

**AR3A010 RESEARCH PLAN**

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## GLOSSARY\_ KEY TERMINOLOGY

The following key terms serve as a starting point for designing my research. Their definitions are therefore preliminary but relevant for the understanding of the research plan.

During the research phase of the thesis, I will explore critically all key terms and their definitions will be extended and where necessary *re-defined*.

### **Natural system**

'An open system whose elements, boundary, and relationships exist independently of human control.'<sup>1</sup>

### **Systems thinking**

'A way of thinking...in terms of connectedness, relationships, context...the properties of the parts can be understood only from the organization of the whole. Accordingly, systems thinking concentrates not on basic building blocks, but on basic principles of organization...systems thinking means putting it into the context of a larger whole.'<sup>2</sup>

### **Ecology**

'The relationships between the air, land, water, animals, plants, etc., usually of a particular area, or the scientific study of this.'<sup>3</sup>

### **Ecosystem**

'All the plants, animals, and people living in an area considered together with their environment as a system of relationships.'<sup>4</sup>

### **Ecological thinking**

'Ecological thinking involves understanding concepts in ecology including biotic factors, abiotic factors, and biotic interaction. It is complemented by understanding the impact of human activity on ecosystems.'<sup>5</sup>

### **Regenerative design**

'Approaches that support the co-evolution of human and natural systems in a partnered relationship. It is not the building that is 'regenerated' in the same sense as the self-healing and self-organizing attributes of a living system, but by the ways that the act of building can be a catalyst for positive change within the unique 'place' in which it is situated.'<sup>6</sup>

### **Regenerative development**

'Built projects, stakeholder processes and inhabitation are collectively focused on enhancing life in all its manifestations - human, other species, ecological systems - through an enduring responsibility of stewardship.'<sup>7</sup>

### **Sympoiesis**

'"Sympoiesis" means "making-with"...nothing makes itself; nothing is really autopoietic or self-organizing...it is a word proper to complex, dynamic, responsive, situated, historical systems. It is a word for worlding-with, in company.'<sup>8</sup>

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1 Natural System (glossary). Guide to the System Engineering Body of Knowledge. (n.d.). [https://www.sebokwiki.org/wiki/Natural\\_System\\_\(glossary\)](https://www.sebokwiki.org/wiki/Natural_System_(glossary)).

2 Capra, F. (1997). In *The web of life: a new scientific understanding of living systems* (pp. 29–30). essay, Doubleday.

3 ecology. Cambridge Dictionary. (n.d.). <https://dictionary.cambridge.org/dictionary/english/ecology>.

4 ecosystem. Cambridge Dictionary. (n.d.). <https://dictionary.cambridge.org/dictionary/english/ecosystem>.

5 Kaneko, N., Yoshiura, S., & Kobayashi, M. (2014). Enhancing Students' Ecological Thinking to Improve Understanding of Environmental Risk. In *Sustainable living with environmental risks* (pp. 265–267). essay, Springer.

6 Cole, R. J. (2012). Regenerative design and development: current theory and practice. *Building Research & Information*, 40(1), p.1 <https://doi.org/10.1080/09613218.2012.617516>

7 Cole, R. J. (2012). Regenerative design and development: current theory and practice. *Building Research & Information*, 40(1), p.1 <https://doi.org/10.1080/09613218.2012.617516>

8 Haraway, D. J. (2016). In *Staying with the trouble: making kin in the Chthulucene*. Duke University Press. p.58-60

## INTRODUCTION\_ INHABITING A FINITE WORLD

My thesis research deals with the complex topic of the multiple relations and entanglements between humans and non-humans, more specifically the co-evolution between human and natural systems and the position of architecture at their intersection.

I got deeply fascinated by the plan of a friend of mine (a western woman) to permanently settle on a small 'uninhabited' island in the least developed part of Indonesia, next to the coast of North Maluku. *Permanently, settle, uninhabited, least developed*. These words intrigued me because they pose the very questions of living in close relation to natural systems. *Least developed* suggests that far away there is still more of what we call 'nature' than of human. *Uninhabited* reminded me of our human-centric world, where non-human living organisms and their habitat are too often not considered inhabitants and therefore we call an island without humans 'uninhabited'. *Settle* in fact, made me feel uncomfortable. How will one's settling affect the local humans, non-humans and their environment? Lastly, *permanently*. How can one sustain himself/herself in an isolated small area for a long time? The need for a self-sufficient system in such a place requires a more regenerative logic, considering the limited resources on a finite piece of land.

This self-sufficient regenerative logic, needed to inhabit an island, is very different from the capitalistic model of inhabiting the world, which has created a world of constant industrial and urban growth, a growth that requires increasing territorial expansion beyond defined geopolitical borders in the search for continuous exploitation of resources. This transformation that comes with the rapid urbanization and industrialization of the globe over the past century has depleted the world to a critical point, endangering and eradicating diversity in the forms of life it sustains<sup>9</sup>.

Inhabiting a world that is increasingly nearing the limits of growth<sup>10</sup>, a limit manifesting itself in the impending collapse of this system, where humans can no longer be considered 'nature's outside'<sup>11</sup>, we are in critical need to ask: How could we arrive at a new logic of environmental production in which we reconsider the world as also being a finite island, an environment that increasingly needs to shift towards a self-sufficient and more regenerative mode?

In the aim to uncover possibilities for a deeper awareness of this logical shift for environmental production, which is urgently needed in an Anthropocene age<sup>12</sup>, my research engages with the wider question: **How are natural systems addressed/augmented through architecture?** Therein, it calls for learning from contrasting models of environmental production, not only from the ones following the 'dark bewitched commitment to the lure of Progress'<sup>13</sup>, but also from more indigenous forms of inhabiting places that have resisted modernization<sup>14, 15</sup>.

In exploring this question, my goal is to figure out: **How can a (socio-ecologic) systemic way of understanding relationships between humans, architecture and natural systems enable thinking and making built environments with a more regenerative logic?**

'permanently'	————>	'temporarily'
'settle'	————>	'live-with'
'uninhabited'	————>	'inhabited'
'least developed'	————>	'developed'

I further use the above-mentioned keywords to form translations which help me define the following sub-questions:

**What does it mean to make and inhabit a place by thinking of temporalities rather than of permanence?**

**What does it mean to live-with other humans and non-humans?**

**What does it mean to inhabit a place recognizing that it is always simultaneously inhabited by others, humans and non-humans?**

**What does it mean to develop/transform an environment? How do we understand and practice place-making?**

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9 Tsing, A. L., Swanson, H. A., Gan, E., & Bubandt, N. (2017). *Arts of living on a damaged planet: ghosts of the anthropocene: monsters of the anthropocene*. University of Minnesota Press.

10 Tsing, A. (2016). *Earth Stalked by Man*. *The Cambridge Journal of Anthropology*, 34(1), p.8. <https://doi.org/10.3167/ca.2016.340102>

11 Yusoff, K. (2015). *Anthropogenesis: Origins and Endings in the Anthropocene*. *Theory, Culture & Society*, 33(2), p.16. <https://doi.org/10.1177/0263276415581021>

12 Haraway, D. J. (2016). *In Staying with the trouble: making kin in the Chthulucene*. Duke University Press. p.35

13 Haraway, D. J. (2016). *In Staying with the trouble: making kin in the Chthulucene*. Duke University Press. p.50

14 'Chthonic ones are monsters in the best sense; they demonstrate and perform the material meaningfulness of earth processes and critters...The chthonic ones are those indigenous to the earth in myriad languages and stories; and decolonial indigenous peoples and projects are central to my stories of alliance.'  
Haraway, D. J. (2016). *In Staying with the trouble: making kin in the Chthulucene*. Duke University Press. p.2; 71

15 '...valuable, local-specific views, knowledge and practices are used by indigenous peoples who have relied for centuries upon the maintenance of biodiversity...they hold the key to successful biodiversity conservation in most of the biologically richest areas of the world.'  
Toledo, V. M. (1999). *Indigenous Peoples and Biodiversity*. ResearchGate, p.3. <https://doi.org/10.1016/B978-0-12-384719-5.00299-9>

*re-think*

## THEORETICAL FRAMEWORK\_ **RETHINKING NATURE AS A SYSTEM**

This research is informed by two complementary theoretical frameworks concerning the co-evolution between human and natural systems.

To begin with, I take inspiration from several relevant critical thinkers, such as Anna Tsing, Donna Haraway, Peg Rawes, Bruno Latour, Kathryn Yusoff, Deleuze and Guattari, coming from diverse academic fields but also often focusing on interdisciplinary links between philosophy, biology, anthropology, architecture, social studies, feminist studies, etc., and who have sharply critiqued the Western notion of 'nature' as a problematic conceptual construct. Insisting that its longstanding (but false) dialectical opposition to 'culture' or 'technology' must be re-conceptualized, authors have progressively reclaimed the idea of ecologies that extend beyond 'nature'. Felix Guattari's 'The Three Ecologies' famously argued that ecology is not just nature, but that the world is shaped by three intertwined mental, social and environmental ecologies<sup>16</sup>, at the intersection of which architecture operates. As Peg Rawes comments in her related anthology 'Relational Ecologies of Architecture', this requires a new understanding of "how the 'habitats', 'natural milieus', 'places' or 'shelters' that construct architectural ecologies are composed of complex material, spatial, social, political and economic concerns."<sup>17</sup>

Donna Haraway has more sharply critiqued the nature/culture opposition that entails a radical break of connection to place by homogenizing the world and enslaving nature as flexible for disposal by culture.<sup>18</sup> Anna Tsing similarly critiques the resulting conception of man-made landscapes that create impoverishing worlds, reducing diversity in the name of reproducing the same hierarchical 'Architecture of Western Man'.<sup>19</sup> Other authors, like Kathryn Yusoff, suggest that the genesis of Man through His elevation above nature dates back to long before the Anthropocene.<sup>20</sup>

For the reason that culture has been elevated above nature, the latter is now being integrated into the built environment. By contrast, I am trying to bring architecture back down, similarly as Bruno Latour invites us to 'land on Earth' and 'become terrestrial'.<sup>21</sup>

Here, I turn to a search for a 'deeper' ecology, which implies this other way of thinking interrelations that seeks to embrace Anna Tsing's appeal to 'consider multiplicity through conflicting scales, with their connections and disconnections...combining the urgency of action with attention to complexities.'<sup>22</sup>

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16 Guattari, F. (1989). The Three Ecologies . New formations, 8, p.131-147.

17 Rawes, P. (2013). In Relational architectural ecologies: architecture, nature and subjectivity. introduction, Routledge.

18 Haraway, D. (1988). Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. Feminist Studies, 14(3), p.592. <https://doi.org/10.2307/3178066>

19 Tsing, A. (2016). Earth Stalked by Man. The Cambridge Journal of Anthropology, 34(1), p.8. <https://doi.org/10.3167/ca.2016.340102>

20 Yusoff, K. (2015). Anthropogenesis: Origins and Endings in the Anthropocene. Theory, Culture & Society, 33(2). <https://doi.org/10.1177/0263276415581021>

21 Bruno Latour on CRITICAL ZONES. ZKM. (n.d.). <https://zkm.de/en/zkm.de/en/ausstellung/2020/05/critical-zones/bruno-latour-on-critical-zones>.

22 Tsing, A. (2016). Earth Stalked by Man. The Cambridge Journal of Anthropology, 34(1), p.5. <https://doi.org/10.3167/ca.2016.340102>

There has been a long uptake of ecological thinking in the built environment, however, often based on a discussion between technocratic and engineering-based solutions as opposed to more ecological and living systems based principles.

One discourse that proposed a deeper understanding of ecological interdependencies, integrating technological solutions within an ecologically-based approach, centres on the notion of regenerative design and development.

Central to the regenerative theory is 'the concept of place and humanity's role in it'<sup>23</sup> and it is often referred to by key thinkers as a paradigm shift 'emerging out of the transition from a 'mechanistic' to an 'ecological' or living systems worldview.'<sup>24</sup>

As du Plessis describes it, the approach attempts to 'address the dysfunctional human-nature relationship by entering into a co-creative partnership with nature' through design practices 'rooted in the context and its social-ecological narratives.'<sup>25</sup> Similarly, J.Cole argues that 'it is not the building that is 'regenerated' in the same sense as the self-healing and self-organizing attributes of a living system, but by the ways that the act of building can be a catalyst for positive change within the unique 'place' in which it is situated.' He further specifies that 'built projects, stakeholder processes and inhabitation are collectively focused on enhancing life in all its manifestations – human, other species, ecological systems – through an enduring responsibility of stewardship.'<sup>26</sup>

Within the regenerative theory, the notion of place, the story of a place, the potential of a place and therefore place-making are tightly linked. Place is defined as a 'unique multi-layered network of living systems within a geographic region that results from the complex interactions, through time, of the natural ecology...and culture...'; where 'humans, human developments, social structures and cultural concerns are an inherent part of ecosystems', making humans integral, and particularly influential participants in the health and destiny of the earth's web of living systems.'<sup>27</sup> The story of the place then gives 'the ability to convey 'who' a place is, and how to be part of it – the whole relationship between human settlement and the systems of life that are continually making the place.' Understanding the story of the place is the precondition of discovering the potential of the place and thus the role of the project within it. Time and scale become essential to thinking regeneratively as the place and its story are seen as continuously evolving, while the project 'works to integrate the flows and structures of the built and natural world across multiple levels of scale, reflecting the influence of larger scales on smaller scales and smaller on larger.'

In this manner, J.Cole argues that (living) systems thinking, community engagement and respect for place become the core tenets of regenerative thinking. Mang and Reed likewise suggest that the (living) systems thinking is guided by eco-literacy (understanding how natural systems work) and pattern-literacy as key components, where 'pattern is the language of relationship, and regenerative development and design in a living system is a process of patterning human communities to align with the energetic patterns of a place in a way that both humans and the place co-evolve.'

I find Donna Haraway's term 'sympoiesis' for 'staying with the trouble' as a tying link between the theories and critiques explored previously, and the theory of regenerative design and development. 'Sympoiesis' means 'making-with'. 'Nothing makes itself; nothing is really autopoietic or self-organizing.'<sup>28</sup> She argues that 'sympoiesis' is a word proper to 'complex, dynamic, responsive, situated, historical systems. It is a word for worlding-with, in company.' I further relate her description of living beings, human and non-human, as 'symbiotic assemblages, at whatever scale of space or time, which are more like knots of diverse intra-active relatings in dynamic complex systems', to the (living) systems regenerative thinking. Thinking of sympoiesis raises the question: In what way are these complex relationships between human and natural systems configured?

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23 Zhang, X. (2014). Toward a regenerative sustainability paradigm for the built environment: from vision to reality. *Journal of Cleaner Production*, 65, 3–6. <https://doi.org/10.1016/j.jclepro.2013.08.025>

24 Mang, P., & Reed, B. (2012). Designing from place: a regenerative framework and methodology. *Building Research & Information*, 40(1), 23–38. <https://doi.org/10.1080/09613218.2012.621341>

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26 Cole, R.J. (2012). Regenerative design and development: current theory and practice. *Building Research & Information*, 40(1), 1–6. <https://doi.org/10.1080/09613218.2012.617516>

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28 Haraway, D.J. (2016). In *Staying with the trouble: making kin in the Chthulucene*. Duke University Press. p.58-60

## **REFLECTION ON THEORY AND INSPIRATION FOR METHODOLOGY**

Reflecting on the examination of the two above mentioned theoretical frameworks, I synthesize five conditions for challenging architecture's capacity to be part of natural systems, instead of working against them, which I will explore in the following part of the research and later in the design stage of the project. Each one of the five conditions corresponds to and will assist the investigation of one of the sub-questions previously defined in the introduction.

*What does it mean to inhabit a place recognizing that it is always simultaneously inhabited by others, humans and non-humans?*

### **1. More-than-human perspective**

Move beyond human-centric views and simplified ecologies by studying human and non-human interrelations and hence include non-humans in thinking and making architecture as there are directly or indirectly affected by it.

*What does it mean to make and inhabit a place by thinking of temporalities rather than permanence?*

### **2. Embrace complexity (time and scale)**

Consider simultaneously the entangling of multiple (conflicting) scales with their connections and disconnections and the importance of the temporal aspect by thinking of the environment as continuous dynamic state changes rather than a state.

*What does it mean to live-with other humans and non-humans?*

### **3. Think in relationalities**

Think of living beings, human and non-human, as symbiotic assemblages which are knots of diverse intra-active in dynamic complex systems. Therefore, consider the human and non-human entanglements, reflecting the influence of larger scales on smaller scales and smaller on larger.

*What does it mean to develop/transform an environment? How do we understand and practice place-making? (4. & 5.)*

### **4. Process-driven (rather than product-driven)**

Render the invisible, visible by capturing movement and flows (and what brings the flow), cycles and rhythms, rather than envisioning states. Look for connections and disconnections between human and natural systems/processes.

### **5. Open to change and shifts**

The spatial intervention should become part of the evolving story of a place, while its role can only be determined as a consequence of reading the environment and understanding the story of a place. Simultaneously, embrace uncertainty by considering a spatial intervention as open-ended and as part of an environment subject to continuous changes and shifts. Focus on long-term spatial effects rather than on immediate problem-solving.



*re-draw*

## METHODOLOGICAL POSITIONING\_ (COUNTER) MAPPING SYSTEMS OF ENVIRONMENTAL PRODUCTION

To understand the systemic interaction between mental, social and environmental ecologies and the various ways in which humans address or augment natural systems through architecture, my research is centrally engaged with a comparative analysis of case studies of urban systems driven by economic growth, more Indigenous settlements and the in-between forms of habitation such as rural villages. I will analyze these different systems, by a way of mapping that visualizes and also envisions Deleuze's suggestion that sedentary and urban societies adapt habits, whereas Indigenous nomadic societies more often adapt 'habits' by contrast. In line with the critical thinkers advocating for thinking in relationalities and connectedness, I will also extend mapping to include genealogical methods that in written and visual form draw together a critical cartography of the different forms of environmental production, which I will, following Guattari, map on the three constitutive layers of environmental, social and mental ecologies. I will translate the three layers into studying habitats, habits and inhabitants/habitus to render visible how architecture operates at their intersection.

Thereby I stress the systems theoretic aspect of comparatively understanding the differing systems by highlighting the growth-driven extractive logic found in urban and sedentary cultures vis-à-vis more regenerative relations found in indigenous and nomadic cultures.

I will select and investigate relevant case studies through the chosen site of the province of North Maluku, Indonesia which offers various forms of habitation, from indigenous nomadic and semi-nomadic communities to rural and emerging urban settlements. The urban cases I will explore in close relation to industrial and extractive practices, by drawing together a genealogy of profit-driven societies and the history of thought that belongs to their planning, as a system exploiting environments in the pursuit of generating stable growth (metastasis). The nomadic cases will enable me to counter map a system that maintains regenerative relations in which things change to remain the same (metastability). The study of the in-between forms of habitation will avoid creating a false dichotomy and classification between modern vs vernacular techniques, but rather show the transitions and relations between the different forms of habitational dynamics.

While 'adapting habitats' typically engages a more typo/morphological angle in line with the focus on patterns in regular architectural discourse, 'adapting habits' asks for a more ethnographic/anthropological approach, with a focus on social and spatial practices such as praxeology and/material culture. Therefore, a combination of mapping methods will be useful, such as proper maps (thesis), mapping of diagrammatic relationships (antithesis), but also experimental visual mappings such as in the example of the 'Feral Atlas'<sup>29</sup> (synthesis).

My exploration of different modes or case studies of place-making and inhabitation will therefore be focused on learning through drawing and hence developing a mapping method that allows me to understand relationalities between human and natural systems by embracing complexities, dynamics and to think in terms of assemblages or sympoiesis.

Finally, drawing together a story, via cartographies and mappings, will become the basis for intervening in the context (some examples from practice include: a planning manual like J.Lai's<sup>30</sup> comics, the Feral Atlas drawings by Feifei Zhou, or another way of portraying a visual story.) The research result becomes both a position (change of worldview) and means (developing a mapping method, drawing complexity and relationalities) as a necessary precondition for the design stage. The design transitions into a logical continuation, evolving the story, rather than integrating the research in itself.

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29 Feral Atlas. (n.d.). <https://feralatlans.supdigital.org/>.

30 Lai, J. (2012). *Citizens of no place an architectural graphic novel*. Princeton Architectural Press.

*re-make*

## CONCLUSIONS\_ **DRAWING TOGETHER A REGENERATIVE SYSTEM**

By critically examining the meaning of the words 'permanently', 'settle', 'uninhabited' and 'least developed' or perhaps even more what I define as their opposites - 'temporarily', 'live-with', 'inhabited' and 'developed' I wish to explore and question how we transform the environment through architecture, by making and inhabiting place and what it means to do so from an ethical, social and environmental perspective.

Therefore, my goal is to critically investigate where things come from and how we ended up with our current (dis)connection to natural systems and cycles, and challenge myself to *re-think* my notion of nature, *re-draw* the way I read the environment (or a context), as socio-ecological assemblages that are constantly produced and reproduced, and hence *re-do* my process of designing by positioning architecture within these complex relationalities, to finally arrive at a different way of thinking and making architecture with a more regenerative logic.

Further addressing complexities, conflicting scales and entanglements between human and non-human, my research and the project in its total scope, perhaps blurring the line between architecture and landscape architecture, will not attempt to provide a universal solution for all the urgencies of our time (or the region of North Maluku), but rather try to inspire a situated, self-critical and more responsible architecture that moves beyond the human-centric views, that is ecologically based and non-human based 'without guarantees or the expectation of harmony with those who are not oneself – and not safely other, either.'<sup>31</sup>

By questioning and challenging the role of the discipline of architecture (and my position within it) entangled in the current environmental catastrophe, my work on this thesis aims to foster a change in thinking about environmental production, which is tested in and represented by my project.

Finally, designing my research allows me to also design my design process as a logical continuation of an evolving story. My approach of reflecting on nomadizing myself in the research (by choosing a distant context and studying several different ways to make and inhabit place) reflects what Deleuze and Guattari call 'becoming minoritarian', meaning to leave behind hegemonic conceptions and get a critical distance as a necessity to draw things back together. Similarly, following Donna Haraway's notion of situated knowledges, the sequence of critical examination of dominant knowledge – deconstruction – reconstruction – situated knowledge is necessary to weave a new story, a new way of knowing.

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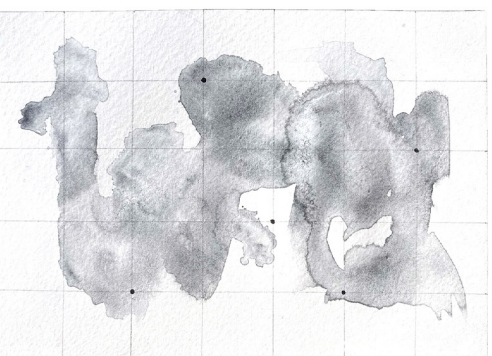
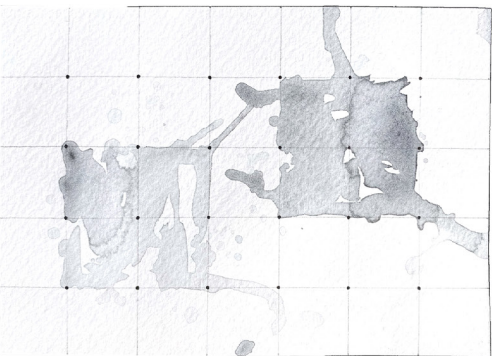
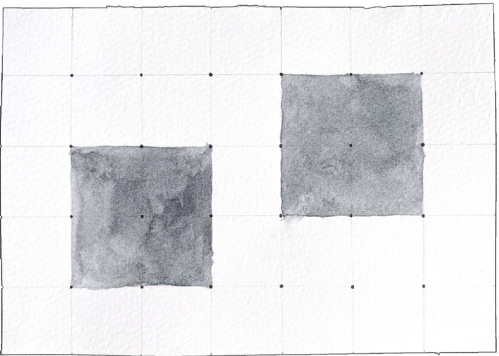
31 Haraway, D.J. (2016). In *Staying with the trouble: making kin in the Chthulucene*. Duke University Press. p.98

*It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what descriptions describe descriptions, what ties tie ties. It matters what stories make worlds, what worlds make stories.'*<sup>32</sup>

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32 Haraway, D.J. (2016). In *Staying with the trouble: making kin in the Chthulucene*. Duke University Press. p.12





from left to right: critical examination of dominant knowledge; metamorphosis of worldview; weaving a new story of interconnectedness embracing complex interdependencies

**re-thought RESEARCH DIAGRAM**

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