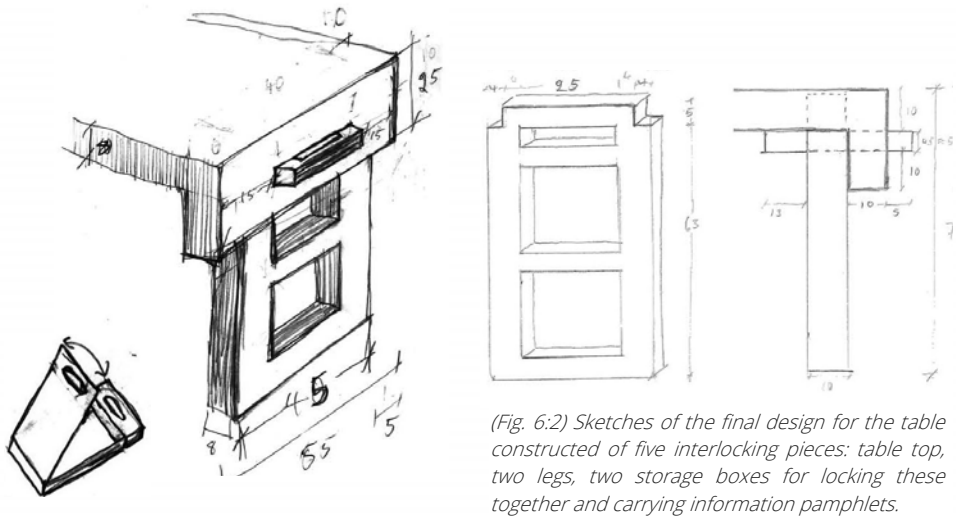
Reflection on Place, Practice and Project:

The project made clear how designerly thinking can introduce knowledge into an activist setting. The idea of cardboard as furniture was new to them. It proved difficult to build and was not completed. All the same, knowledge was gained and shared in the group regarding the possibilities and limitations of cardboard. While I have built with cardboard a lot in my career, I realized that the piece of furniture I had designed needed more advanced tools than the box knife I had at my disposal. Larger sheets of cardboard, e.g. appliance boxes, would have also facilitated precision and aesthetics.

The nature of the table changes with WW's changing roles as node, connector, educator and doer within and between places. As a desk it is part of the WW headquarters as a central node in a regional network defined by the fluid but continuous presence of W-R ideas and activities in the public spaces of the community. As a display table it is part of the WW movement that helps to create this regional network through connecting ideas, information, activities, people, places, waste and resources.

Design Schema(s) or Narrative Components:

- ~ *Upcycling a wasted single-use container to a resourceful multiple-use structure*
- ~ *Supporting information, inspiration and organization*
- ~ *Moving between and connecting ideas and information, waste and resource, people and activities, spaces and places*



(Fig. 6:2) Sketches of the final design for the table constructed of five interlocking pieces: table top, two legs, two storage boxes for locking these together and carrying information pamphlets.

6.33 INSTALLATIONS & INTERVENTIONS

The Cyclophone Concert

Project Situation: *Poeisis portion of dérive 5.35 at the Bike Kitchen, Gothenburg, SW.*
My role(s) & project partners: *Musical instrument maker with Ásgeir Sigurjónsson. Band member of The Sound Lab (Ljudlabbet).*
Produced: *Musical instruments and a concert. Video of testing the Cyclophone before the concert: www.youtube.com/watch?v=T8cSGUOwlml. Video of the concert: www.youtube.com/watch?v=mPRc5bPnFi4. Recording of soundscape from the concert: soundcloud.com/user-520460047/cykelkoket-track-2*
Type of W-R technic(s): *Repurposing.*

Project Brief

Create a musical experience with my band Ljudlabbet (The Sound Lab) during the dinner of a Nordic meet-up of bike repair groups at the Bike Kitchen in Gothenburg.

Reflection on Place, Practice and Project

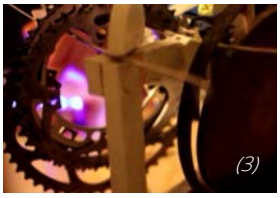
For the concert we used bicycle parts to modify existing instruments and made a new instrument: the Cyclophone. While there was great interest and plenty of suggestions for the making of the Cyclophone, there was also some hesitation. I learned then that we had been given an exception to the standard rule that salvaged bicycle parts should only leave the kitchen attached to a bicycle. While logical, this does limit opportunities for creative reuse in this place.

The music produced was an improvised set of soundscapes affected by the space, the people in the space and the interplay of different musicians moving between a variety of instruments. Many of the instruments were made from repurposed materials, but the Cyclophone was naturally the focus of the show with its clear references to the central theme of the space and the gathering we were in. The workshop atmosphere temporarily changed into a performance space and a gathering space to experience the soundscapes and socialize. The atmosphere was informal to the point that an audience member asked if he could play with the Cyclophone.

Design Schema(s) or Narrative Components

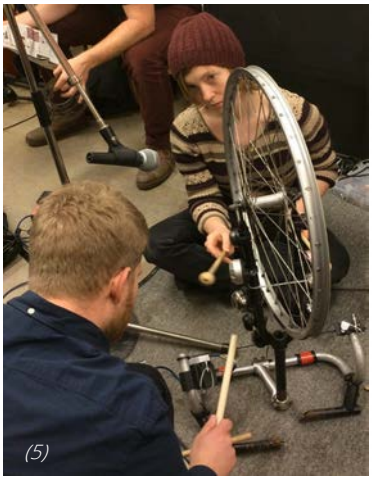
~ Soundscapes of waste transform a making-space into a music-space.

~ From object-making to music-making.



(Fig. 6:3) Bicycle chain rings were added to our self-made rhythm machine in honor of the concert.

(Fig. 6:4) The Cyclophone as a string instrument. A violin bow was used on spokes and the electric base chord (not visible here).



(Fig. 6:5) The Cyclophone as a percussion instrument. Drumsticks were used on the structure, bike chimes which had varying tones, and the electronic base chord (in between the handle bars)

6.34 PARTICIPATORY & CO-CREATIVE PROCESSES

Performative Mapping of Waste & Place

Project Situation: *Start-up of Social Inclusion Design Studio (CTU) at Hammarkullen's Culture Walk.*
My role(s) & project partners: *Lecturer, co-leader and creator of workshop with John Geib, Emilio Brandão. Tutor for master students in the making of the installation.*
Produced: *Lectures, workshop, a temporary installation and participatory event, and written reflections.*
Type of W-R technic(s): *Repurposing.*

Project Brief

A workshop where spatial design students design, build and manage a participatory co-creative event using waste they collected from their daily lives. The intention was to meet the community and gain insight into how locals and visitors felt about Hammarkullen. While exploring subjective cartography and performative mapping as a participatory method to do so. The event was to reflect concerns for W-R cycles and placehood, as well as consider Italo Calvino's tale of Ersilia with its "spiderwebs of intricate relationships seeking a form" (1979, p. 76).

Reflection on Place, Practice and Project

The event was designed to uncover the meanings people attached to places while also uncovering wasted space, wasted opportunities and wasted materials in space. The informality and playfulness of it attracted and engaged people and mostly kids. This provided insights into how they relate to place, but this was not the public the students had hoped for. They adapted and talked to the adults who were watching the children. Many students considered the event to be a fruitful source for inspiration and creativity, but found it difficult to document and extract concrete information. The model-making was very attractive but provided less useful information. The map encouraged more concrete answers and conversations. Overall, the students concluded that the advantage of such an event is its informal way to meet people to get a sense of the community, raise interest for a project as well as uncover clues of what one could investigate further. Many also reflected on how many personal stories were uncovered in the process and how important these are in understanding a place and its people.

Design Schema(s) or Narrative Components

~ Creating is perceiving: the perception of place makes a place.

~ A temporary place of waste for uncovering 'wasted space', 'wasted opportunities' and 'wasted materials in space.'

(6)


(7)

The installation's primary outcomes were play, meetings and storytelling. One side was for answering questions with models built from waste (Fig. 6:6). The other side was a large map for answering questions with stickers and notes (Fig. 6:7).

6.35 DESIGN COMPETITION

The Dog Trot

Project Situation: *Design for Hope House non-profit organization, Wake Forest, NC, USA (Spring 2014) in a design competition run by ReSpace (www.respace.org) called "The Porch."*
My role(s) & project partners: *Advisor for Mimmi Amini & Anna Skoghagen (at the time, 2nd yr. arch. students)*
Produced: *Competition poster and application. A design diary and final reflections.*
Type of W-R technic(s): *Reuse, repurposing, remediation.*

Project Brief

A small, but expandable, gathering space for community activities with a focus on social interaction, learning and reuse. The structure should be an exemplary design using salvaged materials with references to the use of porches in local vernacular building and social traditions.

Reflection on Place, Practice and Project

The final design was a composite of vernacular building strategies and salvaged materials focused around concepts of flow and flexibility for both climate and sociality. The form is a composite of four vernacular ventilation strategies: pier foundation, a clerestory, the porch, the 'dog trot' (passage way for people, dogs and air). The latter two are also traditionally used as social spaces. Sociality was further enhanced with a BBQ chimney and movie screen. Barn doors that swung 180° and join or separate the two side spaces in various ways maximized flow and flexibility. The students spent a great deal of time researching how to build with waste in a way that would reflect the local qualities while being innovative.

The building is made from reused timber and windows, the vernacular 'tabby concrete' that uses oyster shells from local industries, and a grass roof to 'give back' the green area taken by the building. The building design was the student's central strategy for creating a sense-of-place. The site strategy was therefore mainly the building as an object of focus in the surrounding landscape.

Design Schema(s) or Narrative Components

~ "Reconnecting with time and place...something new while respecting the past...reusing vernacular forms and knowledge [in] a new modern shape." (text from competition poster)

~ Flexibility and flow of air, space and sociality.

(Fig. 6:8) By exposing the painted side of salvaged siding, a colorful interior is created. This view shows how the barn doors can be either opened (left) or closed (right) to link the 'dog trot' with the two side spaces, creating a single space.

(Fig. 6:9) View of the 'dog trot' (center) with clerestory above and separated from the two side spaces by the barn doors being in their third possible position. (Other positions shown in fig. 6:9)

(Fig. 6:10) The BBQ chimney and pier foundation are made with 'tabby concrete.'

6.36 BUILDING & SITE DESIGN DEVELOPMENT

Bråta: from Recycling Center to Regenerative Place

Project Situation: *Final project for Sustainable Building Design Studio (MPDSD at CTU). Project initiated by the management of Bråta RC in Härryda Municipality, SW.*
My role(s) & project partners: *Tutor with Barbara Rubino for 32 master students (see Appendix VIII).*
Produced: *10 final project posters and reports.*
Type of W-R technic(s): *Reuse, repurposing, material metabolizing, nutrient metabolizing and remediation*

Project Brief

Develop concepts, plans and detailed design on the possible role, form and function of a pavilion and overall vision for Bråta RC. The studio work will serve as inspiration for the future design and construction of a reuse pavilion as well as possible changes to the site as a whole. Students were encouraged to let their imagination soar and use Bråta to explore the possible-impossibilities of utopian visions for what an RC could mean for both society and ecology. Could it become a regenerative place for the local community of human and nonhuman beings?

Reflection on Place, Practice and Project

During the site analysis phase, the consensus was that Bråta was "a dead place where dead things go to die." In fact, it was not a *place* at all but a *location* created for objects and machines where living things seem unwelcome unless they supply or operate non-living things. Many students felt uninspired after the first site visit. The place was ugly and waste management seemed more of an engineering problem than an architectural one. However, through tutoring and discussions, most students found inspiration from regenerative design principles, surrounding contexts and in the project's local and systemic potential to remediate and prevent environmental damage caused by the built environment and humanity's product consumption.

Interviews that the students conducted with employees and visitors from a pre-study (Alelyckan) and Bråta revealed that there is a surprising amount of human activity and social interaction at RCs. This fueled the question of what kind of publicly shared space an RC is and could be considering that it is, just like waste, shoved to the edge of communities. However, the site analysis of Bråta uncovered the potential to link RCs to other spaces that tend to exist at the edge of communities, such as different types of (sub)urban growth and areas with recreational and ecological value. The student proposals suggested various ways the recycling center could transform its role in the local community through transforming itself into an activity center, resource park and eco-park, and developing new ways to connect and educate people. Projects ranged from very pragmatic proposals focused mainly on the placement and design of the pavilion, to utopian visions for a complete redesign of the site and all buildings.

Design Schema(s) or Narrative Components

~ A dead location where things go to die becomes a living place where things are given new life and new homes

Analyzing the spatial narrativity in student proposals reveals Three Broad Forms of Ecosociospatiality:

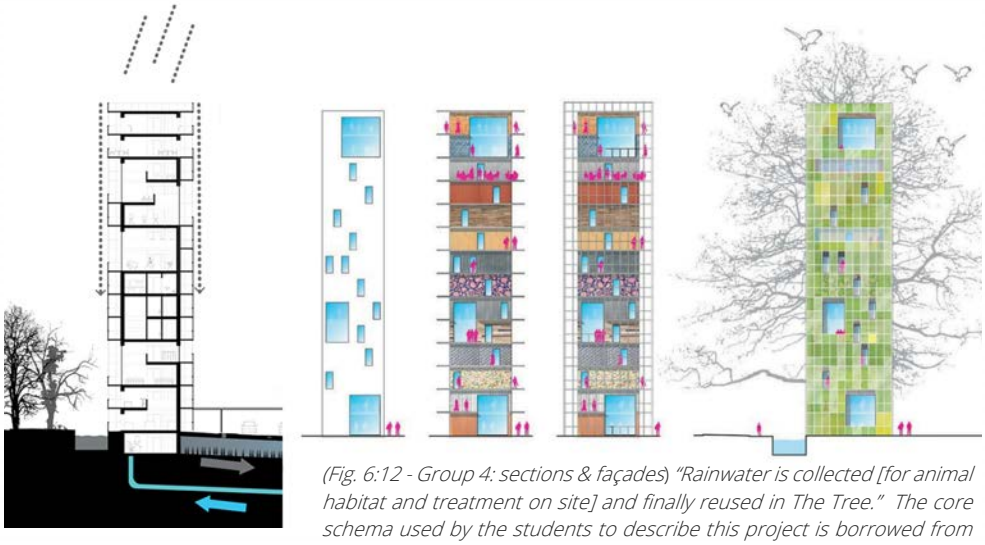
I. A node/landmark to connect, direct and relate society to ecology
II. Embracing/framing a space to emphasize key elements of socioecological well-being
III. Integrating/transforming societal and ecological spaces through morphosis

The following projects are examples of these forms of ecosociospatiality that show how students used them to (re)frame W-R issues. Some of the schemas and other narrative components that students used are pointed out when appropriate in the following pages, and others are presented in project 6.37.

(These broad forms of ecosociospatiality identified in this project are discussed and analyzed further in relation to other projects and dérives in section 7.3)

I. A NODE/LANDMARK TO CONNECT, DIRECT & RELATE

(Fig. 6:11 - Group 4: perspective of NW corner entrance) "The recycling center [is] the main feature of the recreation areas [with] functions and programs…[that]…support the experience of nature [and W-R technics]." Connecting humans and nonhumans vertically and horizontally with "a tower in nature" (see also fig. 6:33 & 34)
(north façade) "Feel the façade and climb it like a tree…become one with the birds."
(west façade) "Discover [and learn about] new plants and birds."
(south and east façade) "A building can be run on renewable energy produced by itself."
(all façades) "Get inspired by 'waste' and see how different materials can be used as façade cladding."



(Fig. 6:12 - Group 4: sections & façades) "Rainwater is collected [for animal habitat and treatment on site] and finally reused in The Tree." The core schema used by the students to describe this project is borrowed from McDonough & Braungart (2002a): "Buildings like trees. Cities like forests."

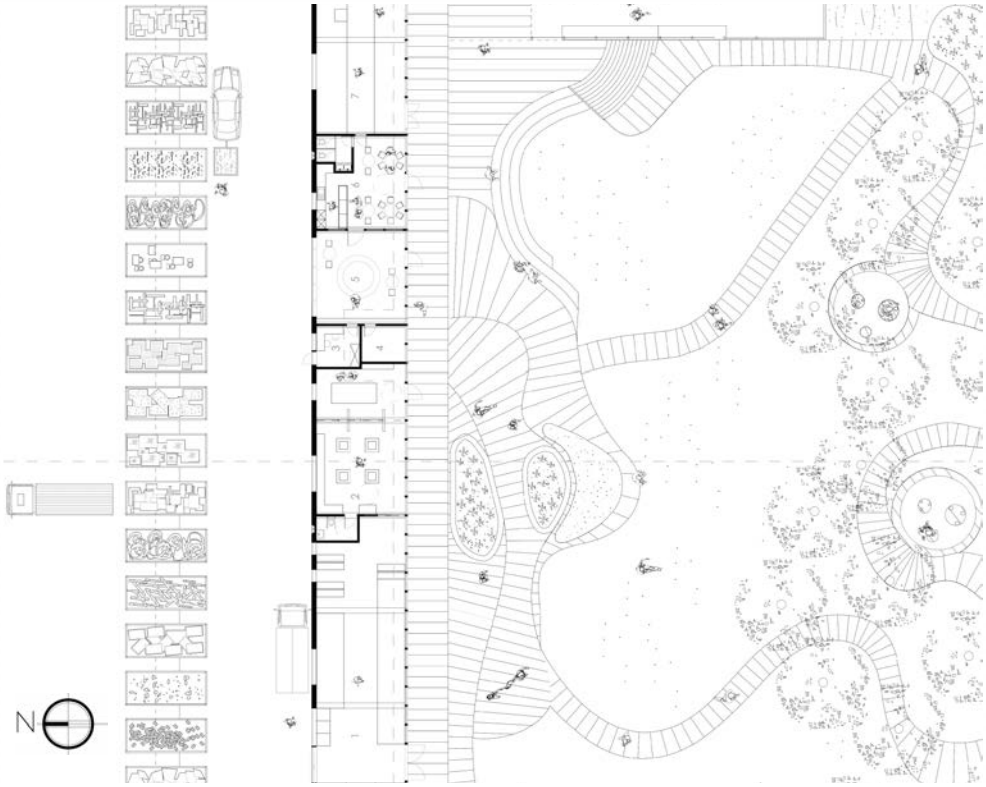
II. EMBRACING/FRAMING A SPACE TO EMPHASIZE KEY ELEMENTS

(Fig. 6:13 - Group 5: view of entrance) Education and exhibitions spaces embrace a green courtyard that indicates "the social and ecological values on site" – an invitation to have "an inspirational learning experience.

(Fig. 6:14 - Group 10: view from W-R collection causeway) "The Green Island [in] the sea of asphalt. The island is green, it is self-sustaining, thrives on the energy of the sun and its waste is turned into nutrients."

(Fig. 6:15 - Group 6: view of retention pond) An oasis for human and nonhuman repose in a habitat created by collecting, treating and celebrating water at the center of a W-R collection causeway.

(Fig. 6:16 - Group 1: cross section) Activities, space, materials and water transform from technical to natural forms and processes.



(Fig. 6:17 - Group 1: portion of site & building plan) "A sense-of-place where social activity is connected to ecological conditions instead of the other way around...a regenerative local hotspot for activities."
A morphosis from mechanized and handmade (left to center) to metabolization and musing (center to right). From left (N) to right (S): W-R collection, W-R transformation through repair, reuse, redesign, water treatment ponds and decks for repose that lead into nature walks in a wooded park with sculptures made from 'waste'.

This project's title, "What a Waste", infers that more could be done for and with Bråta's 100,000 visitors and 8609 tons of 'waste' per year. The project proposal itself is then a response to this admonishment.

(Fig. 6:18 - Group 1: longitudinal section)
The building enhances the social space by inviting ecology into the building.

6.37 DESIGN BRIEF DEVELOPMENT

Bråta...another turnaround...

Project Situation: *Synthesis of student work and developing a design brief for Bråta ReUse Pavilion for Härryda Municipality (SW) represented by: Johan Hagman and Eliza Farmand.*
My role(s) & project partners: *Project manager and co-author with Lisa Kihlström, Charlotte Farrouche and Per Thurfjell (JIG Design Coop.), Anna Gustafsson and Ruxandra Bardas-Dunare (students from project 6.36).*
Materials produced: *Combined design brief and synthesis report of student work from Sust. Bldg. Studio (project 6.36). Whole document available at: www.mistraurbanfutures.org/en/project/brata-reuse-pavilion*
Type of W-R technic(s): *Reuse, repurposing, material metabolizing, nutrient metabolizing and remediation.*

Project Brief

Transfer and assess knowledge developed in the Sustainable Building Design Studio (project 6.36) in relation to the design of a pavilion at Bråta RC (project 6.38) as well as regenerative placemaking and practices. The synthesis report of student projects includes analysis of existing conditions, an overview of regenerative principles along with specific principles and strategies used in student proposals for Bråta RC. This synthesis forms a basis for discussion with the client to define a design brief for the ReUse Pavilion and its role in the future of Bråta as a whole.

Reflection on Place, Practice and Project

After the students' final presentation, it was clear the client was overwhelmed by the extensive utopian visions from the studio setting and a bit confused as to how these could inform the design of a single building with a restricted budget. This heavily influenced the format of the review and summary of the students' work. A summary of the theoretical premises as well as the site/context analyses set the stage for the project team's analysis of the design proposals. From the proposals we identified and distilled unique and common design elements and divided these into three temporal-pragmatopian tiers of *considerations for the design: essential, possible and future* (see Appendix IX). Some design elements traverse the three temporal tiers as they can be implemented on several levels, e.g. ecosystem services in the form of a grass roof on the pavilion is placed in essential considerations, whereas further measures, such as grass roofs on all buildings, is placed in future considerations. These temporal tiers were also subdivided into programmatic themes (fig. 6:42). We did not use program themes from published regenerative theories in order to see what themes emerged naturally from the theoretical underpinnings of the course. This led to a clearer understanding of the difference between a C2C and regenerative placemaking approach to design (see section 6.43).

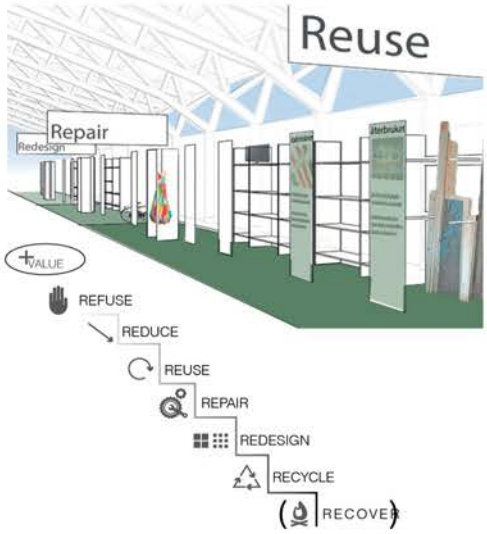
Design Schema(s) or Narrative Components

As my understanding of spatial narrativity grew, I realized that one can describe these design elements as the vocabulary and phrases from which the students created a variety of regenerative ecosociospatial narratives. The poetic quality of the narrative depends on the form and configuration (or syntax) of the vocabulary used in each project.

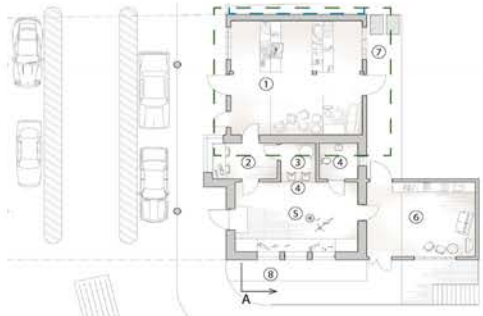
The project synthesis is then, in essence, a collection of a regenerative design vocabulary for this project type and situation; a vocabulary from which a design schema could be built at the onset of a project - a kind of encyclopedia of regenerative spatial design vocabulary and phrases from which spatial narrativity and poetics for socioecological well-being could be constructed.

The following are excerpts from the studio synthesis to illustrate the temporal-pragmatopian tiers (essential, possible, and future considerations) and regenerative design vocabulary extracted from projects. The pages have been modified from their original: adding fig. numbers on illustrations and at times consolidating two or more pages into one.

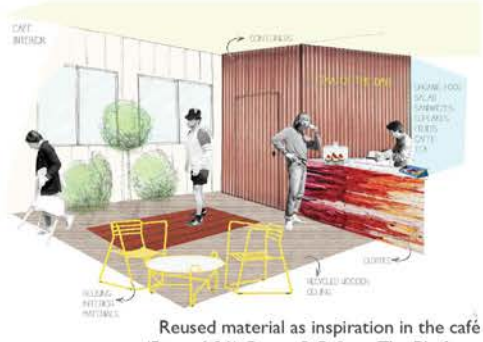
ESSENTIAL CONSIDERATIONS
FUNCTIONS



Drive-through drop-off area communicating the sites resource management hierarchy
(Figure 6:19) Group 6: Bråta Resource Park



Reuse hall (1) with easy drop-off and connected to small office for a worker to be able to greet customers and help them sort material (2), loading dock (7) as well as rooms for disassembly repair (5) and items one can take home(6)
(Figure 6:20) Group 9: Bråta Recycling Centre



Reused material as inspiration in the café
(Figure 6:21) Group 3: Bråta – The Platform

SORTING SPACE

Space where the visitors can sort their goods on site. Can be connected to the reuse space or can be a separate space. The visitors must know where their material goes and therefore simple and clear signage is important. The sorting space could either be a hall that cars drive through or a building they park next to and enter by foot.

Materials to be sorted:
- Construction material
- Clothes
- Furniture
- Household objects

REUSE SPACE / SWOP SHOP

Space where building materials and other reusable goods are collected to be reused or taken home by someone. This space must be considered being both interior and exterior, depending on the need of the materials. Logistics, size, accessibility and heated / non heated areas must be considered.

DISASSEMBLY AREA

Several student projects suggest a disassembly area. Customers could disassemble composite items here to help in a more effective separation of materials. This area would then include tools and a work bench and sorting bins.

FLEXIBLE / MULTI-PURPOSES SPACE

Other functions serving the overall vision of the building have been identified by students. Because all these activities cannot be given individual spaces (within the budget and size limitations), a flexible space enabling different activities at different times of the week / year is an alternative solution.

These functions could be:
- Exhibition
- Workshop
- Café
- Information Centre

ESSENTIAL CONSIDERATIONS
SPATIAL QUALITIES

Attractive spaces, buildings and activities all help to create a meaningful experience for users and hence a sense of place.
(Figure 6:22) Group 6: Bråta Resource Park

SENSE OF PLACE

The spatial qualities of the building should support the a meaningful experience for the user. The sense of place is the synthesis of the building experience as a whole and is made up of many aspects such as: size, enclosure, form, function, texture, color, materiality, light qualities, the experience of approaching and arriving at the building, how well it fits into its surroundings, references to other personal and cultural experiences a person might have of buildings, etcetera.

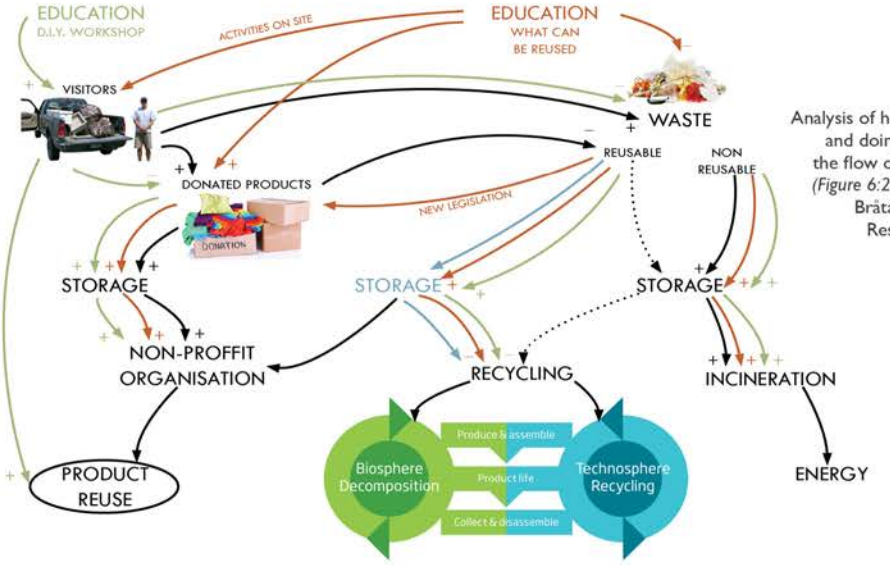
ESSENTIAL CONSIDERATIONS
OUTREACH & INVOLVEMENT

Signage can be used to spread knowledge
(Figure 6:23) Group 7: Bråta Product & Resource Park

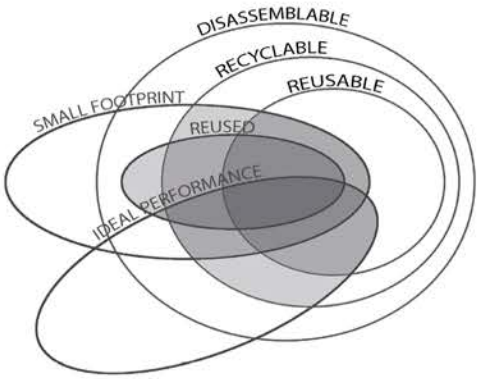
LEARNING AND DOING

There should be opportunities for passive or active involvement and learning on site. Visitors should be able to understand what their role is (and could be) in a system where waste is seen as a resource, EU goals, Bråta's goals, the local and global situation of resource management, etc.

What are the consequences of their actions and where do things go? How can we avoid waste going to the incinerator? What process help to convert the 'waste' into a resource? What can be made out of the things we throw away?



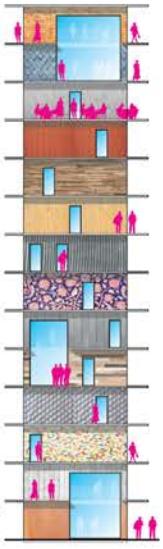
Analysis of how learning and doing can affect the flow of resources *(Figure 6:24)* Group 7: Bråta Product & Resource Park



Considerations for material selection
(Figure 6:25) Group 9: Bråta recycling centre

Showing the qualities of different reused materials
(Figure 6:26) Group 9: Bråta recycling centre

Containers as building material
(Figure 6:27) Group 2:
Bråta recycling centre



Facade as inspirational element
(Figure 6:28) Group 4: The tree

Expandable structure
(Figure 6:29) Group 1: What a waste

ORIGIN OF MATERIALS

A core idea of the project is building out of reused materials, ideally coming from the site. However, some materials may come from other places, or may be new. Assessing the origin of materials is in this project important considering the initial goal. Priority should be given to reused materials, but other aspects should also further be assessed.

Priority strategy for choosing materials:

1: Reused products from Bråta
2: Reused products from other recycling centres
3: Locally produced products based on recycled materials
4: Non-locally produced products based on recycled materials
5: Locally produced products based on virgin materials
6: Non-locally produced products based on virgin materials.

AESTHETICS & QUALITY

With the aim that the pavilion should inspire others to reuse building materials or use "good" materials, the aesthetic of the pavilion and its materials must be appealing. A balance should be sought between showing off a variety of materials and having a holistic appearance.

The quality of the materials affect how long the products will last in the pavilion and therefore the need for reparation. A product of high quality will also increase the chances of being reused once more in a new structure. But a product with low quality that needs to be exchanged or repaired often might still be interesting to use if the material is reused, or has a low environmental impact if new.

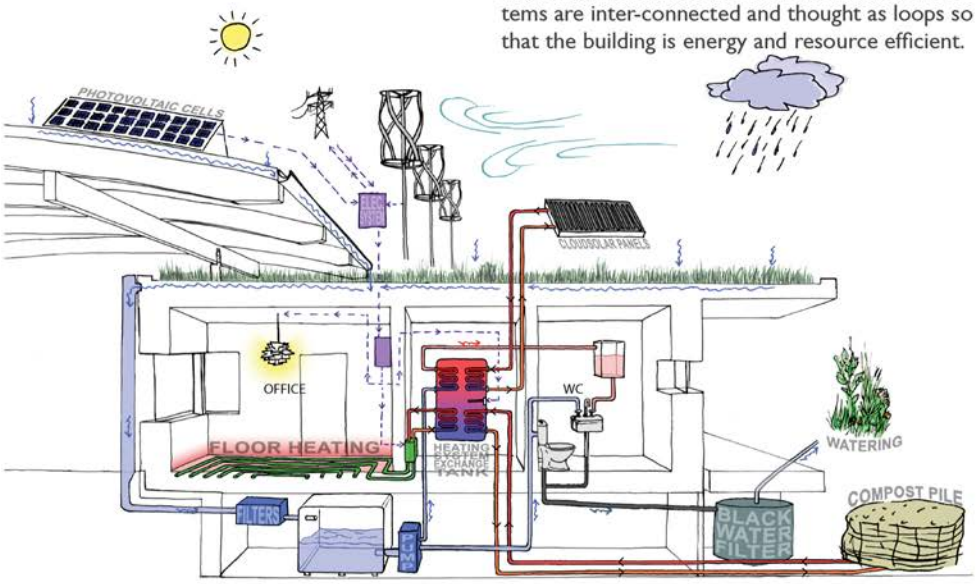
EVOLUTION & DISMANTLING OF THE BUILDING

What happens to the building at the end of its operation time is an important consideration when talking about waste. The construction system of the building should take into account its dismantling. (Can materials be reused after being dismantled? Can the structure be mounted again, somewhere else?) Likewise the construction system should allow evolution of functions overtime, so that the building is adaptable to new situations.

POSSIBLE CONSIDERATIONS
ENERGY & PERFORMANCE

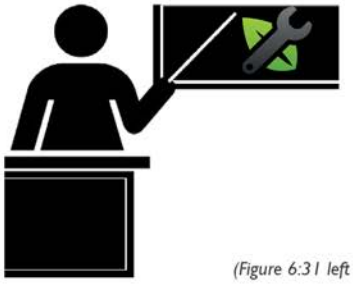
SYSTEMS-INTEGRATED DESIGN

This is an example of a systems-integrated building. Energy, water, heating, ventilation, lightning systems are inter-connected and thought as loops so that the building is energy and resource efficient.



Systems-integrated design section
(Figure 6:30) Group 9: Bråta Recycling Centre

POSSIBLE CONSIDERATIONS
OUTREACH & INVOLVEMENT



(Figure 6:31 left & 6:32 below)

DISTRIBUTING SKILLS

Specialists and artists could be invited to Bråta to give workshops or just give advice to home hobbyists. But hobbyists could also hold their own workshops. The centre could become an exchange of skills in addition to an exchange of materials. Particularly interesting are skill related to converting waste into a resource, such as repair and handicrafts.

A DIGITAL INFORMATION BOARD

A digital information board at the pavilion could provide interactive information about the building and information about reuse and recycling, the waste problem in general, etc. A touch screen could be very effective and easy to use.

Community members could also post things they want to get rid of or need, like a local version of 'freecycle.org'.

Plan (above) and aerial (below) showing how paths from one green area could be connected to another green area with Bråta (blue circles) in-between as an eco-center.
(Figure 6:33) Group 4:The Tree

BRÅTA AS ECO-PARK

Bråta could become a centre that showcases the full spectra of how we as a society and individuals can reduce our resource use, global footprint and live more harmoniously with the ecosystems that we and other creatures depend upon and are a part of.

CONNECTING TO NATURE AREAS

Very pedagogical approach: Demonstratively connects the act of enjoying nature with the act of recycling and reuse. Ties and reinforces Bråta's relationship to local context and environment.

Repositions Bråta from a periphery activity outside of the community to a centre for activities connecting to large nature areas with hiking paths.

Integrating neighboring ecosystems on roof and ground.
(Figure 6:34) Group 4: The Tree

Green walls can be habitat for insects and birds.
(Figure 6:35) Group 4:The Tree

INCLUDING ECOSYSTEM SERVICES

The design of a system-integrated building can make the building first resource effective, but can also support other functions such as supporting biodiversity.

Example of supportive solutions:

- Green roofs on site: Depending on the plant species planted on the roof, birds and insect biodiversity can be improved. Some green roofs do not require maintenance and do not weigh more than a normal roof. Green roofs are also helping cleaning the air that might get polluted on site.

- Decreasing paved areas:

Decreasing paved areas decreases the amount of water run-off from the site and makes Bråta more hospitable for humans and animals.

- Green walls: Birds and insects can use green walls as habitat.

- Bird houses: Bird houses built out of reused materials can serve as both reuse inspiration for visitors and habitat for birds on site.

FUNCTIONS

Repair and dismantle shop at Bråta
(Figure 6:36) Group 1: What a waste

REPAIR SHOP

Having the opportunity to repair items on-site represents a great opportunity to take objects that will be donated and fix them oneself. Here people could have space and access to tools and knowledge of how to repair certain things and potentially learn from experts at scheduled workshops. Again, it is coherent to the overall vision to reduce the amount of waste treated at Bråta. But opening a workshop is first costly because of the tools and machineries, it requires staff for safety reasons and a more complex management system for all facilities at Bråta.

Therefore, it is not possible to envision a workshop for the present project, but is a function that could be, in the coming years, implemented on site.

Second hand shop at Bråta
(Figure 6:37) Group 1: What a waste

SECOND HAND SHOP

Opening a second hand shop at Bråta has often been lifted up by the students. It would accompany the overall vision of promoting sustainable lifestyles, increase the re-use of objects or clothes, develop alternative consumptions of goods, etc. But opening such a shop requires new management strategies, new opening hours, new employees. Therefore it is not possible to envision it for the present project.

Adjoined exhibition & learning spaces
(Figure 6:38) Group 7: Bråta Product & Resource Park

LEARNING & EXHIBITION SPACE

Most student proposals include some type of exhibition and learning space. Sometimes these are one and the same. Other times the learning space is separated and combined with the repair shop space. What is suggested in the exhibition space varies from information about environmental impacts of human activities, especially in relation to waste, to art exhibits of things made from waste.

6.38 BUILDING DESIGN DEVELOPMENT

Bråta ReUse Pavilion

Project Situation: *Design development for Bråta ReUse Pavilion in Härryda Municipality, SW.*
My role(s) & project partners: *Designer with Charlotte Farrouche (JIG Design Cooperative). Managed by Pär Thurfjell (JIG Design Cooperative & Helhetshus Architecture Studio).*
Materials produced: *A set of design drawings and details. (That led to a built structure, see Appendix X.)*
Type of W-R technic(s): *Reuse, repurposing, material metabolizing and remediation.*

Project Brief

Create a (third) design proposal for the client from what was learned from the previous proposal discussions. Create a set of drawings to use for an invitation for bid/to tender in search of a builder interested in taking on the project.

Reflection on Place, Practice and Project

(Fig. 6:39) Section perspective of the pavilion's interior at its minimum size. Movable shelving units divide flexible spaces under trusses that resemble branches and a green roof.

After a few rounds of proposals, the final design landed in a pavilion with a green roof and flexible interior spaces divided by shelving units on wheels. One of these spaces was to be a 'swop shop' and the others were spaces for donations made to charity organizations. Walls, including those incorporated into the shelving units, were frames infilled with salvaged materials. Windows and minor structural elements were to be salvaged to the greatest extent possible, while major structural elements were to be sustainably harvested wood and composite wood beams. The trusses were to be made using both new and salvaged materials (if possible) with a pattern that harkened to the branches of the trees in the neighboring forest. Likewise, the structural columns were pronounced in the façade both in relief and with a burnt finish to liken the look and natural weather protection of the bark of the trees. In order to accommodate budget, material availability and changing needs we designed a building that could expand on either side over time. Designing with salvaged materials makes the materials and construction detailing a prominent feature early on and continuously throughout the design process. We based the spatial and structural proportions on the infill module designed to hold reclaimed doors and a variety of infill materials.

Design Schema(s) or Narrative Components

~ A piece of forest made from, and for, salvaged things.

(Fig. 6:40) The pavilion at its final stage of realization with one interior and two exterior extensions to the basic size (fig, 6:39).

Burnt columns resembling neighboring trees and a green roof offers habitat, shades and creates oxygen like tree crowns. It also reduces the problematic water run-off from the RC.

6.4
Reflecting on Projective Explorations of Regenerative Place & Placemaking

As mentioned at the end of chapter five, the conclusions drawn from my probing and projecting feed into one another. The combined insights and reflections are therefore presented jointly in chapters seven and eight. However, insights and observations that are more closely linked to this chapter's contents are presented in the following sections.

6.41 Reflecting on Using Projective Methods

From the idea that design fits into a performative research paradigm (Haseman, 2006) and the broad definition of the field of spatial design,[18] I have explored different forms of projectivity both within and beyond standard architectural design processes and practices. From this spectrum, it is clear that details of a projective method vary greatly according to project needs and circumstances. As such, projective methods cannot be overly prescriptive.

Another important aspect of design knowledge derived from projectivity is that it is built from multiple projects looking at the issue from multiple angles and in multiple circumstances. A great amount of time and work is therefore required to reach a cumulative result. Analyzing the multiplicity of projects, each with its own circumstance and variation of materials produced, poses a challenge. Additionally, it is exceedingly difficult to document, represent and describe the rich processes and results of a projective exploration in a succinct manner.

One variable that has been a bit of a conundrum in comparing different project outcomes from one another has been determining the level and depth of proflection. Janssens' (2012) description and examples of Utopia-Driven Projective Research and proflection involve the projection of futures that are further away from the present than most of the projects in this design inquiry. However, there is basis to argue that envisioning and evaluating a proposal for the near-future also involves proflection. It is a point that could be studied and debated further. However, regardless of the individual levels of proflection in each project, I have come to the conclusion that their cumulative function in this design inquiry qualifies as a proflection upon the possible, and distant, future places and practices in a regenerative society.

I have found that projectivity done with others benefits research greatly by having the research topics and questions challenged and pondered by different perspectives while they are under development. When students and other project partners take on your research topic and personally explore it, a rich environment for knowledge development and transfer is created. Arguably more so than in individually conducted projectivity whose knowledge development is more detached from the input and personal involvement of others.

In regard to documentation, I conclude that the design process must proceed naturally and unincumbered for it to have validity as a designerly exploration of a topic. Design logs,

[18] Defined in footnote 3 for section 0.1

for example,[19] were generally seen as burdensome to the project process and left incomplete. In the end, the primary source of information came from the project materials themselves, i.e. installations, reports, posters, verbal presentations and written reflection/research papers. As these vary greatly according to project and design team characters, conducting analysis and extracting conclusions became a challenge for me.

The most successful analysis work of this type of material was in the translation of student proposals (project 6.36) into a synthesis of design elements to discuss a design program and vision (project 6.37) with a client. This proved fruitful both as a way to analyze the design proposals as well as develop a unique program brief for the project. The success of this work lies in the team composition and discussions, but also in the translation from a pedagogical setting to a professional one.

A second level of analysis crystalized subsequently and partly due to this work, which has been the detection and derivation of schemas and narrative components presented in the previous project descriptions. This parallels how practitioners collect and derive design schema,[20] which I have previously discussed as forms of narrative analysis and poetic measurement in design.[21] The core narrative was often implicitly rather than explicitly communicated in most projects, but could none-the-less easily be derived from the number of smaller narratives and schemas used to describe projects.[22] Schema development is a design skill that was found when studying experienced practitioners. While experienced designers may have used more well-honed design schema for the same projects, both the literature and my experience suggest that design schema become honed through a conglomeration of design experiences and critical reflection in a design practice. As such, this process can be seen as a form of narrative analysis of projects and experiences which will be elaborated upon in the following chapter.

6.42 Regenerative Waste-Resource Hierarchy

As part of *Bråta: from Recycling Center to Regenerative Park* (project 6:36) one group took a critical look at Lansink's ladder (fig. 1:4) through the lens of regenerative design principles and found a need to expand upon the number of rungs in the hierarchy of waste-resource management (fig. 6:19 and 6:41). The result is a ***regenerative waste-resource hierarchy.***

This expanded look at the practices that exist within the upper rungs, i.e. the circular waste-resource processes, of Lansink's ladder could be useful to governments looking for options on how to meet EU's waste framework directive (2008/98/EC). It could also be useful for spatial designers seeking to include and/or use waste-resource technics in the creation of spaces for communities that must meet such directives.

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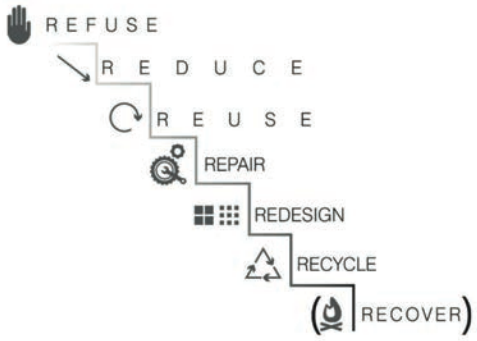
[19] Specifically, *The Dog Trot* (project 6.35), *Bråta: from Recycling Station to Regenerative Place* (project 6.36) and *Bråta ReUse Pavilion* (project 6.38). *The Dog Trot* was the only successful design log.

[20] See section 2.51.

[21] See section 4.42 and 4.43.

[22] An exception to this was *The Dog Trot* (project 6.35), which succinctly and explicitly communicated a core narrative and schema. It is likely that the presentation limits set by the design competition motivated them to hone their communication. Had my understanding of schema and narrativity matured before the onset of the pedagogically framed projective explorations, it would have been incorporated more deeply into my teaching, possibly leading to more explicitly expressed core narratives and schema in student materials. This would be an excellent topic for further study.



(Fig. 6.41 [reproduced from 6:19]) The regenerative waste-resource hierarchy created by Group 6 in their proposal for Bråta: from Recycling Center to Regenerative Park. It is a critical look and adjustment to Lansink's ladder (fig. 1:4) based on regenerative design principles.

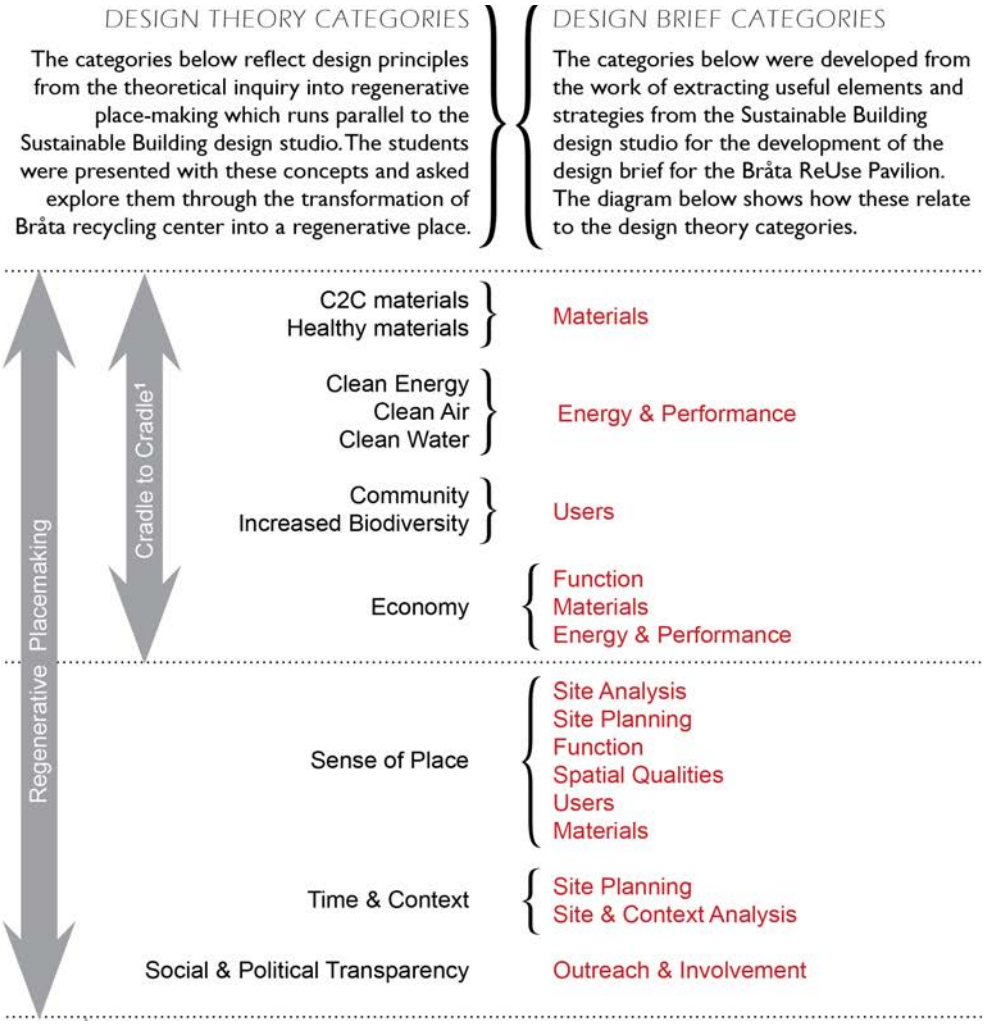
6.43 The Power & Predicament of Cradle-to-Cradle

Placing the question of regenerative placemaking into pedagogically framed projects confirmed and further delineated how Cradle-to-Cradle (C2C) falls short of other regenerative theories in regard to placemaking (fig. 6:42).[23] While all of the pedagogically framed projective experiments introduced regenerative principles, waste-resource and placehood to the students, the most extensive exploration of these was in the Sustainable Building Design Studio. So, while the insights presented here did not come solely from that projective experiment, it is most clearly discussed through it.

In the design studio, students produced research papers, reflections, precedent research, and proposals for transforming both *Alelyckan Circular Systems Park*[24] (fig. 6:1) and *Bråta: from Recycling Center to Regenerative Place* (project 6.36). Through discussions and products from the project work, but most importantly in the analysis that led to the synthesis and project brief *Bråta...another turnaround...* (project 6.37), it became clear that C2C design principles for the built environment developed by GXN research group (Jørgensen & Lyngsgaard, 2013)[25] were very influential but incapable of representing all of the spatial design strategies that the students used to understand, generate and express their proposals.

This was revealed by allowing categories of design strategies emerge naturally in the analysis of student projects for the synthesis and project brief *Bråta ReUse Pavilion* (project 6.38) and comparing these to C2C principles developed by GXN (fig. 6:42). What becomes clear is that C2C is primarily object and systems-oriented and leaves key principles of placemaking largely untouched. The analysis team grouped these into three main design theory categories: *Sense-of-place*, *Time & Context* and *Social & Political Transparency*.

[23] See section 3.23, subsection III
[24] Also listed as a proto-regenerative space visited in the list of Dérives (section 5.32).
[25] A book of principles endorsed by Michael Braungart and William McDonough.



(Fig. 6:42) A diagram from the design brief Bråta...another turnaround... (project 6.37) comparing theoretical design principles to the design brief categories that emerged in the analysis of student projects.

From the student discussions and work, one could say that part of the allure of C2C the very pragmatic checklist of design principles and a set of well-honed regenerative design schemas.[26] Many student groups used these C2C schemas verbatim to describe their design intentions, lending a poetic language to their design narratives. Another allure, primarily to society at large, could also be in its ability to circumvent a direct challenge to consumerist culture and the ideal of eternal economic growth by implying that it can continue if done regeneratively.[27] While I doubt it is possible to develop a regenerative society without shifting current consumerist and economic norms, this point could benefit from further study.

While it certainly is encouraging that regenerative thinking is gaining attention within spatial design and community development, I am concerned over the lack of placemaking

[26] Discussed and listed in section 3.23, subheading I
[27] Discussed and debated in section 3.23, subheading II

principles within C2C. A widescale adoption of C2C would, once again, relegate this core aspect of regenerative design and socioecological well-being to the side-lines. The predicament of C2C is therefore not so much in its success but more in its conflation with regenerative design thinking as a whole. The findings from the previous table (fig. 6:42) further illustrate what I have described as differing perspectives, or branches, within regenerative thought; a point that has been discussed previously and will be elaborated upon further in the final chapter.[28]

Contributions to Language & Concepts

Performative Mapping	a method of subjective cartography where the act of mapping itself generates and transmits knowledge, arguably more so than the map itself.
Subjective Cartography	the mapping of subjective experiences and perceived realities.
Pedagogically Framed Projective Research	a design research methodology where research topics are explored through projects done by students
Pedagogically Framed Projectivity	a design method that can be used in either design research or design practice and as a bridge between these two forms of knowledge building
Regenerative Waste-Resource Hierarchy	An expansion of the of Lansink's ladder for waste management using regenerative design principles.

[28] Previously discussed in section 3.2 and subsequently elaborated upon in section 8.6.

REFLECTING ON EXPLORATIONS OF PLACEMAKING

Summary of Chapter 7

This chapter is a discussion on the combined results and insights from probing (chapter five) and projective explorations (chapters six). It is the first step in concluding this dissertation and leads towards a broader discussion from a more discursive perspective in chapter eight.

Its purpose is not only to gather and develop concepts from previous chapters but also to clarify knowledge contributions made by this dissertation (highlighted with bold font or graphic boxes).

7.1
Design Thoughts on Regenerative Ecosociospatiality

This chapter presents and reflects on insights gained from both lived and imagined experiences of waste-resource (W-R) in publicly shared spaces presented in the two previous chapters. In particular, how these can contribute to regenerative ecosociospatiality through regenerative spatial design knowledge, placemaking and placehood. It is the foundation for the broader discussion in chapter eight on regenerative thinking and spatial design in shifting paradigms beyond conventional sustainability.

The objective has been to identify regenerative ecosociospatial elements and practices through the lens of a spatial designer collecting and developing design schemas for regenerative place and placemaking. As such, each investigation has been as much about what a regenerative place *is,* as what it *does*, and what *goes on* there, as well as how this could be applied to design knowledge.

This inventory is limited not only to the scope of cases, but also to the scope of study, i.e. the study's lacuna. It has never been the intention of this study to make a full inventory of all expressions and implementations of regenerative placemaking, but rather to identify regenerative ecosociospatial elements that are generated by the syncretic pairing of waste-resource with space-place transformations.

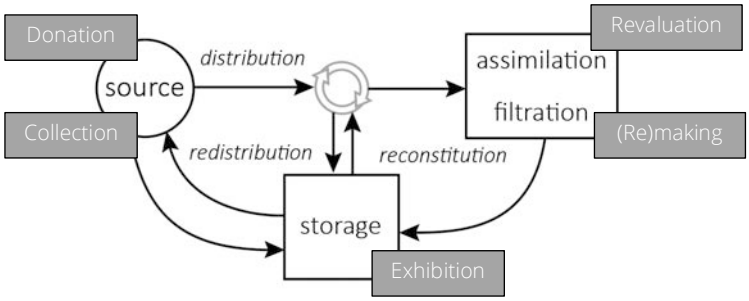
7.2
W-R Practices & Values in Place

The following sections are a reflection on a number of practices and values that can be tied to places that in some way extend the life of objects and thereby contribute to reducing the overall rate of entropy of resources in a society. This, in turn, lends insight into practices and values of regenerative placemaking that contribute to a place's functionality and sense-of-place, and as such should be considered when designing a regenerative place.

7.21 Engagement of Spatial Practices in Places with W-R

In the places and projective proposals explored in the two previous chapters, things are donated, collected, stored, revalued, exhibited, reconstituted and/or redistributed. I hold that there are correlations between what goes on in these places with components of Lyle's regenerative closed-loop systems[1] as illustrated in the following diagram (fig. 7:1).

[1] See section 3.21, fig. 3:1b.



(Fig. 7:1) This diagram correlates waste-resource practices found and proposed in this design inquiry (grey boxes) with a diagram of Lyle's regenerative closed-loop system (first presented as fig. 3:1b).

Even when a place does not include every component of such a system, as was often the case, the correlations of what goes on there with particular components in regenerative closed-loop systems reveals the place's potential role in a regional regenerative system. Each space and proposal explored in this design inquiry engages a person either passively or actively in the practices that produce these states of things. These, in turn, generate and frame different aspects of placehood discussed in the various sections of this chapter. From corporeal and proposed experiences of the correlating components in the diagram above (fig. 7:1) one can single out three basic categories of spatial practices and corresponding levels of participation in places with waste-resource aspects:

Three Basic Categories of Spatial Practices & Levels of Participation

Being in a place and contributing to its sociality. This involves observing and/or using waste-resource items while enjoying a personal or social past-time.

Moving of items from one location and use to another. This involves collecting, donating, selling and purchasing items to extend their use in society through various acts and processes that facilitate their reevaluation.

Involvement in processes of change and maintenance. This involves the creation, management of and participation in activities that reconstitute items in and for places.

As in the first of these categories, many publicly shared spaces allow for the exploration and expression of personal identity in relation to a social and physical context, which has its own identity. At this level of participation, a person observes and/or uses waste-resource objects and space in a way that fits within the norms of how a publicly shared space is used individually and socially. The level of awareness that there are waste-resource aspects in the space can vary greatly according to the character of the place and person. Providing explicit information to users, as proposed in many projective explorations, could enhance the awareness and impact of the regenerative values behind the waste-resource aspects of a place.

In the second level of participation, actions are taken to extend the lives of objects through practices that can be said to fit within norms of a consumerist society. The important variance

on these practices lies in the choices of how to value, acquire and discard used items. They are choices that shift the linear waste-making model of ephemeral economies and fit into a more circular waste-resource model of what one could call a ***nonephemeral economy*** (a concept that has been hinted at previously and will be discussed further subsequently).[2]

In the third, and highest, level of participation, a person is participating in or developing projects that often also involve *making* and *remaking practices*, which could jointly be called ***(re)making practices***. Of these three categories of spatial practices, this is the most emblematic of regenerative design thinking and can be seen as an active operationalization of regenerative theory by individuals. This type of spatial practice and participation is also a fairly unique aspect of placemaking that the presence of waste-resource can add to publicly shared spaces. (Re)making practices is a recurring strategy to attract participation found in both proposed and lived aspects of places in previous chapters.

The places where I learned a skill or worked on a project gave me a sense of growth and development in my personal identity. The effect these places had on me can be described as a sense of becoming and empowerment. In these places, the levels of sociality between strangers also increased greatly in comparison to the publicly shared spaces that did not include opportunities to be involved in a project. Together, these two aspects left me with a stronger sense of having contributed to the evolving character of a place and its narrative.

If place is a space that has become meaningful to its users, as suggested by Agnew (2003),[3] spaces that engage the visitor more actively in the creation and enactment of its narrative are likely to have a stronger sense-of-place. However, all three categories of practices and participation contribute to placemaking and frame the factors of attraction and engagement found in proto-regenerative spaces.[4] A place that allows all three levels of participation[5] will also have a greater chance of attracting more people from a broader spectrum of backgrounds and interests. This increased exposure and potential for sociality arguably increases a place's potential role in fomenting practices and metanarratives of regenerative care for socioecological well-being in society at large.

7.22 Waste-Resource Technics in Place

The analysis of place explorations has revealed that there is a need to refine the often broad and diffuse use of terms related to waste-resource technics. First, I will expand upon the definitions of the terms[6] chosen in chapters six and seven to describe the types of waste-resource technics encountered and proposed in my explorations of placemaking. I will call these *Waste-Resource Technics with specific application* to differentiate them from other technics that I chose not to use in place descriptions due to their *broad applicability*.

[2] Previously hinted at in sections 1.31 and 3.2; discussed further in section 7.23.
[3] See section 2.31
[4] Listed and discussed in section 5.43
[5] An example of which is *Prinzessinnengärten* (Dérive 5.36).
[6] Used to describe cases in both chapter 5 and 6. First introduced in section 5.33, subheading I. The *Regenerative Waste-Resource Hierarchy* (fig. 6:19 & 6:41) has also contributed in this analysis.

Waste-Resource Technics (with specific application)

Reuse

An item is used again for its original purpose. The life of the item is extended by a renewed value perception provided by a new user or physical context, but possibly also through an improvement of its functionality or aesthetics.

Repurposing

An item is used again for a different purpose than what it was originally created for. The item's life is extended through either a subtle or dramatic redefinition of value. This redefinition can be done without changing the object, but most often involves a dismantling, reconfiguration or reformation. However, repurposing *does not* include breaking down an object into raw materials. Repurposed objects therefore retain aspects of their original qualities and character.

Material Metabolizing

An object is reduced to raw material(s) in order to create an entirely new object. This new object can be a duplicate of the original object or an entirely new object. In the worst-case scenario, the material is transformed into its energy equivalent and used in technical systems.

Nutrient Metabolizing

An organic material is reduced to nutrients or mulch to feed microorganisms, insects, mycelia and plants. In the best-case scenario, the methane and heat produced in this metabolic process is also harvested as a source of energy for use in technical systems.

Remediation

An ecosystem, habitat or species is reintroduced or added to an area that has been damaged. This can also include the transformation or neutralization of pollutants in water, air or soil.

To make the aforementioned list of waste-resource technics as clear as possible, some technics (listed below) were excluded due to their *broad applicability* and/or relative interchangeability with the *waste-resource terms with specific application*. Their breadth does not, however, make them any less significant. In fact, they are significant exactly because they relate to and include several other technics (in italics in the descriptions). These are:

Waste-Resource Technics (with broad application)

Salvaging (also Reclaiming)

The act of saving something that is destined for, or already in, the dumpster either through *reuse, repurposing, redesign* or *repair*.

Redesign

The use of design thinking when changing an item's value or use and always includes a change of form, function or aesthetic. However, improving an item while it retains the same use, e.g. improving or adding features or changing aesthetics, could also be considered a form of redesign. It is most closely linked to *repurposing*; however, *reuse, remediation* and *repair* can all be a part of the redesign of a space (for example).

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(...continued from previous page...)

Repair

The fixing of an item so that it is useful again. It is most closely linked to *reuse* and *remediation;* however, repair can also be part of *repurposing* and *redesign*.

Up-cycling & Down-cycling [7]

The increase (up) or decrease (down) of value when an item changes form or function. These are terms that indicate the value added or removed when any other technic is used and, as such, can arguably apply to all of them.

Recycling

Compared to up-cycling and down-cycling, re-cycling is neutral. This neutrality makes recycling a term which is sometimes used indiscriminately to represent not only up- and down-cycling, but also all of the above technics. Yet, it is also sometimes used to solely refer to the part of material metabolizing that reduces a thing to basic material components for industry. This latter meaning of the term can be used to separate industrial technics from other technics.[8]

The technics in this latter list interweave and overlap with the previous list as well as with each another. For example, in *Waste Warrior Cardboard Desk-Table* (project 6.32) single-use cardboard boxes were *repurposed* through *redesigning* their function from shipping containers into structural elements. The resulting piece of furniture is, in turn, an enactment of *up-cycling* of cardboard boxes. Further study may clarify the breadth and pattern of correlations. However, one could also conclude that the above definitions are sufficient with the understanding that these interweave and interact with one another causing a degree of interchangeability between them. When these technics are used in placemaking, regenerative practices and aesthetics become integral to sense-of-place.

7.23 Nonephemeral Economic Practices in Place

The array of spatial practices with economic benefits found in and proposed for places in this design inquiry offer an opportunity to preview and proflect upon economic practices that would dominate in a regenerative society. An architect is hardly an expert on economic models; however, it is possible to use a spatial design perspective to reflect on the relationship between regenerative principles, place and economic activities present in the places explored in this design inquiry.

As these economic practices counter the throw-away culture of our times, they suggest a radically different alternative to the current economy based on limitless GDP[9] growth from linear throughput systems, which is part and parcel to the societal conditions that brought about the age of the ephemeral.[10] Conventional sustainability's approach has largely been to simply make this ephemeral system more efficient. The alternative is an economy based upon

[7] Terms developed by McDonough & Braungart (2002b) in relation to C2C. (See section 3.23)
[8] EU's 'Waste Framework Directive' sets, for example, separate goals for recycling and reuse, with a preference for reuse. (See section 1.32)
[9] Gross Domestic Product
[10] See section 1.3

maintaining and generating effective waste-resource systems where the rate of entropy does not outpace the regenerative capacities of the various systems supplying energy and resources. We could call this alternative a ***nonephemeral economy***.

The types of places that Straw identifies as 'spectacles of waste' (2010) in the trajectories of used objects in the urban landscape clearly include these types of economic activities.[11] By relating these to the variety of waste-resource technics and places found and proposed in this design inquiry, a list of more generalized place typologies where waste-resource process can exist emerges: *Shops, Market Places, Communal Kitchen & Toilets, Gardens & Parks, Work Training & Community Centers, Workshops, Eating Establishments, Education Centers, Activist/NGO Headquarters, Recycling Centers & Receptacles*.[12]

This list developed from analyzing and classifying all projects and Dérives according to their primary function in society and grouping these into common categories. Rather than being conclusive, this list makes clear that a wide variety of places (perhaps any place) can contribute to slowing down the overall rate of entropy of resources in urban/nation-wide regenerative closed-loop systems.

Places extend the lives of objects by facilitating their movement between users, like Straw's spectacles of waste, and act as points of storage[13] and/or redistribution in a regenerative system. Others act as points of conversion where objects are transformed into new things or reduced to materials and/or energy. And still others are built from waste and as such act as a long-term holding and usage point, which could be considered a waste 'sink' in the system of materials and things in the same way that soil or trees act as carbon 'sinks' in ecological systems.

There are several indications of economic benefits in the array of waste-resource technics and places explored in this design inquiry, including, but not limited to:

Personal income: employment; business profits; selling unused household items.

Personal savings: swapping of items; free or cheaper items; repairing or upgrading to avoid buying new; use of workshop and tools for free; energy and nutrients for food production and cooking; opportunities to learn and trade DIY[14] knowledge and skills.

Community/Regional income and savings: money, materials, energy and nutrients from items collected; removing pollutants that can cause disease and ecological damage; materials for education activities; job training for the unemployed; development of innovations; keeping local money circulating in the local community; increasing visitor attraction to local community; taxes from employment and businesses; development and strengthening of social capital.[15]

[11] Straw's 'spectacles of waste' categories are listed in section 1.34

[12] Some of these place typologies emerged in the analysis in section 5.42 (fig. 5:40a and 5:40b), including *Shops* and *Market Places* in which Straw's 'spectacles of waste' belong.

[13] Storage is an essential part of regenerative systems. (See section 3.21)

[14] DIY = Do It Yourself

[15] Social capital can be summarized as "the goodwill that is engendered by the fabric of social relations and that can be mobilized to facilitate action. [It] has informed the study of families, youth behavior problems, schooling and education, public health, community life, democracy and governance, economic development, and general problems of collective action" (Adler & Kwon, 2002, p. 17).

Several of the organizations managing the proto-regenerative spaces I visited, are essentially conducting public services and maintaining publicly shared spaces for the local community with volunteer labor.[16]

The efficiency driven markets that guide the trade of waste lack the morals necessary to include the full range of socioecological costs that are involved in the production of materials and objects (Dartel & Nigten, 2015, p. 4). This stresses the need for political values and nonephemeral economic values that look beyond market interests and understand social and ecological costs of products. Further study of the economic aspects of these places could reveal their role in society and a nonephemeral economy. Which, in turn, could help to justify and increase the government and donor funding that many of these places rely upon.

7.24 The Power & Predicament of W-R Aesthetics

The sheer number of cases uncovered in what can be considered my global Directed Dérive[17] suggests that core values of the age of the ephemeral may be shifting towards more nonephemeral and regenerative values. This has been mirrored by the variety of academically framed projective explorations that were initiated by municipalities and organizations requesting design proposals that addressed waste-resource relationships as part of community development. Nor do the chosen cases reflect all of the projects and places that I came across during this design inquiry. Further evidence for this interest was further revealed by students who expressed their expectation for waste as a building material to be a topic of study in a master's program for sustainable design and development.

In my search for proto-regenerative spaces I found examples of a technic where new things were made to look as if salvaged, which we could call ***faux salvaging***. As this is not a regenerative practice and could even be considered greenwashing, spaces with a predominance of this technic were not selected for this design inquiry. Regardless of this, the very existence of faux salvaging *is* proof that the aesthetic of salvaged waste has a commercial appeal. As previously suggested,[18] fashion cannot altogether be discounted in the work to raise awareness and popularize attitudes that could help to shift mainstream paradigms and metanarratives. For this reason, one can find encouragement in the increased appeal of waste-resource aesthetics. However, for it to have any effect on reducing rates of entropy, a waste-resource aesthetic must be based on authentic salvaging.

And, yet, it is also highly unrealistic to require that everything in a place be salvaged. Some proto-regenerative eating and drinking establishments also included new elements designed in a way that fits with the aesthetics of the authentically salvaged elements that predominated the space. Clear examples of this are bathroom fixtures at Barabicu (fig. 0:14) and lighting fixtures at BrewDog Bar[19] (fig. 7:1) designed in a manner that *could* be used for salvaged materials yet clearly done with new materials. In such instances, one could claim there is a difference between designing with a salvaged aesthetic and actual faux salvaging, but it is a

[16] Such as Waste Warriors (Dérive 5.34), The Bike Kitchen (Dérive 5.35), Prinzessinengärten (Dérive 5.36), Community Allotment Gardens and Nek Chand Rock Garden (see list of Dérives 5.32).

[17] Section 5.31 posits that the probing of proto-regenerative spaces is in some ways one large global Directed Dérive that has resulted in various smaller place-based Directed Dérives.

[18] Section 1.31 speaks of fashion and 1.43 of mainstreaming in relation to shared values and practices.

[19] 10b Kungsgatan Kungshöjd, Gothenburg, Sweden.

(1)

(2)

(Fig. 7:1) The eclectic blend of contrasts of new, salvaged, clean and painted lends a vibrant layered texture to the sense-of-place at Brewdog Bar. (Fig. 7:1-5 are all images of this Eating & Drinking Establishment.)

(3)

(4)

(5)

(Fig. 7:2) Lamp fixtures made from new materials to fit in with the salvaged materials of the space. The bench below of salvaged wood has the patina of age and use.

(Fig. 7:3) Bathroom stalls made from pallet rims have a rich patina from their previous use and long travels. Logos allow the imagination to wander to distant places and unknown cargos. What workers may have moved these pallets around a warehouse

(Fig. 7:4) Chairs of a by-gone design era connects this time to that one. Who might have sat in these chairs before and where? What use could this table have had before?

(Fig. 7:5) It is hard not to be tickled by bathroom sinks made from a used beer keg and faucets made of beer taps. What beer might have been served to whom by this keg?

fine line to be sure. Future investigations could probe this further while also investigating the aesthetic appeal that drives both authentic and faux salvaging.

As aesthetics are an aspect of a designer's schema collection and development, it is possible to identify aspects of a waste-resource aesthetic and its appeal from my own subjective interpretations of place and projective explorations. One can see this subjective account as a first step in extrapolating what intersubjective interpretations contribute to the appeal of waste-resource in publicly shared spaces. A few of my subjective interpretations have been described previously as an aspect of the *Unique Aesthetic or Design* that waste-resource can bring to proto-regenerative spaces, which I have called ***material memory*** and describe as:[20]

> An imaginative layered spatiotemporal experience through connections to previous uses, times, and spaces. Patina, period designs and obsolete uses stir thoughts of previous eras and passing time (fig. 7:4). Connections to other places are created by recognizable or mysterious origins of objects and materials (fig. 7:3 & 7:5).

Beyond this there is the purely visual layering of textures and colors produced by use or weathering (fig. 7:3) and the variety of materials and things next to each other (fig. 7:2). Without design thinking this rich texture can become junkiness – a feature which was not altogether missing from proto-regenerative spaces that were not the product of a designer. Regardless of the degree of design involved in regenerative placemaking, junkiness must be kept in check if waste-resource is to take part in publicly shared spaces. This often requires continuous acts of care through management of the order of things.

Overall, my impression is that it is an aesthetic of care for the culture, history and use of things. The aesthetic expression suggests an underlying concern for the wastefulness of our throw-away culture which also translates into a care for socioecological well-being. From the explorations of placemaking in this design inquiry, one can see indications that practices and expressions that treat waste as a resource are moving away from being associated with poverty and backwardness[21] and now show signs of being considered both fashionable and meaningful. Whether this is a permanent shift in the making or just a fad, is a question for time to tell, and worthy of further study. Nonetheless, the rise in interest for waste-resource aesthetics and the regenerative thinking in C2C,[22] is an opportunity upon which proponents of regenerative placemaking can build.

[20] The term material memory is first introduced and described in the Dérive 0.5 (ch.0). This definition of material memory is, however, from section 5.43 with a few syntax modifications to fit this context.
[21] A hallmark of the age of the ephemeral brought on by designed obsolescence. (See section 1.31)
[22] See section 3.23 (including both subheadings) for a discussion on this.

7.3
Spatialities of Waste-Resource in Place

In this section I reflect on how waste-resource influences spatiotemporal aspects of a place, i.e. experiential aspects of form, movement and placement. As presented earlier (in project 6.36), three compositional forms of ecosociospatiality could be derived from a spatial narrative analysis of student proposals for *Bråta: from Recycling Center to Regenerative Place*. While these only represent forms that emerged from a single pedagogically framed projective exploration, their delineation is an example of generalizable knowledge that can be derived from design explorations.

Three Basic Forms of Ecosociospatiality

1) A node/landmark to connect, direct and relate society to ecology
2) Embracing/framing a space to emphasize key elements of socioecological well-being
3) Integrating/transforming societal and ecological spaces through morphosis

In these forms of ecosociospatiality, students created a sense-of-place through:

- ~ Standing out from the context (project 6.36, example I).
- ~ Creating a hierarchy of spaces by organizing all spaces, functions and attention around one core space (project 6.36, example II).
- ~ Moving through the place is a gradual shift (morphing) from one sense-of-place to another, e.g. a space dominated by technics on one end with each subsequent space gradually becoming more dominated by ecology (project 6.36, example III).

These three basic forms of ecosociospatiality could easily be developed into design schemas, or even meta-design schemas. As schemas are informed, shift and develop with new experiences and projects, so does the knowledge and expression of these three ecosociospatialities with the inclusion of other perspectives upon the lacuna of this design inquiry. When the same narrative analysis was applied to the broader spectrum of places visited and proposed in this design inquiry, a set of spatial phenomena emerged and are expounded upon in the following sections. One can see these spatial phenomena as more elemental components of the ecosociospatial compositions identified above.

7.31 Rhythms & Pauses of W-R in Space

An objects' geographical movements between states of waste and resource reveals and creates relationships that have a social and physical structure in a community's natural and built areas. Each place and project exploration in the past chapters has reinforced that these movements and relationships have a spatial dimension and can therefore, arguably, be described as forms of spatiality. This further illustrates that place and technology are two

interlinked and layered spatial phenomenon and previously revealed as an important aspect of regenerative design thinking which classifies it as a nonmodern approach.[23]

Within the vast and multidisciplinary discourse on the nature and significance of place, space has been likened to movement and places to pauses.

> What begins as undifferentiated space becomes place as we get to know it better and endow it with value...The ideas 'space' and 'place' require each other for definition. From the security and stability of place we are aware of the openness, freedom and threat of space, and vice versa. Furthermore, if we think of space as that which allows movement, then place is pause; each pause in movement makes it possible for location to be transformed into place. (Tuan, 1977, p. 6)

An important quality of placehood is, then, in being a spatial pause in the urban and social movement of a built landscape. As this quality is a function of both space and time, these are spatiotemporal conditions that influence phenomenological experiences in a place.

Most notable in this reasoning is Henri Lefèbvre's (2004 [1992]) *Rhythmanalysis: Space, Time and Everyday Life*. Using rhythmanalysis, Straw (2009) identifies a list of spatiotemporalities he calls 'spectacles of waste' which, as previously discussed, have shown to correlate with the types of sites and projects that have emerged from this study's lacuna.[24] As previously pointed out, these spatiotemporal pauses in waste-resource rhythms are essential to regenerative closed-loop systems and can take many forms.[25] In this design inquiry these pauses have taken the form of:

- a place for materials to accumulate and await a new use
- a place for the active and creative transformation from one use or state to another
- or a place that in itself is the material's final destination point

It is therefore reasonable to conclude that an important role and characteristic of a regenerative place is in being a spatiotemporal pause in the rhythm of waste-resource itineraries in socioecological assemblages. Within and between these pauses lies the movement of knowledge, practices and physical objects of waste-resource interwoven with social and ecological concerns and associations.

7.32 Spatial Forms of Waste-Resource in Place

I have detected spatiotemporal experiences in places and proposals that relate to social theories from STS/ANT studies on spatiality, more specifically Ann-Marie Mol and John Law's (1994) descriptions of "Regions, Networks and Fluids." As such, these terms and Mol and Law's descriptions of them are used to both underscore the correlation while also serving to explain the spatialities detected in sites and projects. The exception to this is the final spatial form (*Spectacle – Artifact – Enclosure*) which is derived from the explorations and theoretical discourses in this design inquiry. While all of these spatialities can coexist in a place, one of them is often a more dominant experience and thereby contributes more heavily

[23] Discussed in section 3.24.
[24] See section 7.23.
[25] Per Lyle's description of regenerative closed-loop systems introduced in section 3.21 (fig. 3:1b), and expounded upon in section 7.21 (fig. 7:1).

to the spatial narrative and sense-of-place. There are several examples of where these spatialities dominate in the cases explored, however, in order to keep the descriptions as efficient as possible I refer to only a few through footnotes.

Fluid - Flow

In fluid space elements and the relationships between them are not constant, instead they are continuously shifting and moving - flowing. The only constant is the flow of change itself that generates a shared identity (Mol & Law, 1994).

The most common spatial form of waste-resource in society is as a fluid. What is considered waste or resource is constantly changing, and so are the locations and paths through urban lives and landscapes. And yet, the flow of waste is an element that occupies and defines space in different ways. This flow creates a sense of constant yet continuously shifting condition of people, objects and relationships in space.

Examples from the lacuna:
As the flow of waste-resource itself is a fluid space, nearly every place in this design inquiry is a plausible example. However, there are a few interesting variations worth mentioning: One example is where a continuous flow of waste-resource creates projects around which space is formed.[26] In such cases, the objects and people are continuously moving and changing and sometimes also the configuration of the space itself – it is the project activity itself that creates the spatial connectivity and identity. The other is where waste is converted into an energy source for human and nonhuman beings in the form of food[27] or for powering technical processes.[28]

Region

A spatial clustering of elements with some form of boundary. It is a territory that stresses similarities within and differences across boundaries (Mol & Law, 1994).

Examples from the lacuna:
Some regions are experienced by participating in waste-resource activities that maintain a defined area through collecting used items.[29] These activities trace the cluster of spaces and places that collectively make up the identity of the local community and its sense-of-place. In others, a region is experienced by the presence of used items collected and exhibited for the purpose of being transferred from one user to the next.[30] The boundaries of regions are not defined as much by physical objects but rather by a difference between the defining characteristics of a region and those of its context.

[26] Experienced at *The Bike Kitchen* (Dérive 5.35); proposed in *Bråta: RC to Regen. Place* (project 6.36)
[27] Experienced at *Prinzessinnengärten* (Dérive 5.36); proposed in *Bråta: RC to Regen. Pl.* (project 6.36)
[28] Experienced at *Kibera Public WC & Community Kitchen* (see list of Dérives 5.32); proposed in *Alelyckan Circular Systems Park* (list of projects in fig. 6:1, section 6.3)
[29] Experienced with *Waste Warriors at Bhagsu Nag* (Dérive 5.34).
[30] Experienced at *Majornas Megaloppis* (Dérive 5.37).

Network

A network space is defined by the distanced relationship between elements that share some form of functional or conceptual connection; it stresses the physical distance and correlation between elements (Mol & Law, 1994).

Examples from the lacuna:
Waste-resource processes give a sense of interconnectedness to a number of different actors and nodes that cannot be seen from a single location. In some, the connection is a *similarity* between some characteristic of a place. For example a design can use regional forms, materials and practices to symbolically and physically connect history, places, people and things characteristic of a region.[31] In others, the connection is made by the *movement* of the waste-resource items themselves.[32]

Spectacle – Artifact – Enclosure

The space is physically built of, or adorned with, waste-resource elements.
These elements can take the form of either an artifact in, or an enclosure around, space.

Examples from the lacuna:
In its most elaborate form, it is a monument of curiosa or a performance piece – a spectacle that spurs the imagination through its ingenuity.[33] In its simplest form, it is a functional object or set of objects which may, or may not, be appealing to the senses or imagination.[34]

To be a regenerative place a spatiotemporal pause cannot simply be a location for storing materials inertly and/or transforming them into new materials; it must also contribute to socioecological well-being. Regardless of the level to which this was accomplished in sites visited and places proposed in this design inquiry, all contributed to an understanding of basic differences and transitions between a space of waste and a regenerative place – a brief review of which follows.

7.33 From Space to Place through Spatial Syncretism

In addition to the factors of public accessibility previously discussed,[35] location within the local (urban) context is another hindrance to accessibility that became particularly evident in relation to recycling centers (RCs). Research on recycling practices indicates that an increased concern for the environment only increases recycling activity when there is "easy access to a

[31] Experienced at *N. Chand Rock Garden* (list of Dérives 5.32); proposed in *The Dog Trot* (project 6.35)
[32] Experienced at *Neighborhood Recycling Receptacles* and various *RCs* (see list of Dérives 5.32); elaborated upon in proposals for *Bråta RC* (projects 6.36 and 6.37, illustrated by fig. 6:24).
[33] Experienced at *Frihamnen's Sauna* (Dérive 5.38); *The Cyclophone Concert* (project 6.33).
[34] Unappealing examples in fig. 1:2 and 1:3. Appealing example proposed in *Waste Warrior Cardboard Desk-Table* (project 6.32).
[35] See section 5.42

structured recycling program. Individual concern about the environment enhances the effect of the recycling program, but does not overcome the barriers presented by lack of access" (Gartrell, 1993, p. 434). I do not believe it is an accident that *Location* is the first of Agnew's three aspects of placehood.[36] In relation to the previous discussion, in particular the words of Tuan, it is a geographical point in movement that is the first step in creating a pause, i.e. place. However, without any other additional social values it remains simply a space.

Converting recycling centers that lie at the periphery of urban contexts into attractive places[37] is therefore arguably a less effective means to affect waste-resource practices and values than bringing waste-resource elements into publicly shared spaces that are already centrally located. By including waste-resource components into sociospatial forms that lie at the heart of daily life, waste-resource not only becomes more accessible and visible but also forms part of the second aspect of placehood: locale. Add to this a positive or memorable experience through sociality, a sense of connection to and actual contribution to socioecological well-being and a sense-of-place is created in a locale. From this, the profile of a regenerative place and its spatial narratives begins to emerge.

However, converting RCs into regenerative places is not a fool's errand. As became clear in the site analysis done for Bråta RC, the periphery condition of RCs is shared by two other peripheral elements: natural ecological areas and expanding (sub)urban development. By connecting the qualities and needs of these three peripheral elements, it is clear that the current status of many RCs' as a *location* where things go to die has the potential to shift into a *locale* with a *sense-of-place* where things are given new life. Through the syncretism of these three peripheral conditions, what is now a dead space among them can become a living place connecting them to one another. In other words, RCs could become attractive social and recreational places that connect suburban living with ecological areas and regenerative systems as exemplified in projective explorations.[38]

Together, central and peripheral locations would complement one another in a network of place typologies, forms and waste-resource technics that compose an urban-wide regenerative ecosociospatiality. When the waste-resource practices, attitudes and values found and proposed in such an assemblage become a norm in urban living they are likely to be accompanied by a metanarrative that diverges from the throw-away culture of the age of the ephemeral.

A regenerative place that includes waste-resources collection and processing counteracts what we typically choose to place at the center versus at the periphery of day-to-day living in urban landscapes. It has previously been pointed out that syncretism is inherent to the exploration of combining what is socially undesirable (waste) with what is socially desirable (publicly shared spaces). This syncretism of values plays out spatially as well: waste is pushed to peripheral locations of urban contexts; publicly shared spaces are pulled towards the central locations of urban contexts. I therefore consider the last two chapters as being explorations of a form spatial syncretism[39] – a form of spatial poetics that seeks to merge waste-resource and placemaking values and practices to create regenerative ecosociospatiality.

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[36] See section 2.31

[37] As was explored in *Bråta RC* (projects 6.36, 6.37, 6.38) and *Alelyckan Circular Systems Park* (see list of Dérives 5.32).

[38] Exemplified most powerfully by Bråta: from Recycling Center to Regenerative Place (project 6.36)

[39] See sections 2.52 and 4.41

7.4
Schemas Detected in Places with W-R

The probing and projective explorations in this design inquiry have led to insights into ways that schemas can manifest in spatiality and design processes hence also in spatial narrativity and design thinking. These insights, in turn, can help to reveal poetic aspects of regenerative placemaking and placehood.

7.41 Two Schema Structures in Spatial Narrativity

I have previously reasoned that narratives can have either a sequential or nonsequential structure.[40] Where narratives exist, schemas can be derived, and it stands to reason that within these two narrative structures there are also two structures of schema, i.e. ***sequential*** and ***nonsequential schema***. From projective explorations, I conclude that designers use both nonsequential narratives (images and models) in combination with sequential narratives (storytelling) to communicate future experiences of a design proposal.

However, when this analysis was combined with the narrative analysis of the probing of proto-regenerative spaces, nonsequentiality reveals itself as the more prevalent narrative structure in spatiality. This combined analysis also revealed that schemas and narratives can be nonsequential in two ways:

1) They can be nonsequential by the fact that they are built from several sense experiences occurring simultaneously and/or...
2) ...be built up of multiple overlapping experiences from revisiting or spending an extended amount of time in a space or place.

Though one could argue that these corporeal sensual occurrences can be experienced in a sequence by one individual at one point in time, that sequence is unique to that individual and that moment in time and not the same for all. I therefore differentiate it from a story that provides each listener or reader with the same sequence of narrative elements. I consider these nonsequential mind-body schemas as core elements of the phenomenology of spatial poetics – an aspect that I find particularly relevant to the poetics of sustainability.

7.42 Four Schema Types Affecting Design Thinking

In design thinking, schemas are knowledge assemblages that can be used as probes to understand situations that are difficult to know in their entirety due to conflicting and (hyper)complex sets of issues and immeasurable qualities. These probes often develop into guiding themes in the design process and core elements of the narratives used to communicate proposals. In addition to the revelation that there are two narrative structures and associated schema, four types of schemas emerged in the process of

[40] Introduced in section 2.42

uncovering narrativity and schemas in projective explorations. While three of these have been described previously,[41] their delineation is the product of reflecting on the literature discussed in the discourse development of this study, through experiences and actions in probing and projective explorations. I will introduce the fourth type by first reviewing schema types previously defined.

Design schemas are developed for and from design processes and relate in scope to ***personal schemas*** that form perspectives of the self and others from and for interacting with all aspects of life (real and imagined). ***Metaschemas*** are the schemas of metanarratives that act at the level of social norms and paradigms.[42] These influence design thinking as ontological principles or philosophies on the nature of being and acting in the world. Following this logic, design schemas that act as guiding design principles and philosophies could be called a ***meta-design schema***, and is a type of metaschema for design practice.

In summary, personal and metaschema relate to life experience and knowledge in general, design and meta-design schema are specific to design experiences and knowledge. These different types of schemas interrelate, shift and merge in the design process and in the life of the designer. What defines one from another does not lie in the schema itself, but rather in the context in which it is acting. For example, 'Waste = Food' (McDonough & Braungart, 2002) can be:

- a personal schema for a person who recycles and frequents second-hand shops
- a design schema of a proposal for how to make a recycling center a regenerative place
- and when it permeates all of these areas of life through social norms, professional paradigms and ontological suppositions, it is a metaschema defining one of the core values of a regenerative society
- a meta-design schema of a design philosophy that a regenerative designer or design team can use to guide their professional practice

These differences can also be described as narrative perspectives on the nebulous assemblages of cognitive associations that a schema represents. Different scales and types of associations get activated within this assemblage of associations according to what context/protagonist is active in a narrative, i.e. a person, a place, a design philosophy or a cultural norm. Understanding these scales of perspectives could, in turn, be useful in the development and transfer of design knowledge on spatial experiences and practices.

7.43 Poetically Measuring W-R in Place with Schemas

The analysis of cases has been largely driven with the motive to uncover key narrative aspects common among them. As poetry is a form of narrativity, the hope has been that these key aspects can assist in understanding and developing regenerative spatial poetics. As described previously, the derivation of schemas from spatial experiences and projects can be described as a form of poetic measurement of spatial narrativity for transferring and developing design

[41] See sections and subheadings of 2.4 and 2.5
[42] The corollary nature of metanarratives and paradigms is discussed in section 2.6

knowledge.[43] In this context, schema types can be seen as different scales and structural patterns that could be used to measure and define spatial narrativity and poetics.

From the approach, process and analysis done in chapters five, six and this chapter, one can begin to understand how a spatial designer's personal schema of waste-resource conditions in space takes form and can be used in a design situation. As such, these chapters act as an autoethnographic exposé of the subjective process of design schema development for combining waste-resource and publicly shared space. In other words, as an autoethnographic exploration of poetic measurement for the derivation of design knowledge.

As has been pointed out earlier, designerly knowledge is built from approaching a topic from many directions, experiences and projects. As units of this form of knowledge, design schemas are built from layering multiple impressions, experiences and projective explorations. Building upon the poetic base of syncretism, the method assemblages in chapters five and six are used to explore the buildup of a design schema for regenerative placemaking: first through the accumulation of subjective experiences and sensemaking (personal schemas) in probing proto-regenerative places; second through the accumulation of intersubjective communication and sensemaking (design schemas) in projecting regenerative places.

In probing proto-regenerative spaces, I have searched for associations and connections that create and are created by regenerative activities in a place. In the projective explorations of regenerative place, my search was for the associations and connections that create and are created by regeneratively designed places through theory, technology and designerly narratives. The variety and multitude of subjective impressions and expressions, in turn, reveal elements that can contribute to intersubjective experiences of regenerative placehood and placemaking.

Following autoethnographic reasoning that memory can be used as a tool to extract core themes (in this case schemas), I have aimed to derive schemas from memories of both lived and imagined experiences of regenerative placemaking.[44] By combining these emotional and embodied memories with the more or less measurable insights elaborated upon in previous sections and chapters five and six, a form of 'zooming out' occurs. This zooming out helps to detect "patterns of relations" (Law, 2004a, p. 14) that resonate within and across experiences and insights. Thus, patterns of relations emerge from the "multiplicity, indefiniteness and flux" (ibid.) of information that resides within the lacuna defined by this study. As Law argues, this layering of methods and subjectivity inherent to method assemblages acts as a "combination of reality detector and reality amplifier" (ibid.).

Taking this perspective, it becomes clear that each place and activity tells a contextually and individually different, yet similar, story of hope, renewal, contribution, and creativity. From this similarity, two schemas emerge. These are the predominant schemas that emerge from the multiple narratives of placemaking, encountered and imagined, in my search for compelling expressions and engaging experiences in places with waste-resource. By extension, they suggest schemas of regenerative place and placemaking. This is not to say that these are *the* defining factors of a regenerative place. They are, however, key aspects of

[43] See section 4.43 on the reasoning behind schema derivation as a method of poetic measurement.
[44] Autoethnography and the use of memory is explained in section 5.24.

regenerative placemaking that emerge from the lacuna of this study and can thereby inform the creation and identification of regenerative place.

As these schemas connect a large number of variable schemas encountered and extracted from experiences and projects for the purpose of informing regenerative design theory, one can consider them meta-design schemas. However, as discussed earlier, the type of schema depends on the context and as such they can guide and engage both experiences and design processes, i.e. they are both narrative experiences and narrative generators.

Two (Meta-design) Schemas of Regenerative Place & Placemaking

1) Places of Recreation & Re-Creation
2) Making(-)Places of Contribution – Manifesting Care for Socioecological Well-Being

In the first schema self-creation and co-creation occurs through recreation and re-creation in publicly lived and shared spaces. Recreation is used to infer "the action or fact of refreshing or entertaining oneself through a pleasurable or interesting pastime, amusement, activity...An activity or pastime which is pursued for the pleasure or interest it provides…An educational exercise, lesson, or problem intended to be both instructive and enjoyable." (OED, n.d.-h, definitions 3a, 3b, 3d). And re-creation is used to infer "the action or process of creating again or in a new way; the result of this process, a new creation." (OED, n.d.-g, definition 1). In the second schema the enactment, formation and interpretation of narratives and identities of care and contribution towards socioecological well-being manifests in publicly lived spaces through (re)making practices. These (re)making-practices act as a method of placemaking that produces a particular place typology: a ***making-place***.

As meta-design schemas they can inform principles of regenerative spatial design philosophy and, in turn, inform and serve as design schema in the design process of a particular projective exploration. As metaschema extensions they could help us to understand a possible intersubjective experience of living in a regenerative society. As personal schemas they express the subjective experience of a regenerative place for an individual. The derivation of these schemas has also led to an insight on a core aspect of this design inquiry which is to discover emotive forces and affective actions for moving toward and beyond sustainability and, by extension, within regenerative thinking. This will be elaborated upon in the final chapter.[45]

[45] First introduced in section 3.4 and elaborated upon in section 8.7

7.5
Regenerative Placehood through the lens of W-R in Publicly Shared Spaces

As is clear by now, there are a myriad of factors associated with place that contribute to placemaking. The objective of this design inquiry has not been to address all possible aspects of regenerative placemaking, but rather to identify what appears within the lacuna defined. The practices of placemaking have been investigated through the perspective of a spatial designer in two separate modes of schema collection and development: first *living* a place, i.e. being in a place and partaking in opportunities that arise within it (chapter 5); second *imagining* a future place, i.e. designing and teaching possible-impossibilities that could be (chapter 6). Both living and imagining a place are part of placemaking if, and when, they contribute to its corporeal experience and realization.

As we have seen both technology and place can be understood as entanglements of spatial relations (Moore, 2001).[46] One can, therefore, say that placehood emerges from the spatial entanglements of technological and social networks in a specific form and location; its social significance emerges from subjective and intersubjective narratives built from the affective engagement of humans in these entanglements.

From the different levels of engagement uncovered here, one can conclude that not only space itself but also waste-resource objects and activities can act as a fulcrum of sociality. They do so by acting as essential 'third elements' (Havelange, 2010) of sociality.[47] The Directed Dérives in proto-regenerative spaces indicate that places with waste-resource can be arenas for the experience and expression of public living and public identities. The projective explorations of regenerative placemaking build on this idea and invite one to imagine them becoming even more so.

7.51 Publicly Shared Pauses in Urban Rhythms

Drawing upon Agnew's (1987, 2011) and Tuan's (1977) discourses, I have defined place as a spatiotemporal pause that has meaning and value in how humans emotionally connect with and make sense of their surroundings. Drawing on Strasser's (1999) discourse on the age of the ephemeral as well as on Lyle's (1994) concept of regenerative systems, I have defined waste to be a resource whose value and purpose in daily life and making processes is either depleted or unrealized.

Waste often has a fluid presence in space. However, the point at which an object is diverted from the flow of waste and is identified as having value (i.e. a resource) is a spatiotemporal pause in its trajectory towards entropy. Leaning on Straw's (2009) and Moore's (2001) discourses, we can understand this pause as a node in the spatial entanglements of waste-resource spatiotemporal rhythms in society. This node is not necessarily a 'place' as I have

[46] See section 3.24

[47] Third elements are introduced in section 2.41

defined it, but if it *is* a place, and particularly if it is publicly shared, a layer of meaning is added to this place and an added value is also added to the salvaged materials or objects.

Publicly shared spaces are arenas for the experience and expression of public living and public identities, determined exactly by the fact that it is where friends and strangers see one another. When a space is neither completely public nor completely private, it has often been called semi-public/private space. However, Giovanna Piccinno and Elisa Lega (2013) refer to this form of 'in-between space' as 'third space.' They argue that this "in-between reality...now...constitutes the common ground for the new public realm and that its core qualities may also stand for the key attributes of a new spatial category" (ibid., p. 4). As I have reasoned earlier, the spatial quality that has mattered most in this design inquiry has been public access and use which enables some level of interaction between strangers. I now suggest that this is also a key attribute of this new spatial category that Piccinno and Lega call third space and I have called publicly shared space.

Passively or actively interacting with strangers in a publicly shared space is a public act that both forms our own public identity and interprets the public identities of others. As discussed earlier, waste-resource objects and activities can enhance this interaction and increase engagement with others and with a space, ultimately becoming acts of placemaking. This increased engagement arguably increases the place's influence on subjective and intersubjective narratives and, by extension, the metanarratives of a society. These publicly shared spaces and moments of pause can help form *the common* activities and identities of a community dominated by regenerative practices, and the ecosociospatial conditions we share. That which is common is neither public nor private – it is what is shared, be it space, resources, values, or narratives.[48] And in terms of sustainability (and beyond) it is "our common future" (Brundtland, 1987).

7.52 Places of Learning & Opportunities for Poeisis

Information campaigns are not enough to help one learn and adopt new values (Albrecht, 2011; Clayton et al., 2014). To incorporate new knowledge into our lives and shift attitudes and practices, it is necessary that these feel meaningful to individually lived experiences of the world and society. So, while an increased awareness of the problems of our consumption and waste of resources is arguably still needed, this awareness must also be coupled with social and built environments that offer opportunities to interact with resources and things in alternative ways to throw-away practices.

> Active learning happens when we participate in projects that are meaningful to us and engage with the real world. We need to believe that the task we are about to tackle is important and meaningful. (Thackara, 2005, p. 148)

Waste-resource processes found in this design inquiry, range from subjective re-evaluation to repair and (re)making. Making a thing from waste could be considered a form of invention, or perhaps (re)invention. Many of the places visited and proposed embody this notion of active learning and offer opportunities for hands-on involvement, co-creation and

[48] This is a nod to the broader discussion on 'the commons' started largely by Garrett Hardin's (1968) highly influential article *The Tragedy of the Commons.*

making. Waste-resource cycles where making is involved seems to produce these qualities more readily than more passive experiences.

In proto-regenerative spaces I encountered many opportunities for, and expressions of, acts of (re)making that involved innovation and creativity to bring forth new forms and things from waste, as well as ways of socializing, which can be described as opportunities for poeisis. As has been discussed earlier, poeisis is a natural part of design, and so inherent in the design processes of the projective explorations of regenerative place in this design inquiry. Additionally, the designs created in projective explorations include many opportunities for poeisis in the ways human and nonhuman beings could use the spaces.

Thackara (2005) argues that place acts as a hub for learning, conviviality, innovation, identity, and engagement. Learning that is experienced in situ, and through several senses, increases the ability for individuals to acquire and express knowledge on their own terms and with their particular skills.

> All spaces, places, and communities that foster complex experiences and processes are potential sites of learning. New geographies of learning need to be based on redesigned configurations of space, place, and network that respect the social and collaborative nature of learning—while still exploiting the dynamic potential of net-worked collaboration. (Thackara, 2005, p. 147)

The wide variety of activities around, and involved in, the waste-resource phenomena I have encountered suggests that they could be used as an element in designed space to foster learning environments. Thackara further argues that learning environments are necessary for innovation in problem solving and future-making. As such, regenerative places are also likely to be hubs of innovation in regenerative arts, skills and technologies.

The making-practices in proto-regenerative places and in projected design visions of regenerative places provides a window into how designerly thinking and spatial practices can contribute to resolving waste-resource dilemmas in societies. These practices point towards a different world possible, a different way of interacting with strangers in publicly shared spaces.

7.53 Nonmodern Shifts Towards a Nonephemeral Age

As the World Bank states, waste management will need to become more integrated with our lived spaces and daily lives (Hoornweg & Bhada-Tata, 2012).[49] The sheer number of proto-regenerative spaces and projective explorations that the lacuna has uncovered suggests that this is, in fact, already in progress. These explorations, at a minimum, prove that the incorporation of waste-resource conversion in public and common life is *possible*. They also indicate that such it can benefit psychosocial well-being and the experience of the built landscape. However, they have also highlighted the difficulty of determining how regenerative a single place can, and should be, in order to contribute towards bringing about a nonephemeral age. Though the quandary of measurability has been discussed previously,[50] the explorations in the past two chapters have provided further perspective on this issue.

[49] See section 1.33
[50] See section 3.28

From place explorations, I conclude that it is unreasonable to require that every place produces the resources needed for its own operation.[51] The resources flowing through, and needed by, societies require larger systems, and the solutions in singular places are not scaled to address these. The highest level of regeneration in a single place (visited or proposed) in this study, existed in community gardens where co-creative processes were present, compost and reused materials was used, wildlife was welcomed, and harmful chemicals were banned.[52] However, not every publicly shared space can, or should be, a community garden. Neither is it realistic to require a publicly shared regenerative place be self-sufficient.

Beyond practical hindrances, I believe self-sufficiency is too insular. It seems incongruent with a nonmodern understanding of glocally interdependent communities of humans and nonhumans that I, and others,[53] associate with Lyle's basis for regenerative thought:

> All ecosystems include human influence and most include human presence, we might as well think of human ecosystems as the ordering systems of life. (Lyle, 1994, p. 22)

A nonmodern regenerative approach cannot be insular and must consider a site's role in various regenerative systems that are larger than the site itself. One place's excess, i.e. waste, is another place's resource in the interdependency inherent to ecosystems. It is therefore more reasonable to consider a place's role in larger cycles of resources, such as those that make up a ***regenerative urban metabolism***.[54]

However, the question remains: should a place that cares for materials that must be sent to national or international regenerative processing locations be considered any less regenerative? I, therefore, propose we consider a place regenerative when it first regenerates what it can on site and second potentiates regenerative urban metabolisms, followed by regional, national and international metabolisms in a declining order of preference. Such a tiered system of regenerative metabolisms is what would "[provide] for the continuous replacement, through its own functional processes, of the energy and materials used in its operation" (Lyle, 1994, p. 10), thereby reducing the rate of entropy and contributing to a systemic shift towards a nonephemeral age.

Perhaps not surprisingly, these tiers of metabolisms parallel the previously discussed *four intersecting scales of regenerative thought and practices* (fig. 3:7)[55] in the following manner:

Regenerative Design	—	Object & Place Metabolisms
Regenerative Development	—	Urban & Regional Metabolisms
Regenerative Sustainability	—	National & International Metabolisms

[51] This is referring to Lyle's oft quoted description of regenerative systems. See section 3.21

[52] Such as *Prinzessinnengärten* (Dérive 5.36) and many proposals in *Bråta: from Recycling Center to Regenerative* Place (project 6.36)

[53] Most clearly stated by Stephen A. Moore (2001), see section 3.24.

[54] The notion of urban metabolisms has developed as a way to analyze and define "the sum total of the technical and socio-economic process that occur in cities, resulting in growth, production of energy and elimination of waste" (Kennedy et al., 2007, p. 43).

[55] See section 3.32 and its subheadings for a delineation of these 'regenerative scales of thought and practices' derived as a result of this design inquiry.

The question then becomes how a place potentiates such a tiered regenerative metabolism. What this design inquiry suggests is that the regenerative potential of these metabolisms cannot be realized through physical and technical actions alone, but must be underpinned and accompanied by values, emotions and norms that create and maintain them.

This parallels the largest and most ubiquitous scale of regenerative thought and practices, namely regenerative psychology. And so, a regenerative place must also potentiate regenerative values, emotions and norms.

Regenerative Psychology — Values, Emotions & Norms

A place's impact on slowing down entropy by affecting attitudes, values and habits and increasing opportunities, inspiration and know-how must therefore be considered when contemplating its value in a regenerative society. While these softer values are more difficult to measure in regards to how much they contribute to extending the life of objects and find them new homes rather than throwing them away, they are arguably as crucial as any other aspect of a regenerative place.

A regenerative psychology does not separate social, or technological, issues from ecological issues, i.e. it is nonmodern. Most design proposals for regenerative places found many ways of integrating ecologies and nonhuman beings with sociality and technology. However, most proto-regenerative spaces visited lacked a physical incorporation of ecologies on site. As has been pointed out previously,[56] many volunteers and users associated a sense of contributing to ecological well-being in places where no ecology was present, but where waste-resource activities were. The waste-resource activity was seen as a way to reduce the harm of human waste-making patterns on ecologies. The actual efficacy and viability of direct and indirect integration and impact of ecological concerns warrant further study. However, one can conclude that these places are capable of communicating and embodying the value of contributing to socioecological well-being.

Regenerative places are not a cure-all, but they can be important leverage points to shifting attitudes, raising awareness and making it convenient to contribute to urban, and larger, metabolisms. Places can associate the good life with waste-resource and socioecological well-being through positive embodied experiences of spatial/object aesthetics, social well-being, economic well-being and a sense of contribution. They can also be hubs of information, engagement and momentum that allows for the 'micropolitics' of face-to-face interaction (R. Kemper et al., 2006; T. D. Kemper, 1990) and small acts that accumulate and manifest shifts in paradigms and metanarratives.

> Place represents the encounter of people with other people and things in space. This has obvious political as well as theoretical implications. It implies, above all, the real, everyday possibility of popular political action rather than the assimilation of places and their inhabitants into a commanded space driven simply by the imperatives of capital, the state, or some other singular 'motor' of history. (Agnew et al., 2003, p. 613)

[56] See section 5.44

By this logic, the presence of sociality combined with small acts and expressions of care and concern in the place explorations of this design inquiry are another important measure of how a place potentiates regeneration and shifts in society towards a nonmodern paradigm and a nonephemeral age.

The dilemma of how to measure and qualify a place's level of regeneration also needs further study. For me, it is a pragmatopian question – one that realizes that utopian goals are useful, but also is tempered by pragmatic concern. However, it is safe to conclude that regeneration cannot be based on self-sufficiency. Regenerative qualification and measurement must instead stem from a place's contribution to larger regenerative processes and narratives in its built and socioecological context.

7.54 Enacting Narratives of Care & Engendering Hope

In most proto-regenerative spaces, not only was there social well-being through sociality, but there was also often a sense that the work being done or the product being purchased was for the benefit of society and ecology at large. This is a manifestation of what I have previously described as the narrative of care that lies at the heart of regenerative thought and practices.[57] Not only did I find a lot of practical care in the form of repairing or maintaining the usability of an object, a space and/or an activity, but also a great amount of emotional caring for the well-being of people, community, ecologies and, last but not least, the actual things themselves. The same sentiments can also be seen in the student's presentations, design work and the activities they proposed in projective explorations of regenerative place.

In Agnew's (2003) definition of sense-of-place,[58] the emotional connection to a location and locale, i.e. the caring for it, is what transforms a space into place. However, the acts of placemaking that bring forth a place through design or daily acts of creation and maintenance are also manifestations of care. Sense-of-place emerges from what the designer and users care about as they create, use and maintain a place. Puig de la Bellacasa (2011) explains that care can also be an ethico-political act through maintaining and making the invisible visible; we have also seen that place also enables acts of micropolitics. One can then conclude that the enactment of care in space can both manifest placehood and affect political issues in society. Care can therefore be said to be integral to regenerative placemaking and central to the identity of regenerative placehood.

These acts of care in regenerative thinking and places both need and engender the hope that small acts can accumulate and affect larger changes for "the net increase in life enhancing conditions" (Moore, 2001, p. 131) for human *and* nonhuman beings. Together the enactment of care and engendering of hope in publicly shared spaces could help to address the concerns that lead some people to experience eco-anxiety. When people can partake in acts that contribute to socioecological well-being in their everyday lives, as in several places visited and proposed, these small daily acts can increase their sense of agency in being able to address at least some aspect of the hypercomplex challenges of our times.

[57] Introduced in section 3.4
[58] See section 2.31

Contributions to Language & Concepts

Remaking Practices	regenerative making practices involved in the making of things and resources from waste
(Re)making Practices	A joint term to refer to both making and remaking practices
Nonephemeral Economy	an economy with a rate of entropy that does not outpace the systems that generate resources
Faux Salvaging	an aesthetic where new things and materials are made to look salvaged. It is different from making a piece look antique as it strives for a salvaged-from-the dump look
Meta-Design Schema	a type of metaschema from and for design practice, such as an overarching design schema that comes from guiding design principles and/or philosophies
A Making-Place	a place whose main identity is built around making activities, i.e. a space where sociality and the making and repair of things merge and create meaning for the users and the local community
Regenerative Urban Metabolism	an urban metabolism (the technical and socio-economic processes that create, consume and discard resources urban environments) based on regenerative principles

REFLECTING UPON THE (UN)KNOWN

Summary of Chapter 8

In this chapter, I pause to collect, summarize and represent my thoughts and observations as they stand at this moment in time. This takes form as a review and reflection on insights from previous chapters as well as a final delineation of emotive forces and affective actions and the potential of regenerative spatial poetics in the shift of paradigms beyond conventional sustainability.

The overall intention is to summarize the knowledge I have developed in order to contribute to the understanding of the role of spatiality and design thinking in socioecological well-being. As it is as much a pause in thought as it is a conclusion, this chapter is also a representation of what could be further studied and developed in research, practice and educational settings.

Its purpose is not only to gather and develop concepts from previous chapters but also to clarify knowledge contributions made by this dissertation (highlighted with bold font or graphic boxes).

8.1
A Pause to Reflect on Knowledge

A conclusion can be said to be little more than a reasoning produced by pausing and reflecting on the advancements made in an ongoing process of knowledge development. The conclusions in this chapter are in this way, pauses in my process to discover and develop ***emotive forces*** and ***affective actions*** that foster socioecological well-being. I have come to realize that these two forces lie at the heart of my search for a poetic language of words, embodied experiences and actions that can instigate a shift in mindset and more importantly in practices.

Through my professional background in spatial design, this search has become an overall aim to understand how spatiality and designerly thinking can contribute to the poetic and practical advancement of 'sustainability,' the goal of which, I argue, is more aptly described as 'socioecological well-being.' An aim which has led me to investigate and define what is inferred by the phrases 'beyond sustainability,' 'mainstream/conventional sustainability,' and 'regenerative design' in relation to spatial experiences and practices. To delve deeper and provide a window into the messiness of these topics, I defined a lacuna by intersecting issues of three topics:[1]

(1) …spatial practices and experiences that transform

(2) publicly shared spaces into places and contribute to

(3) a shift towards regenerative waste-resource relationships…

Through correlating theories, places and practices within this lacuna I have come to a distillation of core emotive forces and affective actions that characterize and create regenerative thought, design, place and spatial poetics.

Many of the intermediary insights from the development of this final reasoning are knowledge contributions in their own right. Some have been discussed in previous chapters; others have been saved for this chapter. The intent here is to reveal, review, and reflect on the reasoning that comprises the sum of my contributions to knowledge development in the field of regenerative spatial design and the definition of regenerative placemaking. Let us, then, begin by discussing means and methods.

[1] The following phrase is an excerpt of my writing from section 4.3

8.2
Approaching the (Un)Known

Investigations and proposals that endeavor to address our hypercomplex times must contend with messy realms of (un)known[2] realities. My search to understand and develop sustainable spatial design and ecosociospatiality has, therefore, taken place within this penumbra. Embarking upon a study of this messy realm of intersecting, conflicting and converging realities is daunting. It is not surprising that traditional sciences and "standard methods" (Law, 2004a, p. 4) have avoided the realm of the (un)known. The penumbra resists neat definitions as it is an assemblage of competing (even conflicting and incommensurable) facts, values, observations, sensations, interpretations and ideas. The messy and fluctuating nature of realities (Bohm, 1980; Law, 2004a), compounded by the hypercomplexity of our time, are by their nature too extensive to understand solely from research methods that focus on verifiable and objective results, i.e. 'facts' (Lagadec, 2007; Law, 2004a).

I have found correlating arguments from several scientific disciplines[3] that support the stance that not all that *is* or *could be* can ever be discovered or developed solely through traditional scientific methods and approaches. John Law explains this conundrum well:

> If much of the world is vague, diffuse or unspecific, slippery, emotional, ephemeral, elusive or indistinct, changes like a kaleidoscope, or doesn't really have much of a pattern at all...How might we catch some of the realities we are currently missing? Can we know them well? Should we know them? Is 'knowing' the metaphor that we need? And if it isn't, then how might we relate to them? (Law, 2004a, p. 11)

The literature on design thinking and spatiality I have reviewed also makes clear that spatial problems and situations regularly require designers to interpret and act within a mess of realities that are as complex, situationally variable, future-oriented and utopian – i.e. (un)knowable – as those that relate to sustainability. I have therefore sought to understand how a designer constructs knowledge and affects realities and how this translates into a research approach for the understanding, development and manifestation of sustainability (and beyond). In this search, I have found synergies between discourses on design thinking (Janssens, 2012), 'method assemblages' (Law, 2004a), 'prospective thought' (Pinder, 2013) and 'performative research' (Haseman, 2006).

- **Method Assemblages** "detect, resonate with, and amplify particular patterns of relations in the excessive and overwhelming fluxes of the real" (Law, 2004a, p. 14). They are, in this way, "a combination of reality detector and reality amplifier" (ibid.).
- **Prospective Thought** argues for the use of utopian (and pragmatopian) values and visions. Considering 'possible-impossibilities' is seen as an important element in the production and exploration of alternative futures. Without prospective thought, future studies are limited to extrapolations or trends of current conditions, i.e. the continuation of tendencies that exist in present day realities.

[2] The notion of the (un)known is introduced in section 4.1
[3] Including physics, social sciences, cognitive and behavioral sciences.

~ **Performative Research** emphasizes the importance of making practices and creative experiences in explorations of a topic. The primary focus is to proflect upon what *could be* through projects, inevitably providing alternative perspectives and configurations of what *is*.

A common link between these approaches is that they do not discount subjectivity, nor do they shy away from (hyper)complexity. Instead, they develop knowledge and construct circumstances through embracing and operating from within messy realms of human experience, values and visions. Products of these ways of working are not as much conclusions as they are extractions from the penumbra at a moment in time. Rather than reveal all the 'facts', they reveal and craft relations of facts and values into present and future possibilities. Their focus is on discovering what *could be* in situations and topics where it is difficult or impossible to definitively determine what *is* either real or possible.

Through research methodologies that use subjective constructions and interpretations of 'possible-impossibilities' (Pinder, 2013) one can ponder, discuss, envision and identify the specific values and systems that we want an age of ecology to contain. And, hence, help to identify what measures and efficiencies of things and actions can be more *effective* and *affective*[4] in relation to a desired outcome. They are not considered a substitute for, nor superior to, more verifiable or objective methods but are rather a complement and companion to these.

8.21 A Prospective Method Assemblage for Design-Oriented Performative Research

As discussed early on in this dissertation, a designer often explores theory and proflects on possible-impossibilities through human experiences, projective pedagogy and practice (see fig. 0:1).[5] I therefore see a designerly approach to research as one that not only contributes to this combination, but also uses it as a base from which to work and think. I argue that this is a form of performative research guided by designerly thinking which one can denote as ***design-oriented performative research.***

My approach has been to assemble theory and discourse development with embodied and projective methods of exploration contained in the practice assemblages of spatial designers, which also have ties to poetic, artistic and anthropological methods. I have assembled these methods for the purpose of exploring possible-impossibilities in a future beyond conventional sustainability. To denote this future orientation and its assemblage nature, one can call this a ***prospective method assemblage.***

The overall approach and methodology is therefore a *prospective method assemblage for the exploration and development of design-oriented performative research*. It is the product of the synergistic characteristics found in the aforementioned discourses on design thinking, method assemblages, prospective thought and performative research. It is an assemblage created for the purpose of correlating, probing and projecting theories, places and practices.

[4] An affective thing or action is either caused or influenced by emotion. By extension, an affective action or thing can also be one that expresses emotion. (The significance of effectiveness vs. efficiency is discussed in section 3.21. Affective actions are discussed in 3.4 and 8.7)

[5] See section 6.21 for a definition of proflection and projective explorations.

Subjectivity, then, becomes the lens used to study intersubjective constructs beyond sustainability, to which spatial design thinking can contribute.

8.22 Letting Spatial Poetics Lead a Method Assemblage

As stated earlier, a key motivation has been the search for the spatial poetics and design theory for socioecological well-being. Through this search I have expanded upon the understanding and practice of related strategies and methods. As a base for my inquiry, I have used syncretic thinking and poeisis[6] to delineate focalizations, i.e. the lacuna, and derive methods to explore these. The base of the prospective method assemblage thereby rests on two poetic methods for combining polarities in corporealities. From this base, I have developed variations of existing methods for poetic measurement[7] of spaces and defined the pedagogical version of a previously identified design research method. These are, therefore, as much results of this design inquiry as they are methods used in it. Together with the discourse development, these methods are those through which schemas are derived. The schema has, in turn, become the poetic unit that this design inquiry uses to measure both actual and imagined experiences of regenerative placemaking.

I. The Directed Dérive for Poetic Measurement

To explore existing examples of and potential for syncretism in the polarities of the lacuna, ***the Directed Dérive*** has been developed as a method for poetic measuring and knowledge development through encounters with people, things and space. The Directed Dérive probes uncertain and hypercomplex situations in search of emergent phenomena. I have used it to uncover points of attraction and engagement that contribute to experiences and interactions that connect people to spaces and build a sense-of-place, i.e. emergent phenomena that cluster and build subjective and intersubjective narratives of a place.

My definition of the Directed Dérive is a development of the Situationist's Dérive. However, the specific way in which I have used it is also a development and delineation of one of the methods a designer uses to search for and develop design schemas. The way in which I have used and developed the Directed Dérive in this design inquiry carries a clear relationship to autoethnographic methods and I therefore suggest it could also prove useful in ethnographic research. I propose it as an important part of a method assemblage which responds to Law's (2004a) call for slow, quiet and modest methods that can reflect and respect the messy, elusive, fluid and multiple paths of knowledge and realities.

II. Pedagogically Framed Projectivity for Research and Practice

To explore the poeisis possible in the polarities of the lacuna, I have used projects that represent a wide range of spatial design practices. I have referred to this work of thinking through projects as Janssens' definition of 'projective research' (2012). As nearly all of these projects have had a pedagogical element to them, I consider having conducted projective research in the manner that Akner-Koler (2007) defines as 'pedagogically

[6] See section 2.52 and 3.11.
[7] See section 4.43.

framed research methods,' thereby creating a term to indicate this combination with ***pedagogically framed projective research***.

As Akner-Koler (2007) points out, it is common for architects to test concepts in academic settings that also apply to real projects in their on-going practice. In other words, the result of the method can either be an academic publication or a built project, or both, as in the case of Bråta ReUse Pavilion.[8] When this method is used outside of traditional research environments, i.e. in practice, I have suggested the term ***pedagogically framed projectivity***.

8.3
Exploring (un)Known Ecosociospatiality

Through my processes of inquiry, I have substantiated that a spatial perspective is not only how I best can contribute to the discussion, but that it is an essential discussion to have in relation to moving towards, and beyond, sustainability. Through the correlations that I have mapped between discourses on sustainability, cognitive sciences and social sciences, I also claim that achieving and maintaining socioecological well-being is dependent upon an understanding of how ecologies and societies can relate spatially, i.e. of ***ecosociospatiality***. Space is not only a basic requirement for ecosystems and societies to function, as it provides a location (or network of locations) for these to occur; it also plays an essential role in the less measurable and more subjective psycho-social aspects of well-being through 'placehood' (Agnew et al., 2003).

Acts done and emotions felt in and through places can be understood as a messy intersection of measurable and immeasurable realities known and unknown. It is what I refer to as the (un)known in this chapter: a penumbra of facts and values seen and unseen, certain and uncertain, perceived and believed, received and conceived. This penumbra is where sensemaking and world-making occurs, i.e. where we sense, make sense of, and create the worlds around us through correlating schemas, narratives, metanarratives and paradigms.[9] It is the intersection and overlapping of subjective human experiences and agreements that creates the intersubjective narratives, which in turn build and uphold civilizations and cultures (Harari, 2015).

It is these non-linear schema-oriented sensemaking acts of world-making that have helped humanity to create and identify the ages of hypercomplexity, unsettlement and ephemerality which are delineated in the first chapters of this dissertation. Through these same acts of world-making, humankind has also formed what I have renamed ***the age of ecological awareness*** through our time's increasing awareness and acknowledgement of humanity's affect and dependence on the health of ecologies. I have argued that only when values and actions that foster socioecological well-being are the social norm will we be in an *actual* 'age of ecology' as suggested by Sessions (1987).[10]

[8] See project 6.38 (along with proceeding projects 6.37 & 6.36) as well as appendix X.
[9] See section 2.6 on the corollary nature of metanarratives and paradigms
[10] Discussed in section 1.4

Combinations of overlapping realities characterize the human experience, which in turn underpin the human values, acts and paradigms that need to shift towards a *true* age of ecology.[11] I, therefore, hold that any discourse on socioecological equality and well-being, i.e. sustainability, to be incomplete without considering subjective and intersubjective realities of the spaces we share.

8.4
Moving Beyond Sustainability

My critical investigation into discourses on sustainability in combination with the generative forces behind design practices led to the discovery of a recurring and growing call to move 'beyond sustainability.' It is not a cohesive movement nor is there a central definition of the phrase, however, it is used increasingly and is common within regenerative design discourses. For this reason, I have sought to understand and define the themes and perspectives that help to delineate the meanings and motivations behind the use of this phrase.

By reviewing the origins[12] and subsequent uses of the admonishment to 'move beyond sustainability,' I conclude that the movement is primarily a call to reach beyond concepts of sustainability which have evolved through a number of international assemblies since the publishing of *Our Common Future* (Brundtland, 1987).[13] From a literature review of these and other texts I have formed an understanding of the basis for a movement beyond sustainability. As regenerative design advocates often claim to be a theory and practice that reaches beyond sustainability, this analysis helps to define what that truly means.

8.41 A Critique on Conventional Sustainability

To understand the basis for the call to move beyond sustainability, I have conducted a literature review of the critique arising in the post-Brundtland era. I have not only reviewed texts that specifically call for a move beyond sustainability, but also critical texts that do not use this choice of words. For even though some texts do not use the word 'beyond,' the critique they contain is echoed in the texts that do. They, therefore, provide further insight into the issues that has spurred calls to move beyond sustainability.

A general theme in the criticism is that in the process of mainstreaming sustainability, crucial elements of socioecological well-being and equity has been misrepresented or relegated and that problematic paradigms have been left relatively unchallenged. One could, therefore, say that this is in fact a call to move beyond *mainstream* sustainability, however I have chosen to call it a movement ***beyond conventional sustainability***. It is namely the conventionality of post-Brundtland forms of sustainability, i.e. its adherence to conventional

[11] See section 1.4 for a discussion on the difference between what would define an age of ecology vs. one of ecological awareness.
[12] Which I have traced to 1998. (See section 1.43)
[13] Often referred to as "The Brundtland Report"

systems and thought, that lies at the core of the critique from discourses that call for a move beyond sustainability. I have identified three main themes of this general critique:

Themes of Critique on Conventional Sustainability

1) The sustainment of exiting dualisms and paradigms
2) Vague language and misleading terms
3) Misguided representation of interdependence and well-being

A unifying argument across these themes of critique is that it is too easy to interpret conventional sustainability to be an act of shifting technologies and applying measures of efficiency *within* current, i.e. conventional, systems. These acts and measures are not enough, critics argue. Instead, a movement towards (and beyond) sustainability must illustrate and include a shift of ontologies, technics and systems.

8.42 Ontologies in Sustainability Discourses

To further define the movement beyond conventional sustainability and regenerative design's place within it, I have found it useful to identify ontological differences within the discourses on sustainability.[14] I have done so by combining the above literature review with a review of texts on the history of activism towards what is now called sustainability. The differences between these ontologies lie primarily in the perception and evaluation of *others* in relation to ourselves, i.e. how much we care and are concerned for their well-being. This, in my mind, is the question that lies at the very heart of why and how to develop and maintain socioecological well-being. I have also related these three ontologies to different forms of ecological awareness defined by Kwinter (2010).[15]

Ontological Differences in the Age of Ecological Awareness

Negotiable Eco/Social Substitutability	—	First Ecology
Ecologically Dependent Social Well-being	—	Second Ecology
Reciprocal Socioecological Well-being	—	Third Ecology

I see a strong relation between the first ontology and modernism, i.e. reality is seen as a reducible sum of parts that humans can master through rational thought. The second is arguably more postmodern, i.e. reality is seen as irreducible and relative, particularly in how ecologies are able to provide societies with the resources they need to foster human well-being. Both of these ontologies/ecologies are anthropocentric while the third challenges anthropocentrism as much as is humanly possible.

[14] See section 1.42
[15] See section 1.5

Conventional sustainability tends to be of either the first or second ontologies; however, the discourses that incur the strongest criticism fall into the first ontology. Discourses that argue for moving beyond conventional sustainability can be rooted in either the second or third ontology, but are more often within the third. There is a strong correlation between this third ontology and Latour's (1991) definition of nonmodernism. Humans are regarded as one of many powerful actors in interdependent networks of beings and things in what STS refer to as naturecultures (Law, 2004b), and I tend to refer to as socioecologies. This is also true for regenerative thought, which will be delineated in further detail at a later point in this chapter.[16]

8.43 Seeking Alternative Terms for Sustainability

One would assume that a movement beyond sustainability would need to replace the word sustainability completely, however this is not always the case. Regardless of the problematic inferences in the terms sustainability and sustainable development and their tendencies to confuse goals with means,[17] they are not entirely useless. Though I have developed terms that I prefer to use, such as socioecological well-being, I have found it impossible to remove the term sustainability completely from this thesis for two reasons:

- The first is to refer to and engage with the massive political and social movements that have managed to make ecological awareness mainstream.
- The second is that I find that the verb 'to sustain' has a certain ring of truth in regards to the *human experience* of security and large-scale system stability we hope to achieve in a future age of ecologism.

I also see this sentiment inferred by the term 'regenerative sustainability' (Du Plessis & Brandon, 2014) and in Lyle's (1994) book title *Regenerative Design for Sustainable Development.*

None the less, I have used the term socioecological well-being instead of sustainability whenever possible in this text because I find it more accurately describes the goal of a true age of ecology. I also argue that regenerative processes are the most accurate way to describe the means by which we will achieve and maintain this state of socioecological well-being. This reasoning aligns with discourses on regenerative design theory and practice, which is the most cohesive and concrete set of proposals for how to move beyond conventional sustainability that I have come across. It is a theory and practice which is still under development, and so it has been my intent to contribute to these through this study.

[16] See section 8.63
[17] See section 1.43, subheading II

8.5
Practicing Spatial Narrativity for Change

Correlations between different aspects of narrativity have proven to be a revelatory path of my inquiry to understand the possible contributions of spatiality and designerly thinking to shifting paradigms. Narratives, in various forms, play a central role in forming and upholding societal and individual identities in relationship to things, spaces and others. This, in turn, indicates they also play an important role in the paradigms, which are not uncommonly referred to as metanarratives, of the society in which we live.[18] Narrative methods and expressions play a central role in spatial design to, amongst other things, operate in the (un)known of hypercomplex situations riddled with conflicting values and needs.[19] Understanding the ***spatial narrativity*** where we encounter *others* and share and build public and social identities is therefore paramount in the work towards sustainability and beyond – what could be called the *ecosociospatiality of publicly shared space*.[20]

Spatial narrativity is the over-arching term I suggest to use to indicate the narrative aspects of how a place is made and communicates through spatial *experiences* and practices, as well as the way in which designers develop and communicate concepts and visions of a future place. In other words, spatial narrativity can be a method, an expression and/or an experience. Spatial narrativity, I argue, can help us better understand the role of spatiality, or spatial agency (Awan et al., 2011) for socioecological well-being.

Spatial design's, particularly architecture's, ability to communicate messages and stories is a long-standing topic both in semiotics and architectural discourse. These discourses often center on the architectural object, however, through Bachelard's (1994 [1958]) notion of 'the poetics of space' this question expands beyond how *objects* communicate to include how *spaces* communicate. I have argued that the notion of place, or placehood (Agnew, 1987), is a spatial phenomenon that helps to understand the relationship between spaces and narrativity, in particular the intersubjective narratives that lend a publicly shared space its unique identity. Drawing from Agnew's (2011) definition of place,[21] one can say that a place is essentially a space that is enmeshed and rich with layers of significance through intersubjective narratives. Furthermore, placehood can be said to be both a *result* and *mode* of sensemaking related to spatial agency, in so far as "sense-of-place...is a necessary prerequisite for social solidarity and collective action" (ibid., p. 24).

To grasp narrativity's complex role and potential in relation to places and shifting paradigms, one must understand that narrative expression does not always come in the form of storytelling. This subtle, but important, distinction lies in what I have called a narrative's sequential versus nonsequential revelation, experience and knowledge building

[18] The nature of a metanarrative and its relationship to paradigms is discussed in sections 2.2 and 2.6

[19] See sections 2.5

[20] See chapter 4. Public space, shared space and common space is reinforced by a great number of discourses on sustainability. I choose the term publicly shared spaces to represent all three of these in relation to placemaking and mediate the difference between the classic notion of 'public space' (i.e. publicly owned space) and space that we simply share with 'others'. It could be said that I am studying 'publicly shared spaces' as a window into 'public space', in the same way that I am studying 'spaces of waste' as window into 'regenerative place'.

[21] See section 2.31

and is directly related to the ability of a place to communicate a story. In other words, storytelling is a narrative understanding that is revealed through a given sequence of facts and experiences, i.e. a ***sequential narrative and schema.*** By contrast, a ***nonsequential narrative and schema*** is open-ended as to *when* experiences are encountered, as well as to *what* these experiences may be.[22] A spatial narrative which is revealed through the real or imagined experience of being in a place usually engages the 'reader' in a nonsequential way. This open-ended structure of spatial experiences is connected in a very real way to mental constructs of how we interpret identities in ourselves, others and the world around us.[23]

Nonsequential influences of actions and attitudes, experience and thought revealed through cognitive sciences (Havelange, 2010) operate through mind-body relationships to change habits and shifting paradigms. This revelation reinforces the need to recognize, understand and develop non-linear ways of 'knowing.' And because "cognition is embodied; [i.e. we] think with [our] body, not only with [our] brain," (Kahneman, 2011, p. 51) it stands to reason that one cannot change attitudes and actions through logical argumentation alone. If our body affects the way in which we think, we must engage it in the building of new narratives, metanarratives and paradigms for socioecological well-being.

As the experience of space and place involves embodied cognition, it is safe to presume that spatiality plays an often silent, but significant, role in our personal and collective sensemaking. Places implicitly generate qualities such as ambiances and moods and suggest relationships, seclusions, activities and movement. Design can encourage and suggest certain experiences, but there are many ways these can be interpreted. In their appropriation of space, users become co-authors of the narratives of it as a place. These narratives shift and repeat through different time frames and durations according to use and appropriations. The identity of a place is therefore intimately intertwined with the subjective ways in which it is used and how its meaning is interpreted in the daily living of our individual and collective lives.

Dialogues on sustainability (and beyond) frequently emphasize the contextual and individual nature of any solution that balances competing interests and values in relation to socioecological well-being. As sustainability is reached place by place, situation by situation, and no place or situation is exactly like the other, professionals dealing with sustainability need skills that help them build knowledge between apparently disparate and hypercomplex situations. The design practices of schema collection and development, syncretism and poeisis fit this description. Schemas transfer knowledge between apparently disparate and often hypercomplex project situations defined by competing realities, values and needs. Syncretism in design merges, or otherwise combines, such competing elements for the poeisis (bringing forth) of new corporealities.

8.51 Roles of Schemas in Spatiality & Shifting Paradigms

The interrelated notions of cognitive and narrative schema have become a central point of clarity in the way I understand correlations between narrativity, spatiality, designerly thinking, human experiences and paradigms. A schema is the essence and core element of a

[22] Discussed in sections 2.42 and 7.4 (including subheadings)
[23] See section 2.4

narrative understanding gained from an experience – a node of assembled associations of facts, values and emotions experienced and remembered through mind and body correlations of the corporeal and imagined. Understanding the characteristics of schemas in the generation and poetic measuring of spatial narrativity could help to develop the role of spatial poetics for shifting paradigms. This design inquiry contributes to this understanding by delineating a set of separate, yet interlinked, structures and types of schemas.

Types of Schema Structure	Types of Schema Scope, Origin & Application
Sequential Schema	Personal Schema — Design Schema
Nonsequential Schema	Metaschema — Meta-design Schema

Definitions of image and body (personal) schema suggest ways in which spatial conditions affect how we identify ourselves and relate to others through embodied experiences.[24] Understanding this, it becomes difficult to negate that the creation and experience of physical environments carry narrative qualities that influences individual and societal identities, which in turn also influence the metaschema of metanarratives and paradigms.

The collection and creation of (design and meta-design) schema has also been identified as a core practice of professional spatial designers and design teams in communicating, developing knowledge and approaching highly variable design situations. It also plays an integral role in the framing-reframing process that Schön (1984) identified in spatial design as 'reflective practice,' which I would argue is the process used to enact the syncretic poeisis of bringing forth new realities from combining conflicting realities. Additionally, schema development and reflective practice are design skills that are considered transferable to other fields (Lawson & Dorst, 2013; Paton & Dorst, 2010). Together, these points lend weight to the claim that schemas are important elements to consider in the transdisciplinary work that is needed to move towards, and beyond, sustainability.

There is, therefore, considerable basis to claim that understanding schema formation is useful for any profession or individual grappling with how to shift habits and attitudes in societies, and the metanarratives and paradigms they relate to. By understanding ways that cognitive and narrative schemas relate to spatial practices, the role of spatial design in shifting paradigms towards, and beyond, sustainability becomes clearer. Understanding spatial narrativity could, therefore, play an important role in the advancement, education and further study of spatial design practices and, particularly, regenerative spatial design practices.

[24] See sections 2.41 and 2.42

8.6
Moving Towards Regeneration

I arrived at regenerative theory through a sense that if a paradigm shift is to occur, the goal and methods must appeal to human emotions, desires and hopes for better futures. It must also do so in a way that does not contradict the processes that allow societies and ecologies to persist. I saw the generative nature of design as an enactment of, and response to, humanity's drive to change their lived environment to increase well-being. Societies and ecologies are integrally linked and persist through the regeneration of conditions and resources that allow for evolution and adaptation.

Shifting *generative* forces towards *regenerative* ones seemed like a logical and exciting prospect. Such a shift seemed to incorporate the care, dynamics and poetics often present in design practices while also challenging these to reach new levels. It also resolved a certain discord I found between human desires that drives us to both *generate* and *sustain* realities. To generate is a making process and lies at the core of both designerly and ecological processes; to re-generate is to make anew – to re-make.

Sustainment is a state of doing no harm to healthy life conditions, whereas regeneration is the state of developing new life conditions from deteriorating or dead conditions. Well-being through sustaining is more akin to surviving and stagnation, while well-being through regeneration suggests a state of renewal and movement forward. In regeneration lies the opportunity for improvement and evolution through re-making the world we live in. Inherent to this state of opportunity is hope and the chance to thrive, not just survive.

8.61 Values & Principles of a Regenerative Approach

From discourses and placemaking explorations, this design inquiry has mapped and derived conjoined principles and concepts of regenerative thought and practices. The following sections build upon and summarize this work. Let us begin with a broad brush to paint the overall picture I have developed of the values and principles inherent in a regenerative approach beyond conventional sustainability.

A regenerative approach works from the nonmodern basis that societies and ecologies are inseparable realms. It seeks to redefine the modern/postmodern concept of 'the good life' associated with the throw-away culture of the age of ephemerality. It further holds that applying efficiency to linear waste-resource systems is an insufficient means to attain and maintain socioecological well-being. Societies must instead create and incorporate regenerative living systems that foster a concept of the good life as reciprocal human and nonhuman well-being.

In the attainment and sustainment of socioecological well-being we should actively include and consider the less measurable experiences, values and attitudes that influence and are influenced by the more measurable ones typical of standard scientific methods. In other words, it is vital we include the emotions and values we associate with the corporeal when we consider what *is* and what *could be* 'real'. Amongst these, we must

recognize the primary importance of the situated assemblages of places, human and nonhuman beings, things and tendencies that interact and influence each other in various system and network relationships.

It is only through affecting the multiple and nonlinear relationships between experience, action, thought and emotion that the needed paradigmatic shift in intersubjective narratives, attitudes and values can occur. A regenerative approach is therefore rooted in a nonmodern ontology in order to move beyond the deep-seated ontological divisions of (hu)man and nature, technology and place, mind and body that plague conventional sustainability. Hence, a regenerative paradigm is built upon social agreements grounded in place-based nonmodern narratives and technics that care[25] for the relationships between things and beings.

8.62 Approaching Regenerative Nonmodernism

In the breadth of application and wider implications of regenerative concepts and terms there is evidence to suggest that what began as design theory has now expanded into a comprehensive philosophy for individuals and societies. This design inquiry delineates four intersecting scales of regenerative thought and practice (see fig. 3:8) that apply to different spatial and psychosocial realms.[26]

Four Intersecting Scales of Regenerative Thought & Practices

Regenerative Design < Development < Sustainability < Psychology

These various thoughts and practices overlap and influence one another with a regenerative psychology (or mindset) permeating each level.

Within these scales of regenerative thought and practices I have found two core perspectives on how to foster a regenerative mindset, lifestyle and built landscape. I call one a ***regenerative ecotechnological approach*** and the other a ***regenerative ecosociotechnic approach***. However, I consider these to be representations of slight differences within a shared ontological perspective rather than being dialectically opposed arguments. Their similarity lies in a nonmodern view of societal constructs as inseparable from ecological conditions, and vice versa; in other words, both perspectives strive against anthropocentric norms. Their difference lies primarily in the importance they place on technological versus social initiatives for societal change and paradigm shifts.

A regenerative ecotechnological approach tends to describe technology as the determining factor in societal (paradigm) shifts. It therefore leans towards technological determinism (Moore, 2001) and ***ecotechnophilia***.[27] A regenerative ecosociotechnic approach sees technology as socially embedded, i.e. technology is just as influenced by social norms, habits and values as the other way around. This brings into the fold a larger discussion on the

[25] This crucial and surprisingly complex notion of care is discussed in section 3.4 and 7.54
[26] See sections 3.32 and its subheadings, as well as section 7.53
[27] See sections 3.21 and 3.23 subheading II

importance of non-technologically based forces for change, such as emotions, daily habits, craftmanship, artistic expression, professional knowledge, place and placemaking.

I consider the ecosociotechnic approach to be a more mature form of regenerative thought and practice than the ecotechnological one. However, due to the growing popularity and adoption of Cradle-to-Cradle[28] the ecotechnological approach has a strong foothold in the world. Due to the ecotechnological approach's tendency to undervalue a number of psychosocial aspects and values involved in placemaking,[29] I find it insufficient not only as a guide for spatial design but also for socioecological well-being.

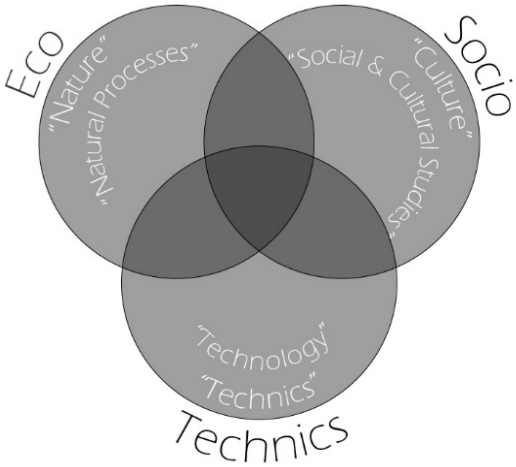
To explain how ecosociotechnics is a more accurate depiction of a regenerative nonmodern ontology, the following sections will explain how I derived this hybrid term and what its component parts represent. My identification of ecosociotechnics emerged non-linearly from all actions taken in this study, i.e. immersion into discourse development (chapters 1-3), probing places (chapter 5) and projecting places (chapter 6). What follows is the reasoning behind the creation of a new nomenclature to express the practice-based mindset[30] in ***regenerative (design) thinking***, and hence also ***regenerative spatial practices*** and ***places***.

8.63 Deriving the Components of Ecosociotechnics

I have previously explained that there are a number of correlations between Brown's nomenclature for knowledge bases of regenerative studies (Brown, 2008, 2009a) and Law's hybrid "ontology of relationality" of 'natureculturetechnics' (2004b, p. 2) and hence also Latour's (1991) notion of being 'nonmodern.'[31] I have argued that these correlations reinforce and illustrate what Moore (2001) describes as the nonmodern nature of regenerative design thinking.[32] However, I find that the nomenclatures that Brown chooses for the realms of regenerative knowledge falls short in their ability to fully represent a nonmodern regenerative ontology and approach to (spatial) design. I have, therefore, developed a hybrid term that builds upon the aforementioned correlations, namely: ecosociotechnics (fig. 7:1).

One of the first problems I detected was how Brown splits 'processes' and 'studies' into two separate realms and excludes both these from the realm of technology. As I pondered this further through theory, experiences (chapter 5) and practice (chapter 6), it became evident to me that all realms of knowledge must include the *study* of phenomena, things, beings and *processes*. I therefore concluded that one must either include both 'studies' and 'processes' in each component term or exclude them. Excluding them is more efficient and allows each realm to also represent phenomena, things and beings. Following this logic, one could arguably switch out Brown's nomenclature for Law's 'natureculturetechnics', however, I also found this inadequate to represent the components of a regenerative nonmodern ontology. The reasoning behind this is made clear in the following explanations.

[28] Discussed in section 3.23
[29] See section 6.43, fig. 6:42
[30] This practice-based mindset is clearly represented in the scales of regenerative thought and practices discussed earlier in this chapter and introduced in section 3.32.
[31] See section 3.33
[32] See section 3.24



(Fig. 7:1) Each component of ´ecosociotechnics' expands upon the correlation I have found between Brown's 'three regenerative knowledge bases' and Law's 'natureculturetechnics' (fig. 3:10).

I. A Case for Eco

I consider *eco* a more appropriate nomenclature than 'natural processes' (2009a) or 'nature' (Law, 2004b) for several reasons. To begin with, the words 'nature' and 'natural' share the quality that they can just as often imply what is normal, correct, true or real.[33] A 'natural process' or 'nature' can therefore just as easily be used to refer to human or social conditions. While this may be appropriate for STS discourses, it is not specific enough to refer to the 'material doing' (Puig de la Bellacasa, 2011) inherent in regenerative (design) thinking and practices.

In visiting proto-regenerative spaces and through projecting placemaking through an assemblage of designerly practices I realized that Law's 'nature' or Brown's 'natural processes' only represent *the field* of inquiry or inclusion. They do not accurately represent the *practice of caring* and *concern for* nature and natural processes that characterizes regenerative thinking and practices. The Oxford-English dictionary definition of 'eco' helps to build my case for it as a more suitable term. Eco, as an abbreviation for both 'ecology' and 'ecological,' represents not only to the *field of knowledge*, but also to a form of *doing* and to an *emotional state* (OED, n.d.-a, definitions 1, 2):

1) Of, relating to, or involving the interrelationships between living organisms and their environment.

2) Concerned with environmental issues; environmentalist. Also: (of a thing or activity) environmentally friendly; causing minimal damage to the environment.

Firstly, the term places an emphasis on *place-based interrelationships (*ecology). Secondly, it relates to *things, activities* and *concerns* involved in the *practice of caring* for ecological well-being (ecological). Thirdly, the term implies the living-system awareness and scientific knowledge that ushered in the age of ecological awareness that brought about conventional sustainability and allows us to imagine ways to move beyond it.

[33] Nature: "the inherent character or basic constitution of a person or thing", a "disposition [or] temperament" (Merriam-Webster, n.d.-f, definition 1a, 1b). 'Natural' is also sometimes used to imply what is normal, real and a correct (Merriam-Webster, n.d.-e definitions 1, 8c, 12).

II. A Case for Socio

Through probing and projective explorations, I have found that besides sociality there was often a sense of doing something useful for society in general. In other words, not only was there social well-being through sociality, but there was also a sense that the work being done was for the benefit of society at large. In this way the waste-resource activities present in the place also extended the notion of placehood beyond sociality and into the sociotechnical cycles of materials and objects. I have, for this reason, chosen the prefix 'socio' instead of Brown's 'social and cultural studies and Law's 'culture'. I deem 'socio' more appropriate as it is an abbreviation for both 'society' and 'social' (Merriam-Webster, n.d.-j, definition 1). 'Socio' thereby is able to represent norms and regulations of societies *as well as* interpersonal relationships, i.e. the social. Societies are comprised of a myriad of social and cultural forms and activities. I, therefore, see 'socio' as a term which can encompass a broader range of the human condition: sociality, societies, individual humans in societies, cultures within a society, as well as cross-cultural (including multi-cultural and inter-cultural) relationships.

III. A Case for Technics

I have previously argued[34] for the use of the term of 'technics' over 'technology' in order to expand the notion of practical knowledge that is involved in the creation and maintenance of physical forms and processes. The place visits and projective explorations in this design inquiry have only solidified this theoretical stance. Technics represents a wider range of embodied knowledge, acts and things necessary for socioecological regeneration, not least of all in the making of places. A place is not a thing of technology or technological mechanisms and machines. A place is a thing of technics: an assemblage of spaces, practices, cares, objects and technologies that support various expressions of Being and processes of Becoming.

IV. A Case for Ecosociotechnics

Ecosociotechnic differs from ecotechnology in a similar way that 'sociotechnology' and 'socioecotechnology'[35] differ from technology. Sociotechnology is a term that is used to emphasize the entanglement of technologies and humans, in particular human social and societal relationships, norms and situations.[36] Just as sociotechnology expresses the social embeddedness and "networked character" (Hommels, 2005, p. 334) of technology, so the term socio*eco*technology, then, expresses the ecological embeddedness of socio-technological systems, networks and/or assemblages.[37] Likewise, it expresses the social

[34] See section 3.33 subheading III

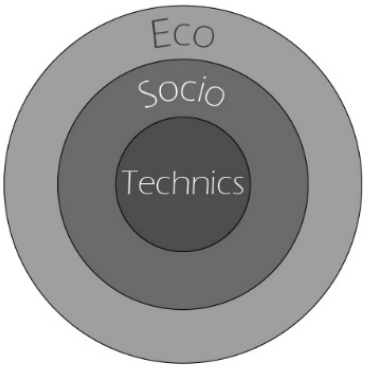
[35] First "formulated by Eric Trist, Fred Emery, and a group of researchers at the Tavistock Institute of Human Relations" (Heller, 1997, p. 606).

[36] I have derived this conclusion from a variety of sources, mainly: Heller, 1997; Hommels, 2005; Latour, 1991; Puig de la Bellacasa, 2011.

[37] Amongst the literature on sociotechnology one finds these terms: sociotechnological systems (Pasmore et al., 1982); sociotechnological networks (Latour, 1991) and sociotechnological assemblages (Puig de la Bellacasa, 2011). The difference between a system, a network and an assemblage may be fine, but is none the less significant. To simplify my understanding of these distinctions I consider a system to be linked by flows and functions; a network by the powers of influence and connection and an assemblage by flexible, multiple and ephemeral arrangements

embeddedness of ecotechnologies, thereby transcending tendencies towards ecotechnophilia and technological determinism. Ecosociotechnics, however, goes beyond the mechanic focus implied by socioecotechnology to include a broader range of practices and devices involved in the making of corporealities.

The order in which I have placed the components of the composite term ecosociotechnics not only reflects the order of natureculturetechnics, but also expresses the scales of interdependence discussed earlier in relation to the critique of the three pillars diagram of sustainability.[38] This order emphasizes that *technics* are a part of *socio* (society, social and cultural) which in turn is a part of *eco (*ecologies). To illustrate this interdependence, I suggest a modification to Brown's diagram (fig. 3:10 and fig. 7:1) and place the component realms of regenerative knowledge into concentric circles (fig. 7:2).



(Fig. 7:2) Concentric interdependence of eco to socio to technics, built on the same logic of Mebratu's Cosmic Interdependence (fig. 1:6b).

A nonmodern regenerative ontology aims to move beyond anthropocentrism and bridge the dualistic tendencies of modernist and postmodernist thought that divide nature-man, human-nonhuman, mind-body and technology-place into separate realms of being. The ecosociotechnic approach does so by expanding upon the systems thinking inherent in the ecotechnological approach to a network and assemblage understanding of hybrid realities.

Ecosociotechnics is a representation of a way of understanding the composition of the world and the components one must consider in making a world which can regenerate resources and well-being. It is, in this way, also an ontological view of what forces form the world in which we live. In a regenerative system aimed at tempering entropy, the influence of all of these elements should be considered. It is not an all-encompassing diagram of regenerative theory, but it does well to express its practical application, knowledge bases and nonmodern perspective on the world. In the same way that the 'three pillars' has been useful in communicating core areas of concern within conventional sustainability, my hope is that ecosociotechnics can clarify core areas to consider in developing a regenerative practice, pedagogy, project or place beyond conventional sustainability.

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of associated states of being and/or becoming. I see their distinctions as primarily being a representation how the observer chooses to see and describe relationships of things and beings. Each of these ways of seeing and describing realities have different advantages in understanding sociotechnologies. I therefore consider it important that all three are allowed to coexist.

[38] See section 1.43 subsection III and figures 1:6a & b.

8.7
Emotive Utopias & Affective Pragmatopias

If the objectives of conventional sustainability seem utopian in many situations, regenerative sustainability's insistence on moving beyond it is undoubtedly so. One can further tie this regenerative movement to utopian thinking through the designerly thinking that has been a driving force in its development. As such, it is a development of theory and principles that stems from the prospective reasoning inherent to projective explorations of possible-impossibilities that lie at the heart of spatial design practices. The place explorations in this design inquiry further suggest that these utopian objectives can be difficult to manage and achieve within a single project and on a single site, raising the question of how effective regenerative principles can be.

However, one can argue that there is a pragmatism in regenerative thinking in its strive to understand, represent and address the hypercomplex interaction of values, emotions and processes that make and break worlds.[39] This strain of pragmatism, or pragmatopianism, is also present in the way that regenerative sustainability identifies and addresses the linguistic confusion of means and goals that conventional sustainability is accused of (Lélé, 1991, p. 611). It does so by clarifying the *means,* i.e. generating and regenerating conditions, by which we can achieve the *goal* of increasing and maintaining (sustaining), reciprocal well-being in socioecological relationships.[40] There is also a pragmatism in how regenerative principles strive to affect change through the psychosocial and corporeal entanglements that create realities. It does so by focusing on the issues of relationships to place, identity and temporality[41] through a nonmodern understanding of ecosociotechnic relationships.

So, while a nonmodern regenerative perspective comes from a concern to realistically address how to create and maintain human and nonhuman well-being, one can equally argue that it is unrealistic to address every possible concern of such a perspective in a single design project. Yet, as discussed previously, the value of utopian visions is not so much in their implementability or effectiveness, but rather in their ability to guide, inspire, and clarify values. In other words, it addresses what we care about in a project or how that project will contribute to how we care for it. Utopian visions, then, are tied to the ***emotive forces*** that drive the ***affective actions*** in pragmatopian proposals. It is therefore not unreasonable to derive a project's focus and spatial design practice from a regenerative nonmodern perspective and principles.

Throughout the history of design theory, there is a recurring "[appeal] to nature as the basis for good architecture" (Wang & Groat, 2013, p. 398). Regenerative spatial design does so in a new manner: rather than referring to the aesthetics of nature, it insists on incorp-

[39] See section 2.1

[40] This is a response to the critique that in discourses and definitions of conventional sustainability there is a "mixing of goals and means, or more precisely, of fundamental objectives and operational ones" (Lélé, 1991, p. 611). Discussed in section 1.43 subheading II.

[41] Reflecting Segghezzo's discourse on the shortcomings of conventional sustainability. (See section 1.43 subheading III, fig. 1:7)

orating and mimicking ecosystems[42] as well as considering nonhuman alongside human beings' needs in the built environment. By doing so it treats nature as part of the infrastructure and technology of society, but it also treats the nonnatural infrastructure of things differently. The infrastructure of urban metabolisms is often seen as an engineering issue separate from spatial design that should largely remain invisible. By contrast regenerative spatial design incorporates metabolic processes as any other design element. This is particularly true for the places in this design inquiry.

This design inquiry's look beyond the feverish hunt for 'the new'[43] is relevant not only to the throw-away culture in the age of the ephemeral, but also to our time's fervent focus on new technologies for salvation within the socio-ecological dilemma of our times. A world beyond conventional sustainability is not necessarily made up of here-unto unseen innovations; it is more likely to be a future of here-unto unseen combinations of known and unknown systems, technics and attitudes in places shaped by emotive forces and affective actions driven by a type of 'good life' that prioritizes socioecological equity and well-being.

Achieving regenerative ecosociospatial conditions for socioecological well-being involves probing and composing within the hypercomplexity of overlapping realities that converge and shift over time. In its attempt to address and reflect this hypercomplexity in a non-reductionist manner, the regenerative nonmodern ontology could be accused of having become hypercomplex in itself. Hypercomplexity can be seen as intellectual messiness, and waste can be seen as a messy form of resource. Regenerative design posits that the designers' ability to probe messy realities is why designers should get more involved in, and involve, waste-resource relationships in the formation of socioecological well-being.

By probing the lacuna of this design inquiry from various perspectives and methods, I have striven to distill core principles from the complexity within regenerative theory, without oversimplifying it. The previous derivation of regenerative ecosociotechnics is a product of this effort and can be seen as a representation of the *ontology* of regenerative knowledge and practice. Another product of this effort is delineated in the following section and is what I consider to be the *concerns and care* behind the *emotive forces* and *affective actions* that drive and define regenerative placemaking.

8.71 Concerns & Care Driving Regenerative Placemaking

Places connect generations through regenerating sociality and supporting identities through the evolving forms of that culture's intersubjective narratives. Regenerative placemaking is an emphasis on both the processes that regenerate well-being in society as well as the spaces and processes that regenerate energy and resources for human and nonhuman beings and their cohabitation in local and global (glocal) contexts.

Through cognitive schema, both imagined and actual experiences of other beings and things inform our ontological presuppositions about the world and the values that we equate with ourselves and others. These values inform who, how and what we care and are

[42] What I would call ecosystem mimicry in architecture is more often referred to as biomimicry (Pawlyn, 2019). It is the practice of learning from biological phenomena such as systems, structures, materials, energy production, etc., to develop technologies for human use.

[43] A reference to the discussion what I have called 'the rhythm of the new'. (See section 1.3)

concerned about. Care is a way of connecting to the world and others. As such, it matters what and who are present in the places that we share as well as how we interact with and perceive their presence. I have previously argued that the emotive forces and affective actions related to caring are essential to addressing our concerns for socioecological well-being and are inherent to regenerative thought, practices and places.[44] Through theory, practices and design for regenerative placemaking I discern three core areas of concern and care within regenerative thinking. Emotive forces and affective actions emerge from these and together they describe the key aspects of a regenerative approach to placemaking and spatial design.

Spatiotemporal Rhythms of Regeneration

(How regenerative living systems are created and maintained.)

Emotive Force – Concern for the declining health of planetary living systems due to how current rates of entropy outpace the regeneration of resources. Caring about the equitable sharing of resources between human, nonhuman beings and generations.

Affective Action – Place-based caring for systems through understanding, creating and maintaining connections, spaces, movements and pauses needed for the regeneration of resources at various interlocking scales of socioecological metabolisms.

Ecosociospatial Narratives of Positive Reciprocity

(How humans learn, build and communicate relationships and identities.)

Emotive Force – A conviction that one cannot separate the needs, identities and places of societies from those of ecologies and that well-being relies upon humans understanding this integral condition. The desire to live in a physical and cultural environment that benefits and includes both human and nonhuman beings.

Affective Action – Engendering hope and positive reinforcement through place-based actions and narratives that foster conditions and values that allow humans and nonhuman beings to mutually thrive in coexistence.

Empowering Ecosociotechnic Shifts

(How to shift from inequitable paradigms to equitable paradigms.)

Emotive Force – Caring about the empowerment of social change, personal abilities and a sociopolitical consideration of neglected beings and things. A concern that dualistic paradigms that separate society from ecology, technology from art, mind from matter, etc., are harmful to socioecological well-being. And a conviction that shifting towards a paradigm that sees the world as interconnected and interdependent will generate and maintain socioecological well-being.

Affective Action – Ethico-political acts that affect and enact change from and towards a regenerative ecosociotechnic ontology. Caring acts that empower in three ways: (1) by enabling change in society (2) by enhancing a person's sense of power in life and society (3) by valuing the needs of those who are typically undervalued. It is the presencing of known and unknown values and potential powers of things and beings through acts of poeisis and shifting realities.

[44] See section 3.4

The intention behind the derivation of these aspects of regenerative thought has not only been to arrive at what key principles enable the identification and creation of regenerative places and the enactment of regenerative placemaking, but has also been to further understand what moving beyond sustainability entails. Beyond this, understanding regenerative care also contributes to an understanding of regenerative spatial poetics. Care can be seen as poetic form, or aspect, of concern. Conventional sustainability tends to focus on concerns for the conditions to survive, whereas regenerative sustainability focuses on caring for the conditions to thrive. While concern is a perceived or actual reality to contend with; an area of care is a reality of emotional attachment, engagement and poeisis. Where concern inspires alertness and solutions, care inspires connection and compassion.

8.72 Regenerative Spatial Poetics for Shifting Paradigms

This study has on several occasions pointed out that moving towards a common future defined by socioecological well-being requires a shift in the metanarratives and paradigms that have created a sense of separation between society and ecology. The concerns that have generated the age of ecological awareness cannot be addressed without reevaluating the ways in which we value and care for other human and nonhuman beings and things, i.e. 'the other.' As such, a shift in society requires a shift within us – our social identities and intersubjective experiences.

Embodied interactions with 'the other' in spaces play an important role in forming the schema that determine identities and perceptions of self, sameness and otherness. I therefore conclude that there are a number of opportunities to affect intersubjective metanarratives through spatial design and other spatial practices by the role that they play in presencing 'others' in publicly shared spaces. As the phenomena of culture and place are interlinked (Escobar, 2001), the narrativity created by these places and practices (i.e. spatial narrativity) has the potential to influence who and what is considered part of the 'good life' and help bring about a regenerative culture.

The most widely known form of spatial narrativity in design discourses is spatial poetics. Spatial poetics must therefore play an important role in understanding and developing design thinking for shifting paradigms towards regenerative thinking. Poetics, for me, is a narrative form that uses a rhythmic unfolding and layering of senses and emotions through abstract and specific associations to imagined and (un)known realities. Within this rhythmic unfolding, fields of tension create space and connection between these layers of sensemaking and possible-impossibilities. I will conclude these final thoughts with how I see this definition of poetics is reflected in the regenerative placemaking and design practices explored here.

As mentioned previously, the term regeneration connotes a rhythmic development of meaning, value and form that allow the possibility of change, whereas sustainability connotes a more static state that resists change. Regeneration is unfolding transformation and reconstitution of evolving corporealities; it is a sense of Becoming.[45] Even though places also change over time, one can describe sense-of-place as a pause[46] in time, space and shifting

[45] This refers to the discussion of states of Being and Becoming in section 1.3.
[46] Section 3.21 and 7.51

corporealities; it is a sense of Being. The very notion of regenerative placehood suggests both movement and pause, an unfolding rhythm, of sensemaking.

There are fields of tension in the syncretic combination of that which is pushed away from our lives (waste) and that which we place at the center of urban living (publicly shared spaces). Waste treated as a resource is a field of tension in itself; one that creates layered associations to unseen realities through material memories that suggest former uses, users, times and places of origin. Material memories in place can represent and connect narratives between different cultures and generations. Placehood in publicly shared spaces adds to these layers of associations as it is a corporeal node in networks of entangled relationships and associations between different users, times, places, cultures and generations. A regenerative place connects local acts of care with glocal concerns for socioecological well-being across generations and species.

The potential I see in (and for) spatial poetics to motivate shifts in attitudes, habits, and ultimately paradigms, is in the way it can create positive experiences, and thereby schema associations, of other ways of doing, seeing and being. Regenerative spatial poetics does so through the *three areas of concern and care in regenerative placemaking* and their *emotive forces and affective actions* discussed previously. However, it also does so by leaning on the inherent complex layering of experiences and meanings that lie within the ephemeral yet enduring natures of placehood and placemaking.

The dialectical aspects that create the experience and identity of a place are often quasi-measurable and quasi-definable qualities existing in-between presences and absences of an emotional and embodied nature. Placemaking can be seen as a poetic act – a form of poeisis – that brings forth a sense-of-place from space. A space becomes a place when we care about it and associate various levels of meaning to it, as such, place can be seen as a poetic form of space.

> Place is not just a thing in the world but a way of understanding the world.
> (Cresswell, 2004, p. 11)

Places also act as 'third elements' of sociality (Havelange, 2010) where the fabric of intersubjective experiences and narratives of who we are and what we care for is woven. When a sense-of-place emerges from this hypercomplexity it this intersubjective quality that defines a place's identity in a community's built environment and shared narratives, i.e. its intersubjective corporealities. I therefore reason that sense-of-place is an embodiment of intersubjective schemas or metanarratives of spatial practices that can affect how we understand ourselves and others, and thereby affect reigning paradigms.

Placemaking is a key contributor to bringing about a sense-of-place as it entails various spatial practices that imbue a space with emotional and functional significance in a local environment. Spatial practices range from being in a place (Being), the development of personal and communal identities through activities in places (Becoming), and actively affecting the development and creation of a place (world-making). Placemaking is an act of sensemaking, i.e. both making sense of the world and creating a sense of the world that can be experienced by another. I therefore hold that:

> If we do not consider that sense-of-place, poetic experiences and other emergent aspects of lived experiences pertinent to the move towards sustainability (and beyond), we designate the powers of understanding to technological and economic mechanisms and disregard the world-making capacities of cognitive structures.

The intersections of subjective experiences that create intersubjectively shared experiences of a place, and thereby its public identity, are complex and unpredictable, and yet they (should) lie at the center of the considerations of a spatial designer. Spatial design acts are but one of several spatial practices in placemaking, and the practices of spatial designers can be wide and varied, as are the interpretations of why 'design matters' in placemaking. However, for me, the participation in the co-creative poeisis of placemaking is the most essential of all the tasks a spatial designer undertakes in her practice. Placemaking is how the spatial practices of designers and non-designers can jointly contribute to new ways of living in, and addressing, hypercomplexity in the age of ecological awareness.

I hold that the design tasks involved in placemaking are not just the positioning of a set of objects, but also the interweaving and creation of a set of relationships, which are subsequently added to by the users of the space. The narrative capabilities of spatial design are, then, not only through how it affects sensory experience of objects and aesthetics in an environment, but also how it affects the flows and layers of uses and spatial networks that affect placemaking.

A place both contains a variety of narrative elements and is a narrative element itself within the built landscape. It is also both a stage where other narratives take place, and a protagonist in an urban and regional narrative of a local natureculture. The regenerative designer must consider what character traits are directly stated or indirectly implied by the way that a place speaks, acts and interacts with other characters (human and non-human) in the story of publicly lived experiences in the urban context. For the stories a place contains and their role in relating ecology, society and technics in a regenerative culture may very well be her best chance at contributing to current and future socioecological well-being.

As this pause in my investigation comes to an end, it is clear that the long unfolding of this design inquiry is both a culmination of a life of contemplating how to contribute to socioecological well-being as well as the first step in how to contribute to a future of regenerative places and poetics through design practices. It is my hope that the narrative of my journey can serve as a map and a trove of topics to be further explored through projective explorations and corporealities.

REFERENCES & APPENDICES

REFERENCES

Adler, P. S., & Kwon, S.-W. (2002). Social Capital: Prospects for a New Concept. *Academy of Management Review*, *27*(1), 17–40.

Agnew, J. A. (1987). Place and Politics: The geographical mediation of state and society. Allen & Unwin.

Agnew, J. A. (2011). Space and Place. [Forthcoming chapter 23 later published in J. A. Agnew & D. Livingstone (Eds.), *Handbook of Geographical Knowledge*. Sage.] Retrieved from https://geog.ucla.edu/sites/default/files/users/jagnew/416.pdf

Agnew, J. A., Shelley, F. M., & Pringle, D. G. (2003). Classics in Human Geography Revisited: Agnew, J.A. 1987: Place and Politics: The geographical mediation of state and society. *Progress in Human Geography*, *27*(5), 605–614. https://doi.org/10.1191/0309132503ph451xx

Akner-Koler, C. (2007). *Form and Formlessness*. [Doctoral disseration, Chalmers University of Technology & Konstfack University College of Arts]. Printfinder. http://www.diva-portal.org/smash/get/diva2:1153218/FULLTEXT01.pdf

Albrecht, G. (2011). Chronic Environmental Change - Emerging 'psychoteratic' syndromes. In I. Weissbecker (Ed.), *Climate Change and Human Well-Being*, International and Cultural Psychology (pp. 43–56). Springer Science+Business Media. https://doi.org/DOI 10.1007/978-1-4419-9742-5_3

ALCOA, Aluminum Company of America. (1942). *The Place They Do Imagineering* (p. 59). TIME. Retrieved 21-3-2021 from http://graphic-design.tjs-labs.com/show-picture?id=1118935951&size=FULL

Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., & Angel, S. (1977). *Pattern Language: Towns, buildings, construction*. Oxford University Press.

Ampatzidou, C., & Molenda, A. (2014). Building Stories – The architectural design process as narrative. *Digital Storytelling in Times of Crisis*. Retrieved 21-3-2021 from http://www.cristina-ampatzidou.com/building-stories-the-architectural-design-process-as-narrative-conference-paper/

Andersen, M. S., & Massa, I. (2000). Ecological modernization — origins, dilemmas and future directions. *Journal of Environmental Policy & Planning*, *2*(4), 337–345. https://doi.org/10.1080/714852820

Ang, F., & Van Passel, S. (2012). Beyond the Environmentalist's Paradox and the Debate on Weak versus Strong Sustainability. *BioScience*, *62*(3), 251–259. https://doi.org/10.1525/bio.2012.62.3.6

Appleton, A. F. (2006). Sustainability: A practitioner's reflection. *Technology in Society*, *28*, 3–18. https://doi.org/10.1016/j.techsoc.2005.10.001

Arbib, M. A. (1992). Schema Theory. In S. C. Shapiro (Ed.), *Encyclopedia of Artificial Intelligence* (pp. 1427–1443).

Awan, N., Schneider, T., & Till, J. (2006). Instances of ecological motivations in the production and use of space. *Field Journal*, *4*(1), 219–226.

Awan, N., Schneider, T., & Till, J. (2011). *Spatial Agency: Other Ways of Doing Architecture*. Routledge.

Baber, W. F. (2004). Ecology and Democratic Governance: Toward a deliberative model of environmental politics. *The Social Science Journal*, *41*(3), 331–346. https://doi.org/10.1016/j.soscij.2004.04.014

Bachelard, G. (1994). *The Poetics of Space* (1994th ed.). Beacon Press. (Original work published 1958)

Bain, P. G., Milfont, T. L., Kashima, Y., Bilewicz, M., Doron, G., Garðarsdóttir, R. B., Gouveia, V. V., Guan, Y., Johansson, L.-O., Pasquali, C., Corral-Verdugo, V., Aragones, J. I., Utsugi, A., Demarque, C., Otto, S., Park, J., Soland, M., Steg, L., González, R., … Saviolidis, N. M. (2015). Co-benefits of Addressing Climate Change Can Motivate Action Around the World. In *Nature Climate Change* (Issue September). https://doi.org/10.1038/nclimate2814

Bartuska, T. J., & Kazimee, B. A. (2005). Sustainable Cells of Urbanism: Regenerative theory and practice. In N. Jenks & M. Dempsey (Eds.), *Future Forms and Design for Sustainable Cities* (pp. 221–224). Elsevier.

Bohm, D. (1980). Wholeness and the Implicate Order. Routledge.

Bollier, D., & Helfrich, S. (Eds.). (2015). *Patterns of Commoning*. Commons Strategy Group and Off the Common Press.

Brône, G., & Vandaele, J. (Eds.). (2009). *Cognitive Poetics: Goals, gains and gaps*. Mouton de Gruyter.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated Cognition and the Culture of Learning. *Educational Researcher*, *18*(1), 32–42. https://doi.org/10.3102/0013189X018001032

Brown, K. D. (2008). *The future of regenerative studies as an area of inquiry. Lyle Center for Regenerative Studies.* Pomona, CA: Lyle Center, Col Poly Pomona University. https://cpp-env-static.s3-us-west-2.amazonaws.com/prod/s3fs-public/attached_files/Brown_seminar_2008.pdf

Brown, K. D. (2009a). *Common Knowledge Bases of Regenerative Studies*. Retrieved October 14, 2019 from https://env.cpp.edu/rs/about-regeneration

Brown, K. D. (2009b). *A Better World through Regenerative Studies? Implications of this Hefty Obligation on Education, Research and Outreach.* Lyle Center for Regenerative Studies. Pomona, CA: Lyle Center, Col Poly Pomona University. https://cpp-env-static.s3-us-west-2.amazonaws.com/prod/s3fs-public/attached_files/Brown_seminar_2009.pdf

Brundtland, G. H. (ed). (1987). *Our Common Future*. United Nations World Commision on Environment and Development. https://doi.org/10.1080/07488008808408783

Buchanan, R. (2007). Strategies of Design Research: Productive Science and Rhetorical Inquiry. In R. Michel (Ed.), *Design research now* (pp. 55–66). Birkhäuser. https://doi.org/10.1007/978-3-7643-8472-2

Bundgaard, P. F. (2007). The Cognitive Import of the Narrative Schema. *Semiotica*, *165*(2007), 247–261. https://doi.org/10.1515/SEM.2007.042

Bunge, M. (1998). *Social Science Under Debate: A Philosophical Perspective*. University of Toronto Press. https://doi.org/https://doi.org/10.3138/9781442680036

Calvino, I. (1979). *Invisible Cities*. Picador.

Campbell, S. (1996). Green Cities, Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development. *Journal of the American Planning Association*, *62*(3), 296–312. https://doi.org/10.1080/01944369608975696

Carson, R. (1962). *Silent Spring*. Fawcett Publications.

Chang, H. (2008). *Autoethnography as Method*. Routledge.

Chang, R. (2014). How to Make Hard Choices [Video]. In *TEDSalon NY2014*. TED Conferences. https://www.ted.com/talks/ruth_chang_how_to_make_hard_choices/transcript

Clayton, S., Manning, C., & Hodge, C. (2014). *Beyond Storms and Droughts: The psychological impacts of climate change*. American Psychological Association & ecoAmerica.

Cole, R. J. (2012). Transitioning from Green to Regenerative Design. *Building Research & Information*, *40*(1), 39–53. https://doi.org/10.1080/09613218.2011.610608

Cole, R. J. (2015). Net-zero and Net-positive Design: a question of value. *Building Research & Information*, *43*(1), 1–6. https://doi.org/10.1080/09613218.2015.961046

Connelly, F. M., & Clandinin, D. J. (1990). Stories of Experience and Narrative Inquiry. *Educational Researcher*, *19*(5), 2–14. https://doi.org/10.3102/0013189X019005002

Cresswell, T. (2004). *Place: A short introduction*. Blackwell.

Cross, N. (1993). A History of Design Methodology. In M. J. de Vries, N. Cross, & D. P. Grant (Eds.), *Design Methodology and Relationships with Science* (pp. 15–27). Springer Netherlands. https://doi.org/10.1007/978-94-015-8220-9_2

Cross, N. (2001). Designerly Ways of Knowing: Design discipline versus design science. *Design Issues*, *17*(3), 49–55. https://doi.org/10.1162/074793601750357196

Crutzen, P. J., & Stoermer, E. F. (2000). The Anthropocene. *Global Change Newsletter*, *41*(May), 17–18.

Cuff, D., & Sherman, R. (2011). Introduction. In *Fast-Forward Urbanism: Rethinking architecture's engagement with the city* (pp. 10–33). Princeton Architectural Press.

Czarniawska, B. (2004). Narratives in Social Science Research. In *Narrative in Social Science Research*. SAGE Publications, Ltd. https://doi.org/http://dx.doi.org/10.4135/9781849209502

Daly, H., & Goodland, R. (1996). Environmental Sustainability: Universal and non-negotiable. *Ecological Applications*, *6*(4), 1002–1017.
Darke, J. (1979). The Primary Generator and the Design Process. *Design Studies*, *1*(1), 36–44. https://doi.org/10.1016/0142-694X(79)90027-9
Dartel, M. Van, & Nigten, A. (2015). The Value of Waste. *Balance-Unbalance International Conference*.
De Beaugrande, R. (2004). Critical Discourse Analysis from the Perspective of Ecologism. *Critical Discourse Studies*, *1*(1), 113–145. https://doi.org/10.1080/17405900410001674542
De Zeeuw, G., & Janssens, N. (2017). Non-Observational Research. In N. Janssens, F. Nilsson, & H. Dunin-Woyseth (Eds.), *Perspectives on Research Assessment in Architecture, Music & the Arts* (pp. 147–157). Routledge.
Debord, G. (1956). Theory of the Dérive. Knabb, K. (Trans.). *Les Lèvres Nues*, *November* (9). https://www.cddc.vt.edu/sionline/si/theory.html
Debord, G. (1957). Report on the Construction of Situations: And on the International Situationist Tendency's Conditions o f Organization and Action, Knabb, K. (trans.). https://www.cddc.vt.edu/sionline/si/report.html
Debord, G. (2014). The Society of the Spectacle, Knabb, K. (trans.). Bureau of Public Secrets. (Original work published 1967) https://libcom.org/files/The%20Society%20of%20the%20Spectacle%20Annotated%20Edition.pdf
Deleuze, G., Guattari, F., & Massumi, B. (1987). *A Thousand Plateaus: Capitalism and schizophrenia*. University of Minnesota Press.
Demos, T. J. (2006). The Politics of Sustainability: Art and Ecology. In F. Manacorda & A. Yedgar (Eds.), *Radical nature: Art and Architecture for a Changing Planet 1969-2009* (pp. 17–30). Koenig Books.
Devine-Wright, P. (2013). Think Global, Act Local?: The relevance of place attachments and place identities in a climate changed world. *Global Environmental Change*, *23*, 61–69.
Dictionary.com. (n.d.). Generate. In *Dictionary.com.* Retrieved March 1, 2015, from https://www.dictionary.com/browse/generate
Dobson, A. (2000). *Green Political Thought* (3rd ed.). Routledge.
Douglas, E. (2004). Old Traditions and New Ages: Religions and Environments. In R. White (Ed.), *Controversies in Environmental Sociology* (pp. 8–25). Cambridge University Press.
Du Plessis, C. (2012). Towards a Regenerative Paradigm for the Built Environment. *Building Research & Information*, *40*(1), 7–22. https://doi.org/10.1080/09613218.2012.628548
Du Plessis, C., & Brandon, P. (2014). An Ecological Worldview as Basis for a Regenerative Sustainability Paradigm for the Built Environment. *Journal of Cleaner Production*, *109*, 53–61. https://doi.org/10.1016/j.jclepro.2014.09.098
Dyrssen, C. (2017). Precision: The compositional accuracy of artistic judgement. In F. Nilsson, H. Dunin-Woyseth, & N. Janssens (Eds.), *Perspectives on Research Assessment in Architecture , Music and the Arts: Discussing Doctorateness* (pp. 175–189). Routledge.
EcoWho. (n.d.). Eco-anxiety. In *Eco Terms & Definitions.* Retrieved March 16, 2015, from http://www.ecowho.com/defn/e/eco+anxiety/5a1a9
Emilson, A. (2015). Design in the Space Between Stories: Design for social innovation and sustainability - from responding to societal challenges to preparing for societal collapse. [Doctoral disseration, Malmö University]. Service Point Holmbergs.
Escobar, A. (2001). Culture Sits in Place: Reflections in globalism and subaltern strategies of localization. *Political Geography*, *20*, 139–174. https://doi.org/10.1016/S0962-6298(00)00064-0
Falkheden, L. (1999). *The Local Area as a Strategy for Sustainable Urban Development.* [Doctoral disseration, Chalmers University of Technology]. Reproservice.
Fernström. J (2015). *Retrieved on May 5, 2020 from* https://www.mynewsdesk.com/se/aelvstranden-utveckling-ab/pressreleases/spektakulaer-bastu-ska-ta-goeteborgarna-naermare-vattnet-1117298
Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Row Peterson.
Fineder, M., & Geisler, T. (2010). Design Criticism and Critical Cesign in the Writings of Victor Papanek (1923-1998). *Journal of Design History*, *23*(1), 99–106. https://doi.org/10.1093/jdh/epp067

Flygare, A., & Östlund, S. L. (2010). Contiguous Urban Regenerative Environments (C.U.R.E.). [Masters thesis, Chalmers University of Technology]. Reproservice. https://issuu.com/sigrid.laurel/docs/c.u.r.e._flygare__stlund_2010b
Forty, A. (2000). Words and Buildings: A vocabulary of modern architecture. Thames & Hudson.
Frame, B. (2008). 'Wicked','Messy', and 'Clumsy': Long-term frameworks for sustainability. *Environment and Planning: Government and Policy*, *26*(6), 1113–1128. https://doi.org/10.1068/c0790s
Fry, T. (2009). Design Futuring: Sustainability, ethics and new practice. Bloomsbury.
Fry, T. (2011). Urban Futures in the Age of Unsettlement. *Futures*, *43*(4), 432–439. https://doi.org/10.1016/j.futures.2011.01.006
Fuglsang, M., & Sorensen, B. M. (2006). *Deleuze and the Social*. Edinburgh University Press.
Gallese, V. (2001). The 'Shared Manifold' Hypothesis. *Journal of Counsciousness Studies*, *5*, 33–50. https://doi.org/10.1159/000072786
Gallese, V. (2005). Embodied Simulation: From neurons to phenomenal experience. *Phenomenology of Cognitive Sciences*, *4*, 23–48.
Gartrell, L. D. J. (1993). The Social Context of Recycling. *American Sociological Review*, *58*(3), 434–442.
Gibbs, R. W., Lenz, P., Lima, C., & Francozo, E. (2004). Metaphor is Grounded in Embodied Experience. *Journal of Pragmatics*, *36*, 1189–1210. https://doi.org/10.1016/j.pragma.2003.10.009
Gonzalez, A. M. (2010). On Fashion and Fashion Discourses. *Critical Studies in Fashion and Beauty*, *1*(1), 65–85. https://doi.org/10.1386/csfb.1.1.65
Goossens, W., Hendrickx, A., & Janssens, N. (n.d.). *A Case of Poetic Measuring : Isopleth*. Studies in Material Thinking, 14, Art. No. Paper 01, 01-31.
Gort, J. D., Vroom, H., Fernhout, R., & Wessels, A. (Eds.). (1989). *Dialogue and Syncretism: An interdisciplinary approach* (1st ed.). William B. Eerdmans.
Guy, S., & Farmer, G. (2001). Reinterpreting Sustainable Architecture: The place of technology. *Journal of Architectural Education*, *54*(3), 140–148. https://doi.org/10.1162/10464880152632451
Harari, Y. N. (2015). *Sapiens: A Brief History of Humankind*. Harper Perennial.
Hardin, G. (1968). The Tragedy of the Commons. *American Association for the Advancement of Science*, *162*(3859), 1243–1248.
Harraway, D. (1988). Situated Knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies*, *14*(3), 575–599.
Harvey, D. (1996). Justice, Nature and the Geography of Difference. Blackwell.
Haseman, B. (2006). A Manifesto for Performative Research. *Media International Australia Incorporating Culture and Policy, Theme Issue "Practice-Led Research," 118*(118), 98–106. https://doi.org/10.1016/S0190-9622(06)01179-0
Haseman, B. (2007). Tightrope Writing: Creative writing programs in the RQF environment. In N. Krauth & J. Webb (Eds.), *TEXT Journal* (Vol. 11, Issue April). Queensland University of Technology. www.textjournal.com.au/april07/haseman.htm
Havelange, V. (2010). The Ontological Constitution of Cognition and the Epistemological Constitution of Cognitive Science: Phenomenology, enaction and technology. In G. O. Stewart J. Di Paolo E. A. (Ed.), *Enaction: Toward a New Paradigm for Cognitive Science* (pp. 335–359). The MIT Press.
Hardin, G. (1968). The Tragedy of the Commons. *American Association for the Advancement of Science*, *162*(3859), 1243–1248.
He, L., Huang, G. H., & Lu, H. (2011). Greenhouse Gas Emissions Control in Integrated Municipal Solid Waste Management Through Mixed Integer Bilevel Decision-Making. *Journal of Hazardous Materials*, *193*, 112–119. https://doi.org/10.1016/j.jhazmat.2011.07.036
Heller, F. (1997). Sociotechnology and the Environment. *Human Relations*, *50*(5), 605–624. https://doi.org/10.1177/001872679705000507
Hes, D., & Du Plessis, C. (2015). Designing for Hope: Pathways to regenerative sustainability. Routledge.

Hewitt, M. (2008). Agonising Over the Icecap or Frantic About Floods? You May Be Suffering from 'Eco-anxiety.' *The Independent*. https://www.independent.co.uk/climate-change/news/agonising-over-the-icecap-or-frantic-about-floods-you-may-be-suffering-from-ecoanxiety-798341.html
Holland, A. (2002). Substitutability - Or, why strong sustainability is weak and absurdly strong sustainability is not absurd. In J. Foster (Ed.), *Valuing Nature?* (2nd ed., Issue April, pp. 119–134). Routledge.
Holmberg, J., & Robert, K.-H. (2000). Backcasting: A framework for strategic planning. *International Journal of Sustainable Development & World Ecology*, *7*(4), 291–308. https://doi.org/10.1080/13504500009470049
Hommels, A. (2005). Studying Obduracy in the City: Toward a productive fusion between technology studies and urban studies. *Science Technology, & Human Values*, *30*(3), 323–351. https://doi.org/10.1177/0162243904271759
Hoornweg, D., & Bhada-Tata, P. (2012). What a Waste - A global review of solid waste management. In *Urban Development Series* (Issue 15). World Bank.
Huber, J. (1982). *Die verlorene Unschuld der Ökologie*. Fischer Verlag.
Ignatow, G. (2007). Theories of Embodied Knowledge: New directions for cultural and cognitive sociology? *Journal for the Theory of Social Behaviour*, *37*(2), 115–135. https://doi.org/10.1111/j.1468-5914.2007.00328.x
Jabareen, Y. (2008). A New Conceptual Framework for Sustainable Development. *Environment, Development and Sustainability*, *10*(2), 179–192. https://doi.org/10.1007/s10668-006-9058-z
Jamieson, D. (1998). Sustainability and Beyond. *Ecological Economics*, *24*(2–3), 183–192. https://doi.org/10.1016/S0921-8009(97)00142-0
Jänicke, M. (1984). Umweltpolitische Prävention als Ökologische Modernisierung und Strukturpolitik, IIUG dp84-1.
Janssens, N. (2012). Utopia-Driven Projective Research: A design approach to explore the theory and practice of Meta-Urbanism. [Doctoral disseration, Chalmers University of Technology]. Reproservice. https://publications.lib.chalmers.se/records/fulltext/157597.pdf
Jørgensen, G., & Lyngsgaard, S. K. (2013). *Cradle to Cradle i det Byggede Miljø*. Vugge til Vugge Denmark.
Kagan, S. (2010). Cultures of Sustainability and the Aesthetics of the Pattern that Connects. *Futures*, *42*(10), 1094–1101. https://doi.org/10.1016/j.futures.2010.08.009
Kahneman, D. (2011). *Thinking, Fast and Slow*. The Penguin Group.
Kemper, R., Loorbach, D., & Rotmans, J. (2006). Transition Management as a Model for Managing Processes of Co-evolution Towards Sustainable Development. In M. M. Anderson & A. Tukker (Eds.), *Perspectives on Radical Changes to Sustainable Consumption and Production (SCP)* (pp. 459–477). www.score-network.org
Kemper, T. D. (1990). Themes and Variations in the Sociology of Emotions. In T. D. Kemper (Ed.), *Research Agendas in the Sociology of Emotions*. State University of New York Press.
Kennedy, C., Cuddihy, J., & Engel-Yan, J. (2007). The Changing Metabolism of Cities. *Journal of Industrial Ecology*, *11*(2), 43–59.
Kidd, C. V. (1992). The Evolution of Sustainability. *Journal of Agricultural and Environmental Ethics*, *5*(1), 1–26. https://doi.org/10.1007/BF01965413
Knox, P. L. (1987). The Social Production of the Built Environment: Architects, architecture and the post-Modern City. *Progress in Human Geography*, *11*(3), 354–377. https://doi.org/10.1177/030913258701100303
Koskinen, I., Zimmerman, J., Binder, T., Redström, J., & Wensveen, S. (2011). *Design Research through Practice: From the lab, field and showroom*. Elsevier. https://doi.org/10.1016/B978-0-12-385502-2.X0001-6
Kuhn, T. S. (1962). *The Structure of Scientific Revolutions* . University of Chicago Press.
Kwinter, S. (2010). Third Ecology. In M. Mostafavi & G. Doherty (Eds.), *Ecological Urbanism* (pp. 94–105). Lars Mûller Publishers.
Lagadec, E. (2007). *Unconventional Crises, Unconventional Responses: Reforming leadership in the age of catastrophic crises and "hypercomplexity"*. Center for Transatlantic Relations, Johns Hopkins University. https://www.files.ethz.ch/isn/55651/2007_Unconventional_Crises.pdf

Langhelle, O. (1999). Sustainable Development: Exploring the ethics of our common future. *International Political Science Review*, *20*(2), 129–149. https://doi.org/10.1177/0192512199202002
Larrick, S. (1997). A Living Systems Model for Assessing and Promoting the Sustainability of Communities. *Annual Conference of the Community Development Society*, Athens, Georgia, United States. https://eric.ed.gov/?id=ED417338
Latour, B. (1991). *We Have Never Been Modern*. Harvard University Press.
Latour, B. (2004). How to Bring the Sciences into Democracy. *Politics of Nature*, 9–32. https://doi.org/10.1007/s10746-005-9016-z
Latour, B. (2005). *Reassembling the Social*. Oxford University Press.
Law, J. (2004a). *After Method*. Taylor & Francis.
Law, J. (2004b). Enacting Naturecultures: A view from STS. [Working paper, 24th February version] http://www.heterogeneities.net/publications/Law2004EnactingNaturecultures.pdf
Lawson, B. (2004). Schemata, Gambits and Precedent: Some factors in design expertise. *Design Studies*, *25*, 443–457. https://doi.org/10.1016/j.destud.2004.05.001
Lawson, B., & Dorst, K. (2013). *Design Expertise*. Routledge.
Lefèbvre, H. (2004). *Rhythmanalysis: Space, time and everyday life*. Elden, S. (trans.) Continuum. (Original work published 1992)
Lefèbvre, H. (1996). *Writing on Cities*. E. Kofman & E. Lebas (eds. & trans.). Blackwell. (Original work published 1968)
Lélé, S. M. (1991). Sustainable Development: A critical review. *World Development*, *19*(6), 607–621. https://doi.org/10.1016/0305-750X(91)90197-P
London, B. (1932). *Ending the Depression Through Planned Obsolescence*. University of Wisconsin Press.
Lykke, N., Brewster, A., Davis, K., Koobak, R., Lie, S., & Andrea Petö. (2014). *Writing Academic Texts Differently: Intersectional feminist methodologies and the playful art of writing* (N. Lykke (Ed.)). Routledge.
Lyle, J. T. (1994). Regenerative Design for Sustainable Development. John Wiley & Sons.
Lynch, K. (1990). *Wasting Away* (M. Southworth (Ed.); 1st ed.). Sierra Club Books.
Mang, N. S. (2009). *Toward a Regenerative Psychology of Urban Planning*. [Doctoral disseration, Saybrook Graduate School and Research Center]. http://gradworks.umi.com/ 33/68/3368975.htm
Mang, P. (2001). Regenerative Design: Sustainable design's coming revolution. *Design Intelligence*, *July*, 8–9. https://www.di.net/articles/regenerative-design-sustainable-designs-coming-revolution/
Mang, P., & Reed, B. (2013). Regenerative Development and Design. In V. Loftness & D. Haase (Eds.), *Sustainable Built Environments - Selected entries from the Encyclopedia of Sustainability Science and Technology* (pp. 478–501). Springer. https://doi.org/10.1007/978-1-4614-5828-9
Massey, D. (1991). A Global Sense of Place. *Marxism Today*, *35*, 315–323. https://doi.org/10.1016/j.pecs.2007.10.001
McCusker, B. (2010). Beyond Developmentality: Constructing inclusive freedom and sustainability (Book Review). *Economic Geography*, *86*(2), 225–226. https://doi.org/10.1111/j.1944-8287.2010.01072.x
McDonough, W., & Braungart, M. (n.d.). *The Biosphere and Technosphere*. Retrieved April 27, 2017, from http://www.c2cproducts.com/detail.aspx?linkid=1&sublink=6.
McDonough, W., & Braungart, M. (2002a). *Buildings Like Trees, Cities Like Forests*. http://mcdonough.com/writings/buildings-like-trees-cities-like-forests/
McDonough, W., & Braungart, M. (2002b). *Cradle to Cradle: Remaking the way we make things*. North Point Press.
McDonough, W., & Braungart, M. (2013). The Upcycle: Beyond sustainability - Designing for abundance. North Point Press.
McGarrigle, C. (2010). The Construction of Locative Situations: Locative media and the Situationist International, recuperation or redux? *Digital Creativity*, *21*, 55–62. https://doi.org/10.1080/14626261003652057
McLennan, J. F. (2004). The Philosophy of Sustainable Design: The future of architecture (1st ed.). Ecotone.

Mebratu, D. (1998). Sustainability and Sustainable Development: Historical and conceptual review. *Environmental Impact Assessment Review*, *18*(98), 493–520. https://doi.org/10.1016/S0195-9255(98)00019-5
Mei, T. S. (2015). Heidegger in the Machine: The difference between techne and mechane. *Continental Philosophy Review*, *49*(3), 267–292. https://doi.org/10.1007/s11007-015-9319-3
Merriam-Webster. (n.d.-a). Complex. In *Merriam-Webster.com Dictionary*. Retrieved November 26, 2015, from https://www.merriam-webster.com/dictionary/complex
Merriam-Webster. (n.d.-b). Entropy. In *Merriam-Webster.com Dictionary*. Retrieved November 26, 2015, from https://www.merriam-webster.com/dictionary/entropy
Merriam-Webster. (n.d.-c). *Generate*. Merriam-Webster Online Dictionary. Retrieved November 26, 2015, from https://www.merriam-webster.com/dictionary/generate
Merriam-Webster. n.d.-d). Hyper- (prefix). In *Merriam-Webster.com Dictionary*. Retrieved November 26, 2016, from https://www.merriam-webster.com/dictionary/hyper-
Merriam-Webster. (n.d.-e). Natural. In *Merriam-Webster.com Dictionary*. Retrieved February 1, 2018, from https://www.merriam-webster.com/dictionary/natural
Merriam-Webster. (n.d.-f). Nature. In *Merriam-Webster.com Dictionary*. Retrieved February 1, 2020, from https://www.merriam-webster.com/dictionary/nature
Merriam-Webster. (n.d.-g). Prospection. In *Merriam-Webster.com Dictionary*. Retrieved February 1, 2018, from https://www.merriam-webster.com/dictionary/prospection
Merriam-Webster. (n.d.-h). Prospective. In *Merriam-Webster.com Dictionary*. Retrieved February 1, 2018, from https://www.merriam-webster.com/dictionary/prospective
Merriam-Webster. (n.d.-i). Regenerate. In *Merriam-Webster.com Dictionary*. Retrieved November 26, 2015, from https://www.merriam-webster.com/dictionary/regenerate
Merriam-Webster. (n.d.-j). Socio-. In *Merriam-Webster.com Dictionary*. Retrieved June 3, 2020, from https://www.merriam-webster.com/dictionary/socio-
Mitchell, M. C., & Egudo, M. (2003). *A Review of Narrative Methodology*. DSTO Systems Sciences Laboratory. https://doi.org/10.1037/e426492005-001
Mol, A., & Law, J. (1994). Regions, Networks and Fluids: Anaemia and Social Topology. *Social Studies of Science*, *24*(4), 641–671. https://doi.org/https://doi.org/10.1177/030631279402400402
Moore, S. A. (2001). Technology and Place: Sustainable Architecture and the Blueprint Farm. University of Texas press.
Moore, S. A. (2005). Technology, Place and Nonmodern Regionalism. In V. B. Canizero (Ed.), *Regionalism for the Third Millinneum* (1st ed., pp. 432–442). Princeton Architectural Press.
Mörk, K., & Gustafsson, A. (2015). *Återbruk Var Dag*. [Report, Chalmars University of Technology]. http://publications.lib.chalmers.se/records/fulltext/213487/213487.pdf
Moser, S., & Dilling, L. (2007). Toward the Social Tipping Point: Creating a climate for change. In Moser & Dilling (Eds.), *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change* (1st ed., pp. 491–516). Cambridge University Press.
Mulhall, D., & Braungart, M. (2010). *Cradle to Cradle Criteria for the Built Environment*. Duurzam Gebouwd/CEO Media BV. https://c2cplatform.tw/upload/file/Cradle%20to%20Cradle%20Criteria%20for%20the%20built%20environmen.pdf
Murdoch, J. (2006). Post-Structuralist Geography: A guide to Relational Space. SAGE Publications.
Murphy, D., & Drexhage, J. (2010). Sustainable Development: From Brundtland to Rio 2012. In *United Nations* (Issue September 2010). UN & International Institute for Sustainable Development. http://www.un.org/wcm/content/site/climatechange/pages/gsp/documents_1
Najam, A. (1999). World Business Council for Sustainable Development: The Greening of Business and Greenwash. In H. O. Bergesen, G. Parmann, & O. B. Thommessen (Eds.), *Yearbook of International Cooperation on Environment and Development* (pp. 65–75). Routledge.
Naturvårdsverket. (n.d.). *EU:s Återvinningsmål för Byggavfall*. Retrieved September 24, 2014, from http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Uppdelat-efter-omrade/Avfall/Vem-gor-vad/Bygg--och-rivningsavfall/EUs-atervinningsmal-for-byggavfall/
Norton, B. (1992). Sustainability, Human Welfare and Ecosystem Health. *Environmental Values*, *1*(2), 97–111.

OED. (n.d.-a). Eco (from Ecological). In *Oxford English Dictionary Online*. Retrieved June 3, 2020, from https://www.oed.com/view/Entry/271403?rskey=FmoYwd&result=1#eid and https://www.oed.com/view/Entry/249591#eid121745776
OED. (n.d.-b). Generate. In *Oxford English Dictionary Online*. Retrieved November 26, 2015, from https://www.oed.com/view/Entry/77523?redirectedFrom=generative#eid
OED. (n.d.-c). Intersubjective. In *Oxford English Dictionary Online.* Retrieved April 15, 2020, from https://www.oed.com/view/Entry/98368?redirectedFrom=intersubjective#eid
OED. (n.d.-d). Lacuna (Latin root Lacus). In *Oxford English Dictionary Online*. Retrieved March 25, 2015, from https://www.oed.com/view/Entry/104956?redirectedFrom=lacuna#eid and https://www.oed.com/view/Entry/105168#eid39905254
OED. (n.d.-e). Prospection. In *Oxford English Dictionary Online*. Retrieved February 1, 2018, from https://www.oed.com/view/Entry/153023?redirectedFrom=prospection#eid
OED. (n.d.-f). Prospective. In *Oxford English Dictionary Online*. Retrieved February 1, 2018, from https://www.oed.com/view/Entry/153024?redirectedFrom=prospective#eid
OED. (n.d.-g). Re-creation. In *Oxford English Dictionary Online*. Retrieved August 10, 2020, from https://www.oed.com/view/Entry/159955?rskey=ecbZHN&result=2&isAdvanced=false#eid
OED. (n.d.-h). Recreation. In *Oxford English Dictionary Online*. Retrieved August 10, 2020, from https://www.oed.com/view/Entry/159954?rskey=jSUh9N&result=1#eid
OED. (n.d.-i). Spatiality. In *Oxford English Dictionary Online*. Retrieved November 3, 2016, from https://www.oed.com/view/Entry/185831?redirectedFrom=spatiality#eid21614092
OED. (n.d.-j). Technics. In *Oxford English Dictionary Online*. Retrieved June 6, 2020, from https://www.oed.com/view/Entry/198445?rskey=SaCl6w&result=1&isAdvanced=false#eid
OED. (n.d.-k). Technophilia. In *Oxford English Dictionary Online*. Retrieved September 21, 2015, from https://www.oed.com/view/Entry/198460?redirectedFrom=technophilia#eid19090790
Oelschlaeger, M. (2000). The Environment and the 21st Century: A Thoreauvian Interlude. *The Concord Saunterer*, *8*, 3–14.
Östlund, S. (2017). *Regenerative Place-Making* [Licentiate thesis, Chalmers University of Technology]. https://research.chalmers.se/en/publication/249522
Oxford-Reference. (n.d.). *Situatedness*. Oxford Reference Online. Retrieved March 13, 2020, from https://www.oxfordreference.com/view/10.1093/oi/authority.20110803100509181
Pallasmaa, J. (2012). On Atmosphere. In J. Pallasma & P. MacKeith (Eds.), *Encounters 2* (pp. 238–251). Rakennustieto Publishing.
Papanek, V. (1971). *Design for the Real World*. Bantam Books.
Pasmore, W., Francis, C., Haldeman, J., & Shani, A. (1982). Sociotechnological Systems: A North American reflection on empirical studies of the seventies. *Human Relations*, *35*(12), 1179–1204.
Paton, B., & Dorst, K. (2010). *Briefing and Reframing.* [Reviewed and published conference proceedings] DTRS8: Interpreting Design Thinking - 8th Design Thinking Research Symposium, Sydney, Austrailia. 317–335. https://www.academia.edu/469075/Briefing_and_Reframing
Pawlyn, M. (2019). *Biomimicry in Architecture* (2nd ed.). RIBA Publishing.
Pearse, M. (2005). Problem? What problem? Personhood, Late Modern/Postmodern Rootlessness and Contemporary Identity Crises. *Evangelical Quarterly*, *77*(1), 5–11.
Persic, A., & Martin, G. (Eds.). (2008). Links Between Biological and Cultural Diversity. In *Report of the Internatioal UNESCO Workshop Paris*. Imprimerie Watelet-Arbelot. https://unesdoc.unesco.org/search/N-EXPLORE-efbf4f9f-3b09-4546-bf58-178a744ae3cb
Piccinno, G., & Lega, E. (2013). Spatial Design for New Typologies of Places: In-between urban spaces. In *Space and Place: Diversity in Reality, Imagination and Representation*. Oxford Inter-Disciplinary Press.
Pietilä, H. (1990). Environment and Sustainable Development. *IFDA Dossier*, *77*(May/June), 61–70.
Pinder, D. (2013). Reconstituting the Possible: Lefebvre, utopia and the urban question. *International Journal of Urban and Regional Research*, *39*(1), 28–45. https://doi.org/10.1111/1468-2427.12083
Plaut, J. M., Dunbar, B., Wackerman, A., & Hodgin, S. (2012). Regenerative Design: The LENSES framework for buildings and communities. *Building Research & Information*, *40*(1), 112–122. https://doi.org/10.1080/09613218.2012.619685

Prinzessinnengärten. (n.d.). *FAQ*. Retrieved October 3, 2018, from https://prinzessinnengarten.net/en/faq
Puig de la Bellacasa, M. (2011). Matters of Care in Technoscience: Assembling neglected things. *Social Studies of Science*, *41*(1), 85–106. https://doi.org/10.1177/0306312710380301
Reffat, R. M., & Gero, J. S. (1999). *Situatedness: A new dimension for learning systems in design.* [eCAADe Conference Proceedings] *Architectural Computing from Turing to 2000*, Liverpool, UK. 252–261. http://papers.cumincad.org/data/works/att/36dc.content.pdf
Regenesis. (2006). *Regenerative Community Planning Story of Place: A transformative change process*. Regenesis Group, Inc. https://regenesisgroup.com/storyofplace.pdf
Rennings, K., & Wiggering, H. (1997). Steps Towards Indicators of Sustainable Development: Linking economic and ecological concepts. *Ecological Economics*, *20*(1), 25–36. https://doi.org/10.1016/S0921-8009(96)00108-5
Rhodes, C. J. (2015). Permaculture: Regenerative - Not merely sustainable. *Science Progress*, *98*(4), 403–412. https://doi.org/10.3184/003685015X14467291596242
Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a General Theory of Planning. *Policy Sciences*, 155–169.
Robinson, J. (2004). Squaring the Circle? Some Thoughts on the Idea of Sustainable Development. *Ecological Economics*, *48*(4), 369–384. https://doi.org/10.1016/j.ecolecon.2003.10.017
Robinson, J., & Cole, R. J. (2015). Theoretical Underpinnings of Regenerative Sustainability. *Building Research & Information*, *43*(2), 133–143. https://doi.org/10.1080/09613218.2014.979082
Rogoff, I. (2003). What is a Theorist? In K. Sykora (Ed.), *Was ist ein Künstler*. Wilhelm Fink Verlag.
Sadler, S. (1998). *The Situationist City*. MIT Press.
SBSE. (2009). *A Regeneration-Based Checklist for Design and Construction*. Society of Building Science Educators. https://www.sbse.org/sites/sbse/files/resources/wells_checklist_explanation.pdf
Schön, D. A. (1984). *The Reflective Practitioner*. Basic Books.
Seghezzo, L. (2009). The Five Dimensions of Sustainability. *Environmental Politics*, *18*(4), 539–556. https://doi.org/10.1080/09644010903063669
Sessions, G. (1987). The Deep Ecology Movement: A review. *Environmental Review: ER*, *11*(2), 105–125. https://doi.org/10.2307/3984023
Sneddon, C., Howarth, R. B., & Norgaard, R. B. (2006). Sustainable development in a post-Brundtland world. *Ecological Economics*, *57*(2), 253–268. https://doi.org/10.1016/j.ecolecon.2005.04.013
Söderman, M. L., & Palm, D. (2011). Förebygga Avfall med Kretsloppsparker: Analys av miljöpåverkan. [IVL Rapport B1958/U2011:02]. Avfall Sverige. https://dokodoc.com/frebygga-avfall-med-kretsloppsparker041af0842220aad25d6a9af8fe2a0be184373.html
Solovyova, I. (2003). Conjecture and Emotion: An Investigation of the Relationship Between Design Thinking and Emotional Content. *Expertise in Design: Design Thinking Research Symposium*, *6*.
Stechow, W. (1953). Problems of Structure in Some Relations Between the Visual Arts and Music. *The Journal of Aesthetics and Art Criticism*, *11*(4), 324–333.
Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O., & Ludwig, C. (2015). The Trajectory of the Anthropocene: The Great Acceleration. *The Anthropocene Review*, *2*(1), 81–98. https://doi.org/10.1177/2053019614564785
Steffen, W., Grinevald, J., Crutzen, P., & McNeill, J. (2011). The Anthropocene: Conceptual and historical perspectives. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *369*(1938), 842–867. https://doi.org/10.1098/rsta.2010.0327
Strasser, S. (1999). *Waste and Want* (Issue 5). Holt Paperbacks.
Straw, W. (2009). Spectacles of Waste. In A. Boutros & W. Straw (Eds.), *Circulation and the City: Essays on Urban Culture* (pp. 191–213). McGill-Queen's University Press.
Svec, P., Berkebile, R., & Todd, J. A. (2012). REGEN: Toward a Tool for Regenerative Thinking. *Building Research & Information*, *40*(1), 81–94. https://doi.org/10.1080/09613218.2012.629112

Tacoli, C., McGranahan, G., & Satterthwaite, D. (2014). World Migration Report 2015: Urbanization, rural-urban migration and urban poverty. In *Migration, health and urbanization: Interrelated challenges*. [Background paper]. Human Settlement Group - International Institute for Environment & Development. http://www.iom.int/sites/default/files/our_work/ICP/MPR/WMR-2015-Background-Paper-CTacoli-GMcGranahan-DSatterthwaite.pdf

Tainter, J. A. (2012). Regenerative Design in Science and Society. *Building Research & Information*, *40*(3), 369–372. https://doi.org/10.1080/09613218.2012.671998

Thackara, J. (2005). In the Bubble: Designing in a complex world. MIT Press.

Tonnelat, S. (2010). The Sociology of Urban Public Spaces. In M. Savy & G. Zhai (Eds.), *Territorial evolution and planning solution: Experiences from China and France* (pp. 84–92). Atlantic Press.

Tools for Urban Regeneration. (n.d.). The World Bank. Retrieved April 3, 2015, from https://urban-regeneration.worldbank.org/about

Trainer, T. (1990). A Rejection of the Brundtland Report. *IFDA Dossier*, *77*(May/June), 71–84.

Tuan, Y. F. (1977). *Space and Place: The perspective of experience*. University of Minnesota Press.

UNDESA. (n.d.). *International Migration*. United Nations Population Division - Department of Economic and Social. Retrieved August 25, 2017, from http://www.un.org/en/development/desa/population/theme/international-migration/

Van Rooijen, J. (2012). Tidal Waters in Swedish Waste Management: Socio-Political implications of the EU waste policy. http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-187693

Van Schaik, L. (2015). *Practical Poetics in Architecture*. John Wiley & Sons Ltd.

Veblen, T. (1899). *The Theory of the Leisure Class*. Random House.

Wang, D., & Groat, L. N. (2013). *Architectural Research Methods* (Second). John Wiley & Sons.

Waste Framework Directive 2008/98/EC, European Commission (2008). http://ec.europa.eu/environment/waste/framework/

Wheeler, M. (2017). Martin Heidegger. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Fall). https://plato.stanford.edu/archives/fall2017/entries/heidegger/

Whiteley, N. (1987). Toward a Throw-Away Culture. Consumerism, 'Style Obsolescence' and Cultural Theory in the 1950s and 1960s. *Oxford Art Journal*, *10*(2), 3–27. https://doi.org/10.1093/oxartj/10.2.3

Whybrow, P. C. (2009). Dangerously Addictive: Why we are biologically ill-suited to the riches of modern america. *Neuropsychiatria i Neuropsychologia*, *4*(3–4), 111–116.

Wicke, L. (1982). Umweltökonomie: Eine praxisorientierteEinführung. Piper.

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: A reference framework for academic program development. *Sustainability Science*, *6*(2), 203–218. https://doi.org/10.1007/s11625-011-0132-6

Williams, D. R., & Stewart, S. I. (1998). Sense of Place: An elusive concept that is finding a home in ecosystem management. *Journal of Forestry*, *96*(5), 18–23. https://doi.org/10.1007/s11524-011-9579-0

Wright, A. (2008). The Imagineering Field Guide to Disneyland. Disney Editions.

Zaccai, E. (2012). Over Two Decades in Pursuit of Sustainable Development: Influence, transformations, limits. *Environmental Development*, *1*(1), 79–90. https://doi.org/10.1016/j.envdev.2011.11.002

Zari, M. P. (2012). Ecosystem services Analysis for the Design of Regenerative Built Environments. *Building Research & Information*, *40*(1), 54–64. https://doi.org/10.1080/09613218.2011.628547

APPENDICES

APPENDIX I

Paraphrased list of John T. Lyle's "Twelve Strategies for Regenerative Design" (1994, p. 38–45):

1) Let nature do the work
2) Consider nature as both model and context
3) Aggregate; do not isolate
4) Seek optimum levels for multiple functions; do not seek max. or min. level for anyone
5) Match technology to need
6) Use information to replace power
7) Provide multiple pathways
8) Seek common solutions to disparate problems
9) Manage storage as a key to sustainability
10) Shape form to guide flow
11) Shape form to manifest process
12) Prioritize sustainability

APPENDIX II

Stephen A. Moore's "Eight Principles for Nonmodern Critical Regenerative Regionalism" (2005, p. 441–442):

1) A regenerative architecture will construct social settings that can be lived differently.
2) So as to participate in local constellations of ideas, a regenerative architecture will participate in the tectonic history of a place.
3) The producers of regenerative architecture will participate in the construction of integrated cultural and ecological processes.
4) A regenerative architecture will resist the centers of calculation by magnifying local labor and ecological variables.
5) Rather than participate in the aestheticized politics implicit in technological displays, regenerative architecture will construct the technologies of everyday life through democratic means.
6) The technological interventions of regenerative architecture will contribute to the normalization of critical practices.
7) The practice of regenerative architecture will enable places by fostering convergent human agreements.
8) A regenerative architecture will prefer the development of life-enhancing practices to the creation of critical and historically instructive places.

Appendix III

Dominique Hes and Chrisna du Plessis' list of "ecological values" (2015, p. 35) that should be practiced as part of a regenerative approach to sustainability:

- ~ Integrity
- ~ Inclusivity
- ~ Harmony
- ~ Respect
- ~ Mutuality
- ~ Positive reciprocity
- ~ Fellowship
- ~ Responsibility
- ~ Humility
- ~ Non-attachment

APPENDIX IV

Maibritt Zari's (2012) list of "ecosystem services for the built environment to mimic" (p. 147) she proposes can serve as a basis for measuring ecological regeneration achieved by a project.

Ecosystem services for the built environment to mimic			Applicability to the built environment	Ecological significance	Negative impact of the built environment
Supporting services	1. Habitat provision (including: genetic information; biological control; fixation of solar energy; and species maintenance)	• Plan for habitat for non-humans • Consider reducing fragmentation of habitat	Medium	High	High at a local scale
	2. Nutrient cycling (including: decomposition, soil building; and raw materials)	• Nutrients (materials) should be able to be biodegraded or recycled in closed loops and retained in the syste • Development should contribute actively to soil formation and the renewal of fertilit • Development should be considered a potential source of future building materials	Medium	High	High at a regional/global scale
Regulating Services	3. Purification	• Water, air and soil should be purified on site before returning to non-human ecosystems • Water and air should be cleaner leaving the development than when it entered • Surrounding soil should become more fertile over time	High	High	High at a local/ reg. scale
	4. Climate regulation	• Development should contribute to regulating climate by: sequestering carbon; providing protection from decreased ozone; and remediating the heat island effect	High	High	High at a global scale
Provisioning Services	5. Provision of fuel/energy for human consumption	• Development should provide enough fuel or gather energy from renewable sources to provide for its own needs, preferably more so this can be distributed to neighbours • Design should encourage effective energy use	High	Medium	High at a global scale
	6. Provision of fresh water	• Development should capture rainwater to meet its own needs and distribute excess to neighbours • Design should encourage the conservation of water	High	High	High at a reg. scale
	7. Provision of food (including: provision of biochemicals)	• Development should produce food	Medium	Medium	High at a global scale

Appendix V

SBSE's (2009) version of their "Regeneration-Based Checklist for Carbon-Neutral, Zero Net Energy Design and Construction".

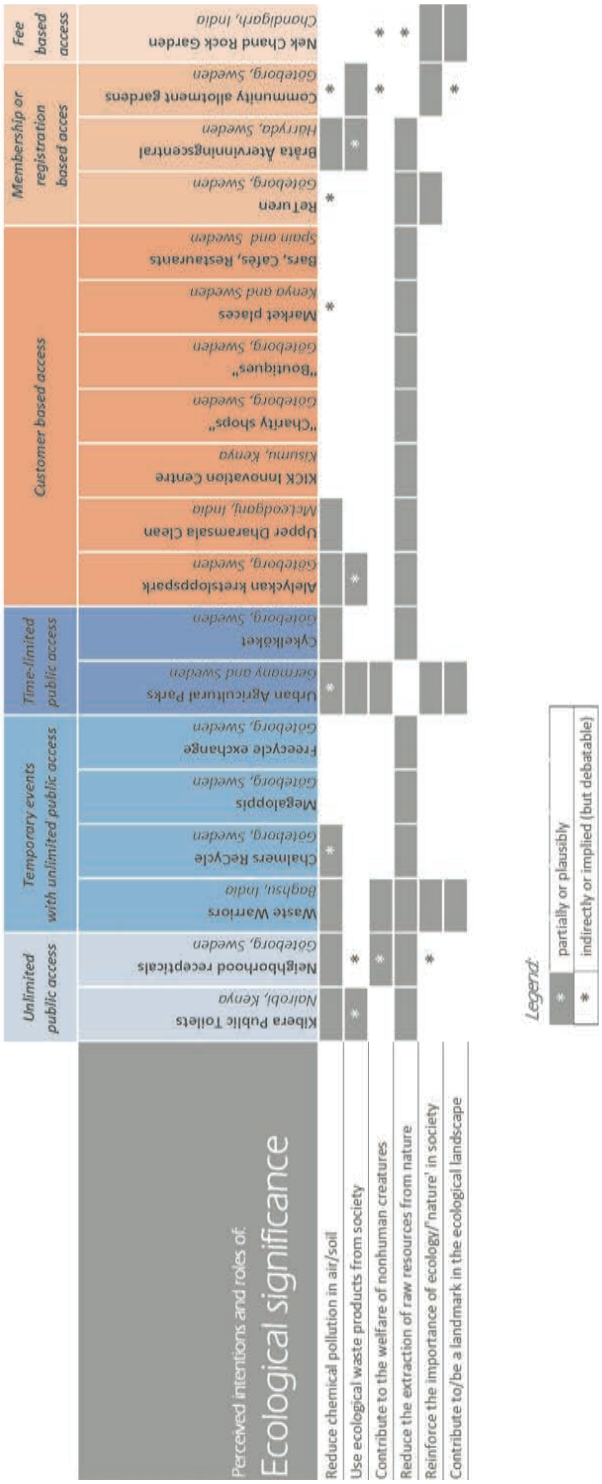
	degeneration				sustainability				regeneration	
	-100 always	-75 usually	-50 sometimes	-25 a bit	0 balances	25 a bit	50 sometimes	75 usually	100 always	
planet	consumes energy disproportionately									consumes energy equitably
	serves few									serves many
	differentiates man-made and natural									conflates man-made and natural
	imports all its energy									exports energy from site
	emits carbon									sequesters carbon
site	pollutes air									cleans air
	pollutes water									cleans water
	wastes rainwater									harvests rainwater
	is built on a greenfield									is built on a brownfield
	consumes food									produces food
	destroys rich soil									creates rich soil
	dumps wastes unused									uses wastes as resources
	destroys wildlife habitat									provides wildlife habitat
	lacks site integration									is integral to the site
	decreases density									increases density
	promotes fuel-powered transportation									promotes pedestrian and transit access
	creates uncomfortable micro-climates									creates comfortable micro-climates
building	ignores building size issues									optimizes building size
	excludes natural light									uses natural light effectively
	uses only mechanical cooling									uses passive cooling effectively
	uses only mechanical heating									uses passive heating effectively
	is unconcerned with performance									monitors and improves performance
	discourages user control of systems									encourages user control of systems
	produces human discomfort									enhances human comfort
	uses inefficient equipment									uses highly efficient equipment
	uses non-renewable fuel-powered circulation									uses benignly powered circulation
	pollutes indoor air									enhances indoor air quality
	needs cleaning and repair									maintains itself
	uses high-carbon materials									uses carbon-sequestering materials
	is designed for demolition									is designed for disassembly
	uses materials wastefully									uses materials carefully
	cannot be recycled or reused									can be recycled or reused
culture	serves as an icon for the apocalypse									serves as an icon for regeneration
	discourages community interaction									encourages community interaction
	is socially and ecologically exclusive									is socially and ecologically inclusive
	is a bad neighbor									is a good neighbor
	is crassly ugly									is sublimely beautiful

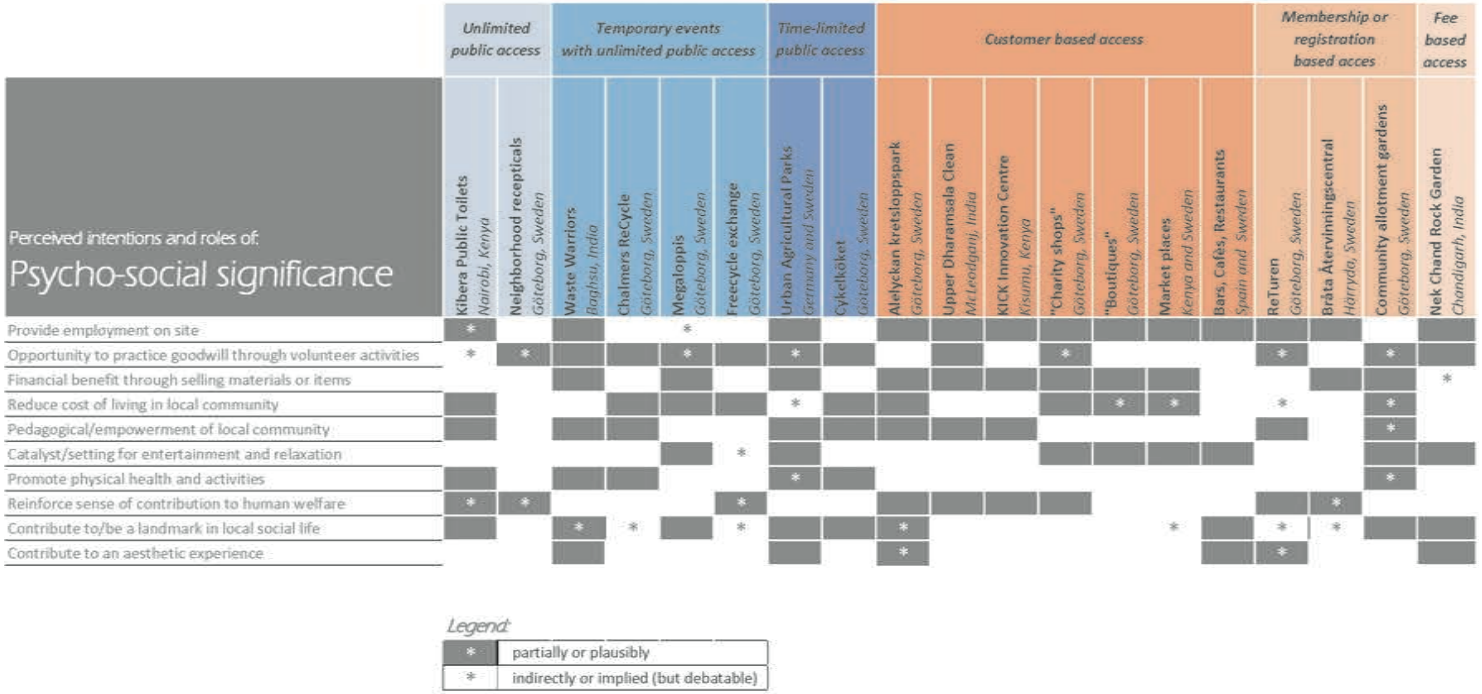
negative score	positive score
3700 possible	3700 possible

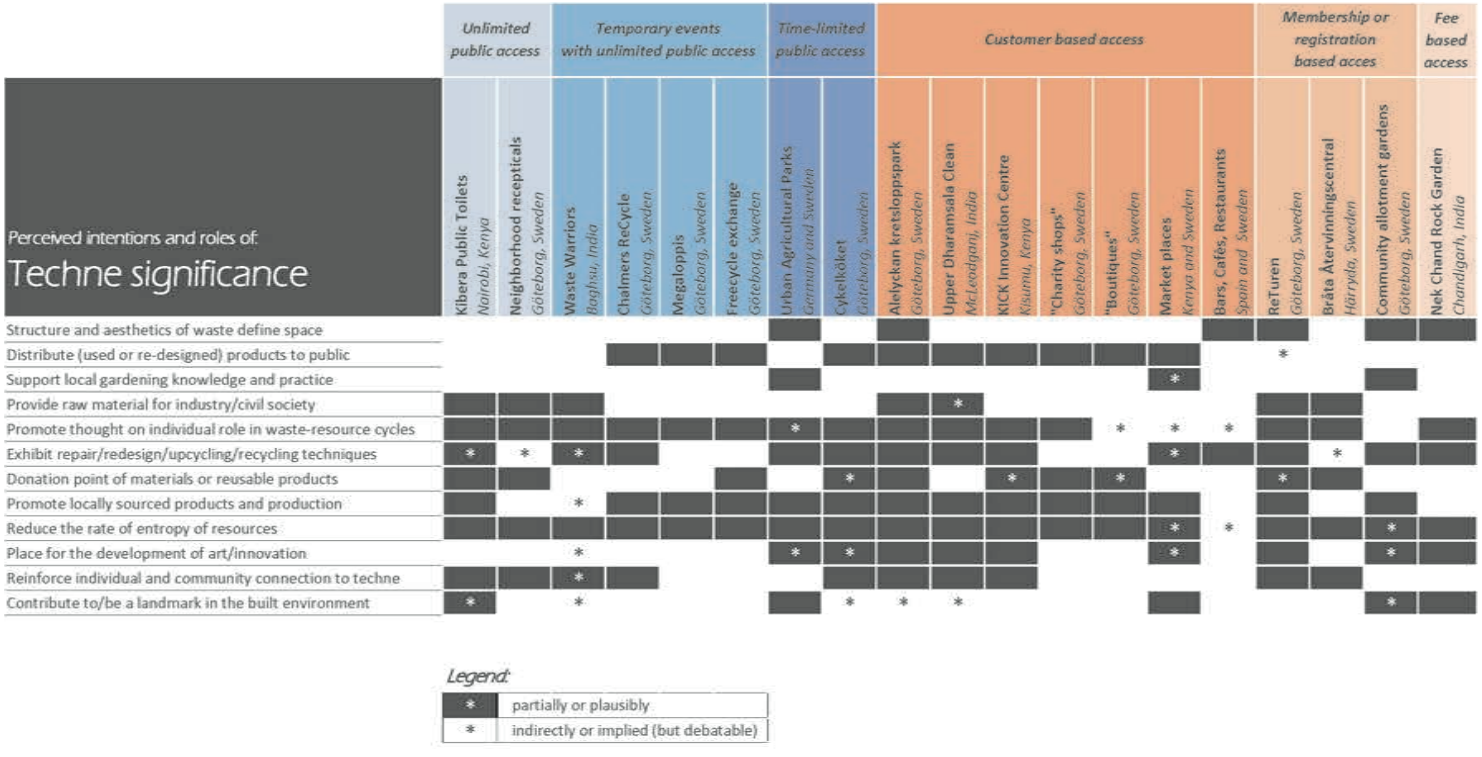
Appendix VI

The following three charts were part of the initial analysis I did on proto-regenerative places to understand (and illustrate) their accessibility, their powers of attraction and engagement. This work also fed into my analysis and development of Brown's (2008, 2009a, 2009b) Regenerative Knowledge Bases together with Law's (2004b) Natureculturetechnics.

As explained in section 8.63, this combined analysis and reflection on theory and places alongside the proflection through projects ultimately led to the identification and delineation of an ecosociotechnic ontology in regenerative places and design thinking.

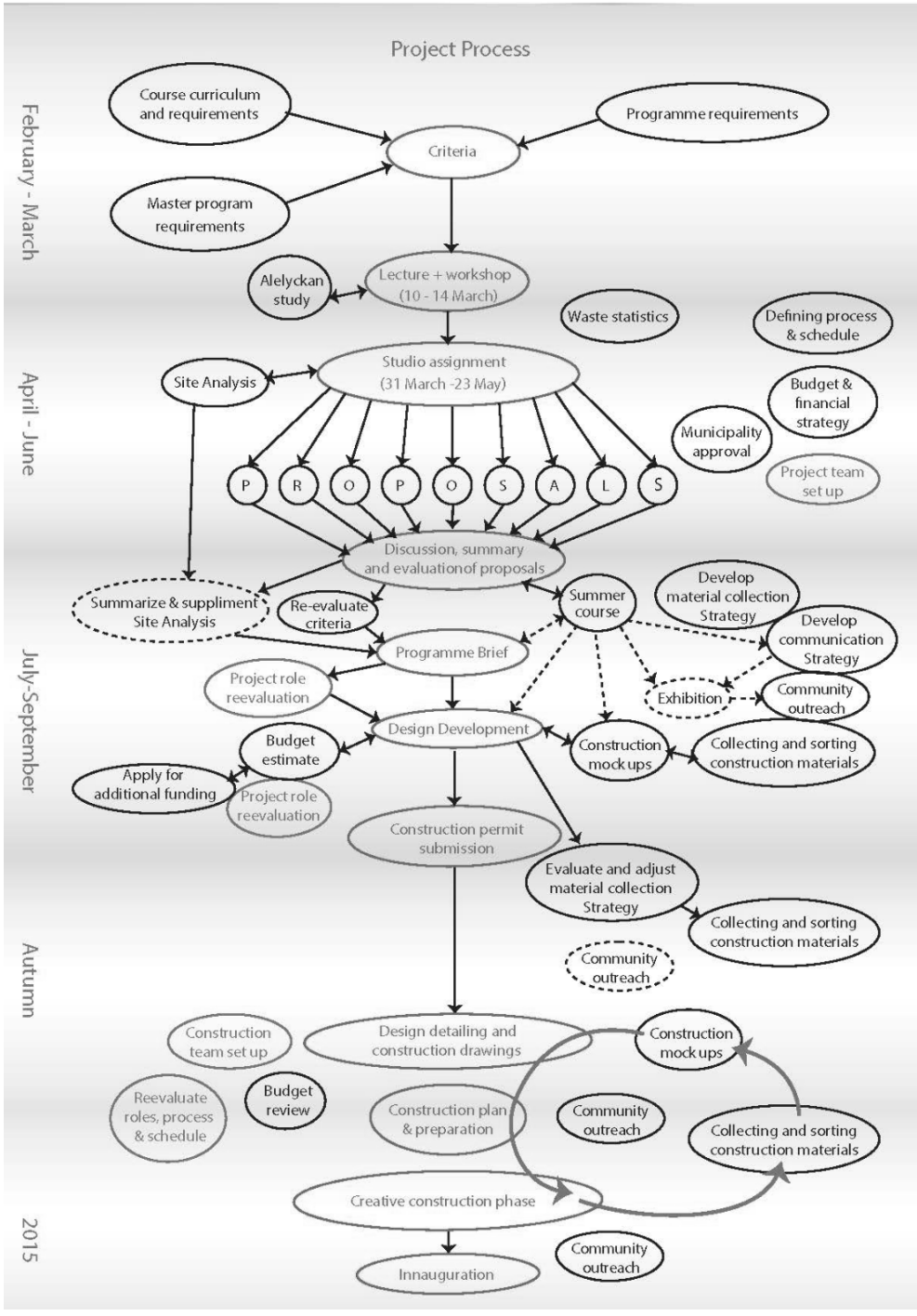



Unlimited public access
Temporary events with unlimited public access
Time-limited public access
Customer based access
Membership or registration based acces
Fee based access
Perceived intentions and roles of:
Psycho-social significance
Kibera Public Toilets Nairobi, Kenya
Neighborhood recepticals Göteborg, Sweden
Waste Warriors Baghsu, India
Chalmers ReCycle Göteborg, Sweden
Megaloppis Göteborg, Sweden
Freecycle exchange Göteborg, Sweden
Urban Agricultural Parks Germany and Sweden
Cykelköket Göteborg, Sweden
Alelyckan kretsloppspark Göteborg, Sweden
Upper Dharamsala Clean McLeodganj, India
KICK Innovation Centre Kisumu, Kenya
"Charity shops" Göteborg, Sweden
"Boutiques" Göteborg, Sweden
Market places Kenya and Sweden
Bars, Cafés, Restaurants Spain and Sweden
ReTuren Göteborg, Sweden
Bråta Återvinningscentral Härryda, Sweden
Community allotment gardens Göteborg, Sweden
Nek Chand Rock Garden Chandigarh, India
Provide employment on site
Opportunity to practice goodwill through volunteer activities
Financial benefit through selling materials or items
Reduce cost of living in local community
Pedagogical/empowerment of local community
Catalyst/setting for entertainment and relaxation
Promote physical health and activities
Reinforce sense of contribution to human welfare
Contribute to/be a landmark in local social life
Contribute to an aesthetic experience
Legend:
partially or plausibly
indirectly or implied (but debatable)


Unlimited public access
Temporary events with unlimited public access
Time-limited public access
Customer based access
Membership or registration based acces
Fee based access
Perceived intentions and roles of:
Techne significance
Kibera Public Toilets Nairobi, Kenya
Neighborhood recepticals Göteborg, Sweden
Waste Warriors Baghau, India
Chalmers ReCycle Göteborg, Sweden
Megaloppis Göteborg, Sweden
Freecycle exchange Göteborg, Sweden
Urban Agricultural Parks Germany and Sweden
Cykelköket Göteborg, Sweden
Alelyckan kretsloppspark Göteborg, Sweden
Upper Dharamsala Clean McLeodganj, India
KICK Innovation Centre Kisumu, Kenya
"Charity shops" Göteborg, Sweden
"Boutiques" Göteborg, Sweden
Market places Kenya and Sweden
Bars, Cafés, Restaurants Spain and Sweden
ReTuren Göteborg, Sweden
Bråta Återvinningscentral Härryda, Sweden
Community allotment gardens Göteborg, Sweden
Nek Chand Rock Garden Chandigarh, India
Structure and aesthetics of waste define space
Distribute (used or re-designed) products to public
Support local gardening knowledge and practice
Provide raw material for industry/civil society
Promote thought on individual role in waste-resource cycles
Exhibit repair/redesign/upcycling/recycling techniques
Donation point of materials or reusable products
Promote locally sourced products and production
Reduce the rate of entropy of resources
Place for the development of art/innovation
Reinforce individual and community connection to techne
Contribute to/be a landmark in the built environment
Legend:
partially or plausibly
indirectly or implied (but debatable)

Appendix VII

A flow chart of one of the possible schedules and relationships between projects related to Bråta RC presented to the project team and client (see section 6.31).



Appendix VIII

List of architecture students according to project groups and project titles for the final assignment of Sustainable Building Design Studio (2014) at the Department of Architecture, Master's Program Design for Sustainable Development, Chalmers University of Technology (project 6.36).

Group 1 – 'What a Waste'

Van Weldeen, Coco; Saleryd, Johanna; Abahamsson, Josef; Bianconi, Manon

Group 2 – 'Bråta Recycling Centre'

Alatalo, Erika; Benoit, Camille; Dauvergne, Robin

Group 3 – 'Bråta: The Platform'

Gros, Antonin; Ropel, Carolin; Elif, Ekim

Group 4 – 'The Tree: A Tower in the Nature'

Lebreton, Alice; Garcia Moreno, Violeta; Lekander, Victor

Group 5 – 'Bråta'

Compagnon, Sven; Sjöberg, Isabelle; Xu, Yifei

Group 6 – 'Bråta Resource Park'

Gustafsson, Anna; Thaller, Marin; Bardas Dunare, Ruxandra

Croup 7 – 'Bråta: Product and Resource Park'

Sandmer, Emelie; Forooraghi, Melina; Dos Santos Paul, Mauro

Group 8 – 'Simply a Roof'

Heinisch, Eric; Pétursdóttir, Eyrún; Pirotais, Caroline; Tanaka, Asuza

Group 9 – 'Bråta Recycling Center'

Olsson, Hanna; Ernstsson, Viktoria; Lorenzato, Emilio

Group 10 – 'Regenerative Recycle Centre'

Gismondi, Lorena; Fredriksson, Malin; Reinhardt, Anja

Appendix IX

The following is an explanation of the analysis and synthesis of regenerative (and general) design strategies from 'Bråta...Recycling Center to Regenerative Place' (project 6.36).

It is an excerpt from a report given to the client for the purpose of summarizing insights from the student work and discussing the program brief (project 6.37) for the final design of the Bråta ReUse Pavilion (project 6.38 and Appendix X).

CHALMERS STUDIO

APPROACH & ANALYSIS

ANALYSIS OF STUDENT WORK

While the design problem given to the students needed some adjustment in order to fill the course objectives, the projects brought to light a number of issues and possibilities for redesigning the places and way we handle resources in a regenerative way. This chapter is a synthesis of the studio topics and student work. The synthesis was done with the objective of extracting useful elements and questions that could help inform the actual programme and design for *Bråtapaviljongen*.

While extracting issues, ideas and elements from the student projects a number of programme categories were identified. These are presented in four areas of applicability.

AREAS OF APPLICABILITY

1. Site and Context Analysis
A synthesis of the problem in its larger and local context and the different elements and conditions that define the character and function of Bråta.

2. Essential Considerations for the Design
A synthesis of issues that are particularly applicable and/or important to consider for the programme and design of *Bråtapaviljongen*.

3. Possible Considerations for the Design
A synthesis of issues considered less essential as they are deemed a bit more advanced then the basic needs for the pavilion, however they could become elements of the final design if the design and budget shows that it is possible or even necessary.

4. Future Considerations for the Design
A synthesis of issues that are not possible for the present project, but are interesting concepts that suggest progressive ways to take Bråta to the next level in terms of affecting resource use, repositioning the centre's way of relating to the community and creating a memorable and pleasant spatial experience. Future possibilities could, however, affect current design choices and should therefore be considered and discussed.

PROGRAMME CATEGORIES

- Site & Context Analysis
- Function
- Spatial qualities
- Site Planning
- Users
- Materials
- Energy & performance
- Outreach & Involvement

Appendix X

The ReUse Pavillion was completed and built at Bråta Recycling Center in 2020 by Helhets Hus Architecture firm. Though this was done outside of the scope of this study, the construction is based on the design drawings and principles that Charlotte Farrouche and I developed in project 6.38, which in turn were derived from conversations with the client about the outcomes of projects 6.36 and 6.37.