Designing transitions to regenerative economies

Earth-centred collaborative processes to build radical interdependence

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Acknowledgement of Country

I acknowledge the traditional custodians of the land on which I live, the Gadigal peoples of the Eora Nation. I pay my deepest respects to Elders past, present and future. Sovereignty was never ceded.

My multifaceted relationship with colonialism

I recognise the loss but also the resilience of Aboriginal cultures since colonisation began on these lands; and I reflect on the many layers of my own sometimes-contradictory relationship with colonialism, here outlined chronologically. (1) Whether consciously or not, I carry with me the history of oppression and plunder of my Tamil ancestors by British colonial forces, of which I have only been able to hear glimpses of first-hand accounts from my grandparents. (2) I have also inherited the privilege of my ancestry belonging to the Brahmin caste who benefitted from the oppression of 'lower' castes - this likely played a part in facilitating my parents' migration from India to Australia. (3) My existence in the settler-colonial nation of Australia is predicated on the genocide and continuing displacement of the Aboriginal peoples of these lands. (4) I have developed a solidarity against white supremacism due to my personal experiences of prejudice and structural racism as a brown person (imposed and internalised). (5) Last but not least, I recognise the hypocritical nature of my everyday life which relies on unjust local and global systems that operate through oppressive neo-colonial relations.

Abstract

Humans and non-humans alike who make up the Earth Community face challenges of a previously unprecedented level of complexity. This is seen in the interconnected dynamics of the climate crisis, increasing social inequalities and mass extinction of wildlife. Addressing these seemingly intractable social and ecological crises necessitates fundamental shifts in prevailing human systems and sociocultural narratives from anthropocentric to ecocentric. Nascent approaches to designing collaboratively for the emergence of regenerative economics and bioregional governance champion these shifts and can help to develop systemic transition pathways away from dominant neoliberal capitalist economic models.

My doctoral research investigates processes of collaborative design in this context and through a critical design ethnography methodology seeks to creatively unpack the specific qualities of multi-stakeholder design processes that are valuable in facilitating transitions to bioregionally-adapted regenerative economies. The two sites of research that form the basis of this study are Regen Sydney and Coalition of Everyone - both organisations with which I am intimately involved - allowing my undertaking of extended participant observation as an insider researcher. The research hypotheses I am testing in these two sites are informed by preceding professional co-design practice at the Design Innovation Research Centre (DIRC) UTS. The study seeks to identify the transformational value of collaborative design for the emergence of ecological economics in these contexts.

Co-design across these sites of research is entailed by a great diversity of approaches, processes and practices despite being aimed towards similar sociocultural outcomes. Amongst the co-design methodologies drawn from across these sites of research are Transition Design, Frame Creation, DEAL City Portraits and AELA Greenprints. Through this research I continue to study the novel ways in which co-design manifests, including as almagamations of these key approaches, as well as in response to context-specific dynamics such as strategic intent, stakeholder involvement and scales of intervention. This inquiry seeks to reveal the nuances of collective visioning and strategy-building processes that attempt to embed non-human perspectives and relational ontologies into systems of governance to advocate for the development of regenerative socio-material infrastructures and policy.

Coming into being

I wish to situate my emerging path through this doctorate in the histories of my upbringing and personal life experience as they have played a significant role in shaping the types of questions that I ask. (1) The first aspect to fundamentally shape my axiology, ontology and epistemology is the Indian Tamil cultural heritage my parents have endowed upon me. Home life for me included an exposure to ethics and interconnectedness through nondualism, ahimsa (non-violence) and samsara (cyclicality of existence). (2) Secondly, growing up in the Inner West of Sydney moulded me in the image of a particular version of multicultural Australia. In social life and adventures with friends I came to value diversity, secularism, activism and creative expression. (3) The third aspect is an ongoing navigation of my existence as a settler on stolen, unceded Aboriginal lands. I continue to engage with what it means for the land to own me, and what it means to be an ally in the struggle for decolonisation and reconciliation. (4) Lastly, my recent navigation of the world as a person of non-binary gender has challenged me to further unpack essentialist and dualist ways of being in a deeply personal way. I see parallels between this journey of integrating parts of myself and the broader move to dissolve human/non-human separations.

My professional research orientation

I have eight years of co-design experience spread across the Design Innovation Research Centre (DIRC), Regen Sydney and Coalition of Everyone. This has included engaging in numerous social/strategic design projects, working through various stages of participatory research, ideation, prototyping and design development. I have helped to write proposals, facilitated co-design workshops with clients from industry and government, created design artefacts as well as documented research in both traditional and non-traditional outputs such as reports, conferences, websites and exhibitions.

My skillset and outlook have been shaped by participatory design research carried out as a part of project work carried out over this time. Multi-stakeholder collaborations have been valuable processes through which to envision futures and confront tensions in the context of systems complexity. The various projects entailed have required the planning and continual adjustment of participatory design research processes and methods alongside the emergence of increased clarity of project intent. Participants were engaged through iterative design development processes such as site visits, needs analysis, journey mapping, systems mapping, storyboarding, mock-up testing, scenario development and backcasting. Sensemaking and data collection methods have included analysis of themes, interviews, systems maps and artefacts.

In particular, the Frame Creation process and Transition Design approach have been indispensable parts of my collaborative design toolkit (Dorst 2015; Irwin 2015). These two multi-stakeholder collaborative design methodologies offer valuable steps with which to creatively engage with systems complexity. Through their use I have gained great insight into the potential for collaborative design to respond to wicked problems, and have been guided to seek their further investigation in the research context of this doctorate, very much drawing from this experience in holding intentional participatory spaces. With much of my earlier project work at DIRC situated in the social impact, justice and health sectors, this doctorate continues to be a crucible through which I extend and explore the transformational value of strategic collaborative design in ecological economics - engaging with Regen Sydney and Coalition of Everyone as sites of research.

Lastly, I write this document not in the third person but in first person language so that it is an embodiment not of a position of false separation but instead of my critical intersubjectivity with the systems and practices which I am exploring.

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Key terminology

Anthropocentrism

A concept developed by environmental ethicists, anthropocentrism describes the pervasive human-centred worldview that humans are the only bearers of intrinsic value (Kopnina et al. 2018). Anthropocentrism is epitomised by a perceived separation between the human world and the non-human world. In ignoring the essential interconnectedness of the Earth Community, anthropocentrism conceives of the non-human world as a resource for human consumption (Brown 1995; Washington & Maloney 2020).

Bioregionalism

A philosophy and movement calling for reconfigured political and economic systems along with a renewed emphasis on living in reciprocity with local bioregions, their ecosystems and bio-geo-physical realities (Thackara 2019; Wahl 2020a). Local cultures and knowledge are vital to determining bioregional boundaries, as exemplified by the language group regions of First Peoples around Australia. I use this term to pertain to the socio-material cultures, economies and distributed governance processes that enable a reciprocity with local bioregions.

Collaborative design

I use the term collaborative design as a catch-all for various established and emerging multi-stakeholder methodologies that are characterised by a positioning of the designer as a facilitator of creative change processes. Examples of collaborative design include participatory design, co-design, human-centred design, service design, strategic design and **Transition Design**.

Community

A community is a group of people who share one or more things in common including proximity, values, customs or interests (James et al. 2012). In this document I use the term community to refer specifically to groups of humans who have commonalities, interdependencies and ties to a shared geographical locality (Light & Akama 2012).

Cosmopolitan localism

Cosmopolitan localism is a social innovation approach that calls for the formation of nested multiscalar networks of mutually supportive communities (Manzini 2014; Sachs 1999). Ezio Manzini and Gideon Kossoff articulate cosmopolitan localism as an approach characterised by place-based cultures, distributed governance (polycentricity), distributed systems of production and global knowledge networks (Kossoff 2019; Manzini & M'Rithaa 2016; Ostrom 2009).

Democracy

Democracy describes a system of government in which political control is exercised by the people, either directly or through representation (Dryzek 1999; Hollo 2020).

Earth Community

Earth Community describes the interdependent subjects of the Earth including humans and all variety of non-human entities that are entangled as the web of life at various scales (Burdon 2014; Korten 2007; Maloney 2014; Shiva 2006). This terminology captures the diversity of cultures, life forms, biospheres and ecosystems that are in communion with one another (Berry 1999; Gorbachev 2003).

Earth Democracy

The concept Earth Democracy captures the creative and critical self-determination both *by* and *for* the Earth Community (Maloney 2019; Shiva 2006). Earth Democracy is based on the flourishing of vibrant local economies, and the fusing of ecocentric values with deep public participation for self-governance (Burdon 2014).

Ecocentrism

Stemming from the deep ecology movement, ecocentrism is an alternative worldview that emphasises the interconnectedness of all members of our Earth Community. Ecocentrism fundamentally opposes the anthropocentric assumption that human beings are the only entities that possess intrinsic value and are rightful masters of nature (Washington et al. 2017).

Economic localisation

The movement for economic localisation calls for a renewed focus on the local production of essential food, water, energy and materials for human thriving (Hopkins 2008; Norberg-Hodge & Read 2016; Shiva 2006). Momentum for economic localisation draws from both historical examples of localised economies whilst also supporting the emergence of novel circular systems of provision (Diez 2017; Norberg-Hodge 2019).

Governance

Governance includes both the formal and informal rules by which communities and societies shape the qualities of their very existence and emergence (Maloney 2020; Rosenqvist 2017). This includes not only immaterial aspects such as policies and cultural norms but also socio-material practices and technological infrastructures. Through the ever changing landscape of these immaterial and material forces, groups of humans at various scales can creatively and critically self-determine the manner of custodianship and evolution of their societies and ecologies.

Neoliberalism

The term neoliberalism describes an ongoing project of market-oriented economic liberalisation characterised by free-market policy reform, privatisation of public assets and the commons as well as the deregulation of economies to prioritise global trade (Springer, Birch & MacLeavy 2016; Washington & Maloney 2020).

Pluriversality

Pluriversality describes a shared project that strives towards 'a world where many worlds fit' as articulated by the Zapatistas (de la Cadena & Blaser 2018). As an alternative to patriarchal-colonial universality, pluriversality upholds the reciprocal relationality of a multiplicity of ways of world-making (Escobar 2018; Kothari et al. 2019).

Regenerative economics

Regenerative economics is an emerging field of alternative economic approaches, models and metrics that are centred on fostering the wellbeing of all living beings and systems - **Doughnut Economics** is a notable mention. Through regnerative economics, human activity is guided to play a reciprocal role in the web of life, with economic localisation a key factor in enabling these efforts.

1. Setting the research context

1.1. Introduction

Humans and our Earth Community are currently facing challenges of a previously unprecedented level of complexity. The numerous seemingly intractable social and ecological crises are deeply interconnected and require systemic transformations in order to be meaningfully addressed. With the prevailing focus on endless economic growth on a finite planet, the world's societies are doomed to face a maelstrom of global systems failures accompanied by varying levels of local social and ecological devastation (Bendell, 2018; IPBES, 2019; Read and Alexander, 2019; Shiva, 2014; Washington, 2015). Responding to the climate crisis, increasing social inequalities and mass extinction of wildlife necessitates fundamental shifts in our prevailing sociocultural narratives and systems from anthropocentric to ecocentric (Bendell, 2018; Brown, 1995). Despite the pin drop silence of political inaction and the raging cacophony of fake news there are actually numerous emerging practices and systems that eschew prevailing anthropocentric and neoliberal capitalist economies and instead embody pluriversal-ecocentric models for living (Extinction Rebellion 2019; Hopkins 2008).

The regenerative economics movement is one such emerging field which seeks to redirect the economic activity of city-scale regions towards ethical practices and systems which take into account the social and environmental costs of production and consumption, and are suitably localised to bioregional qualities. While there is no single blueprint for the establishment of such economies, numerous community engagement processes are already fostering creative self-determination and the design of context-specific transitions towards bioregionally-adapted regenerative economies. These are the emerging models of an Earth Democracy - a systemic Earth-centred governance - of nested human economies - an expression of cosmopolitan localism (Escobar 2019; Kossoff 2019; Shiva 2005). Through this PhD I am researching the novel collaborative design processes that allow Regen Sydney and Coalition of Everyone to facilitate the development of regenerative transition visions and strategies.

> *Shifting local and regional economies towards increased local production for local consumption will only be achieved in complex multi-stakeholder integration processes with people taking a whole-systems design perspective in a collaborative effort to create regional abundance. Such a transition will require skill, persistence and patience, yet it promises diverse and vibrant regional economies, resilient and thriving communities, and the protection and regeneration of regional bio-cultural diversity (Wahl, 2019b, para. 3).*

1.2. Background

A significant part of my early literature research included explorations of the commons and degrowth. These concepts offer strong theoretical underpinnings for alternatives to neoliberalism (and the cult of individualism) and endless growth economics respectively. I first outline these terms and their influence in shaping my research direction.

1.2.1. Commons and commoning

There are numerous interpretations of what constitutes the commons which range from urban planning framings of public space, economic views around community exchange and mutual aid, open source notions of digital commons, to ideological framings of the commons as the entirety of our planet Earth as a shared reality in need of custodianship (Bollier & Helfrich 2019; Weber 2015). These widely varying definitions are not necessarily at odds with one another and actually exemplify the versatility of the commons as a concept that brings together various disciplines under a cause with united intent. The commons as a conceptualisation of shared natural resources has its roots in European intellectual history where the term was used to refer to agricultural lands and forests (Basu, Jongerden & Ruivnekamp 2017; Bollier 2011). The term itself derives from the English legalese for common land and before that from the Roman legal category 'res communis' for things in common (Basu, Jongerden & Ruivnekamp 2017). Subsequent centuries have seen the drastic privatisation and market enclosure of this 'common wealth'.

Contemporary definition of the commons avoids such a narrow framing of it as a static resource devoid of active engagement or governance structures (Bauwens et al. 2017). Rather, the commons is an active, living process that "is primarily about the social practices of *commoning*" (Bollier 2016, p. 2). The term commoning captures the central role of active participation in the design, creation, governance and management of the commons (Marttila, Botero & Saad-Sulonen 2014). It is this process of participatory collaboration that brings the commons to life and better allows it to permeate our collective social imaginaries (Manzini 2015; Perkins 2019). Commoning is vital to opposing and reversing the forces of neoliberalism, however the commons are not the only domain of the economy that have been devalued through neoliberalism. As regenerative economist Kate Raworth points out, the economic domains of the *commons* and the *household* as well as that of the *state* are increasingly invisible in the face of the *market* (Raworth 2017). Rebuilding an economy that is Earth-centred and balances the value and role of all four of these domains is crucial (Shiva 2005). With this in mind, my research into collaborative design processes will engage with the commons movement (but not exclusively) in attempting to find a healthy dynamic between these four economic domains.

1.2.2. Finding a nuanced framing of degrowth

Degrowth is an economic transition process focused on the Global North, involving the downscaling of production and consumption to engage with ecological limits along with a simultaneous increase in human well-being through egalitarianism (Alexander, 2017). Economic anthropologist Jason Hickel states that degrowth calls for a "fairer distribution of existing resources and the expansion of public goods" (2019, p. 54). Degrowth stands critically opposed to prevailing underlying cultural assumptions that endless economic growth is both possible and necessary for flourishing societies (Kallis et al. 2018). While I fundamentally agree with the subversive stance of degrowth and find it invaluable as a theoretical eco-political foundation for dematerialisation, I believe that other conceptualisations of economic management for social provision and ecological custodianship might better afford clarity and acceptance in Global North transition contexts (Brockington 2020; Michaux 2022). Essentially degrowth as a term has a branding problem in the Global North, and its valuable concepts might be better manifested through alternative words acting as trojan horses.

Examples of such framings include 'prosperity without growth' as explored by Tim Jackson (2016) and the 'growth agnosticism' embodied by the doughnut economic model as developed by Kate Raworth (2017). These terminologies avoid some of the confusion experienced by the layperson as to what exactly degrowth entails – it is not immediately clear to all that the degrowth of economies and their consumption footprints is compatible with other forms of human growth (Raworth 2015). Context-specific collaboration through the alternative framings could be motivated by the underlying need for economic degrowth in articulating which economic sectors and socio-material practices need to be phased out and which need to be embraced - in order to shift towards societies that can flourish symbiotically within the carrying capacity of Earth.

1.3. Research scope

The guiding force of my research is the intention to feed into gathering momentum towards the emergence of an Earth Democracy – a movement that stands for participatory democracy, the commons and justice for all the Earth Community (Brownhill 2010; Shiva 2010). The shifts that my research will explore are (1) from human-nature separation to Earth-centred interconnectedness, (2) from neoliberal globalised economies to cosmopolitan localism and regenerative economics, as well as (3) from monopolised power and deregulated markets to distributed power and collaboratively designed commons.

Figure 1 below depicts my research focus area as a confluence of three domains.

Engaging communities through **collaborative design** processes including collective visioning and strategy building

Facilitating the articulation of needs at various scales between individuals and systems; imagining and prototyping roadmaps to preferable futures

My Earth Democracy research focus area situated at the confluence of these three domains

Provoking a shift towards embodying **Earth-centredness** in communities and institutions to better manage human impact

Integrating the consideration of non-human perspectives and needs into strategic design processes; de-centring the human in the formation of radical interdependence

Catalysing cosmopolitan localism through **regenerative economics** and accounting for social and environmental costs

Encouraging the emergence of circular networks of local provision paired with global knowledge networks; engaging with the carrying capacity of our planet

Figure 1. My research focus area as a confluence of three domains

The literature review in the following chapter is organised into four sections, with each exploring distinct themes. The first (2.1.) further outlines the Earth Democracy framing and introduces the primary principles of the concept. (2.2.) Secondly, I present critical underpinning *worldviews* of Earth Democracy, including those of ecocentrism and pluriversality. The third section (2.3.) is an exploration of the *regenerative economics* of Earth Democracy, primarily with respect to economic localisation, bioregionalism and cosmopolitan

localism. The final section (2.4.) in the literature review is a deep
dive into the dynamics around *collaboration* towards Earth Democracy. Here
I unpack multi-stakeholder design processes and their engagement with
deliberation, ecological limits, non-human perspectives and de-centring
the human.

The authors and themes shown below are the primary sources from which my
theoretical framework has emerged. In the discussions to follow I draw
out the ways in which these authors and themes have shaped my area of
research and navigate aspects of tension in their propositions.
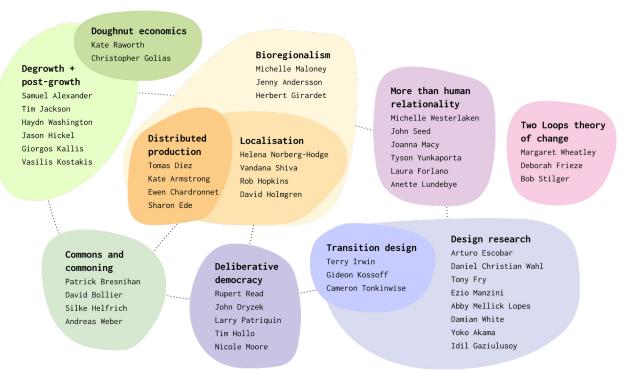
Figure 2. Mapping the literature

2. Literature review

2.1. What is Earth Democracy?

As democratic countries worldwide are challenged by the threat of neoliberal autocracy and there is an increasingly urgent need to transition our societies to regenerative modes of being, numerous approaches offer themselves up as ways to meaningfully engage and empower communities to lead place-based change (Dryzek 1999; Hollo 2020; Hollo 2022; Pettifor 2017). *Earth Democracy* is a term that is used to describe both the process of change-making as well as the ever-evolving destination of a regenerative future. The term attempts to broadly capture the need for (re)establishing societies in which citizens and communities are engaged in processes of creative and critical self-determination that are underpinned by ecocentric ethics – engaged democracies that are geared towards developing regenerative livelihoods and systems that are deeply interconnected with Earth (Brownhill 2010; Burdon 2014; Shiva 2010).

A very similar call to action is expressed through the concept of *Ecological Democracy* which has its own adherents, both academics and practitioners (Hammond, Dryzek & Pickering 2019; Hollo 2020; Hollo 2022). I personally prefer the term Earth Democracy however, as I believe it better conveys a sense that our planet is a living entity. On the other hand, Ecological Democracy errs slightly towards framing Earth merely as sets of ecologies and ecosystem services to be objectified and quantified by humans. In saying this, although both conceptualisations are evocative articulations that coalesce otherwise distributed and disparate actions, they are not comprised of specific methods in and of themselves. They don't prescribe given sets of practices and approaches that work towards their intents as described above. The question then is, what place-based community engagement approaches could help develop a local Earth Democracy?

2.1.1. Principles of Earth Democracy

Vandana Shiva outlines ten principles that capture the essence of Earth Democracy and articulate the motivation for their creation (Shiva 2005). The principles are in effect a guiding manifesto for my evolving research and outline the shapes of relevant worldviews, economies and democracies. The full ten principles can be found in Appendix A; shown below are three of the most relevant principles around which the following three chapters of my literature review have been organised (Shiva 2005, p. 9):

> *2. The Earth Community is a democracy of all life*
>
> *6. Living economies are built on local economies*
>
> *7. Earth democracy is a living democracy*

2.2. Worldviews for Earth Democracy

The Earth Community is a democracy of all life

We are all members of the Earth family, interconnected through the planet's fragile web of life. We all have a duty to live in a manner that protects the Earth's ecological processes, and the rights and welfare of all species and all people. No humans have the right to encroach on the ecological space of other species and other people, or to treat them with cruelty and violence (Shiva 2005, p. 9).

2.2.1. From anthropocentrism to ecocentrism

The 2020 global Living Planet Index shows a staggering 68% average fall in wildlife populations between 1970 and 2016 amid the growing threat of extinction to countless species (WWF 2020). The most significant cause of biodiversity loss across ecosystems is land-use change driven by an increasing human consumption footprint which demands more land for agricultural systems and resource extraction among other things. The sixth mass extinction which is unfolding before our very eyes not only poses a risk to our economies which depend upon Earth's life-support systems but also to the very existence of a rich diversity of life on Earth (IPBES 2019). There is an obvious benefit of human self-interest in conserving wildlife and ecosystems so that we may enable a continuation of human civilisation. However, the non-human world does not exist solely for its service to humanity. To more deeply understand and nurture the relationships that exist between humans and the non-human world it is imperative to reconceptualise our existence through the lens of ecocentrism and to listen to the needs of the other members of our Earth Community.

Prevailing anthropocentric worldviews ignore the essential interconnectedness of the Earth Community. These views are epitomised by humans perceiving themselves as being in the world rather than being of the natural world as well as a perception of the natural world as a resource for human consumption (Brown 1995; Washington & Maloney 2020). Stemming from the deep ecology movement, ecocentrism is an alternative worldview that emphasises the interconnected nature of all members in our Earth Community (Brown 1995). Ecocentric views fundamentally oppose the anthropocentric assumption that human beings are the only entities that possess intrinsic value and are rightful masters of nature. Ecological philosopher Charles Brown identifies that "the challenge for ecological thinking today is to conceptualise humanity's place in the cosmos in a way that recognises humanity's unique potential for cultivating value, without separating humankind from nature in a way that alienates humans from nature" (Brown 1995, p. 200). With a recognition that all members of the Earth Community have intrinsic value, how can the non-human world be given agency in human design processes? Rather than being valued only through reductive quantitative metrics, how could the agency of non-humans also be explored through qualitative processes?

2.2.2. Towards pluriversality

The spirit of mutually engaged relationality is beautifully captured in the Zapatista call for 'a world where many worlds fit' (de la Cadena & Blaser 2018). Removing the veil of human and imperial exceptionalism and acknowledging the many unique and diverse embodiments of existence is crucial in moving towards pluriversality (Escobar 2018). In her doctoral thesis, multispecies interaction designer Michelle Westerlaken conceptualises of a many-world world in which humans engage with the agencies and perspectives held by all members of our Earth Community, whether human or non-human (Westerlaken 2020). Currently, a large proportion of worlds within the many-world world have their very existence dismissed or suppressed by the prevailing forces of anthropocentric-patriarchal-neoliberal-capitalist-modernity (Escobar 2018). Despite this, the many worlds continue to co-emerge "each with their own sets of histories as well as preferable futures" (Skjøtt 2020, para. 7). The diagram below portrays these vital distinctions between a one-world world and a pluriverse.

One-World World

Pluriverse

A one-world world where marginalised humans and non-human entities are given secondary status or are rendered non-existent. They are shown here as passive and without agency or the capacity for world-making. This world is characterised by human-centred modernity.

A pluriverse where all entities have a unique agency, perspective and experience. Bolstering relationality between entities is seen as crucial to sustaining interconnected Earth-centredness. Other worlds and world-making practices are understood and upheld.

Figure 3. A portrayal of the shift from a one-world world to a pluriverse

It is important to note that while ecocentrism is crucial in the pursuit of "equality and justice for humans and non-humans alike" (Forlano 2017, p. 29) - it is fundamentally incompatible with ecofascist ideologies. Ecofascists are not ecocentric as they do not actually embody a belief that all members of the Earth Community have intrinsic value. Rather, they subscribe to hierarchical notions that purport the inferiority of some human communities, whilst still upholding the intrinsic value of the non-human world. To help prevent such co-option of ecological values, endeavours to create cultures of ecocentrism must be underpinned by a

move towards pluriversality. A pluriversal worldview recognises that there is no single version of ecocentrism but rather many co-existing, context-specific varieties. Dismantling and circumventing the power dynamics that structurally silence parts of the Earth Community (both human and non-human) is absolutely necessary to cultivate agency amongst the voiceless. Which of the worlds in the many-world world are currently invisible in the prevailing one-world world of modernity?

2.3. (Regenerative) Economics for Earth Democracy

Living economies are built on local economies

Conservation of the Earth's resources and creation of sustainable and satisfying livelihoods are most caringly, creatively, efficiently and equitably achieved at the local level. Localisation of economies is a social and ecological imperative. Only goods and services that cannot be produced locally - using local resources and local knowledge - should be produced non-locally and traded long distance. Earth Democracy is based on vibrant local economies, which support national and global economies. In Earth Democracy, the global economy does not destroy and crush local economies, nor does it create disposable people. Living economies recognise the creativity of all humans and create spaces for diverse creativities to reach their full potential. Living economies are diverse and decentralised economies (Shiva 2005, p. 10).

2.3.1. Economic localisation

The term economy is derived from the Ancient Greek word 'oikonomia' which translates to 'household management' (Raworth 2017). Viewing the concept of economy through an Earth Democracy lens allows 'household management' to be understood in an expanded sense to facilitate the thriving of all in the Earth Community (Shiva 2005). Vandana Shiva argues that the localisation of economies would see a shift towards the custodianship of the commons. Localisation is a key tenet in moving away from the current commodification of ecologies and livelihoods and in the emergence of regenerative economics.

2.3.1.1. Context

The redesign of communities so that they are economically localised is an idea whose time has truly come due to both mounting **external pressures** as well as **novel socio-material capacities**. The deregulated, extractivist, globalised economies that currently underpin a majority of modern societies are continuing to fuel the rampant externalisation of social and environmental costs – some of the most urgent symptoms of which include the climate crisis, the sixth mass extinction and unprecedented global wealth inequality.

The COVID-19 pandemic has also helped to highlight the ineffectiveness and wastefulness of global production networks that prioritise efficiency over resilience. There has been greater impetus during this pandemic than in any other recent time for communities to provide for many of their own needs through mutual aid and local production supply chains due to the disruption of global supply chains (Russell 2020). It is likely that many societies will be tempted to revert to the status quo of deregulated global supply chains in the name of kickstarting their economies when the pandemic is behind us, however we would be wise to harness this call to resilience to deeply address the aforementioned systemic threats (Lemos 2020).

2.3.1.2. Systems dynamics of localisation

My own attraction to the concept of economically localised communities is informed by my previous explorations of closed loop cycles in permaculture design[1] as well as employing life cycle assessment in industrial design[2] (see footnotes). Underlying these approaches is a systemic view of material flows, human activity and ecological impact which aims to prevent the externalisation of costs as well as to identify opportunities for circularity. The movement for economic localisation also captures this need to internalise social and environmental costs as a response to prevailing neoliberal patterns of production. Over the last few decades and through the abundance of cheap fossil fuels, industrialised economies have become increasingly divorced from the specific resource bases of local bioregions (Girardet 2010; Read 2015). Regenerative systems designer Daniel Christian Wahl points out that corporations "ship raw materials to the other side of the world for processing, simply because labour costs and environmental protection standards [are] low there" (Wahl 2019b, para. 6). Complex neocolonial architectures of policy and trade agreements enact the deregulation of economies for globalised production such as this, whilst conversely strictly regulating various means of local provision (Norberg-Hodge 2016; Norberg-Hodge & Read 2016).

Is it possible to regulate our economies to uphold environmental protection and the value of labour whilst still having a predominantly global trade system? The short answer is partially, but mostly no. Regulating our economies to actually account for the social and environmental costs of global supply chains would likely mean that a large proportion of these patterns of production are unviable in their current incarnation (Andersson 2021). Techno-centric imaginations of the future might envision container ships powered by green hydrogen and an abundance of Fairtrade biomaterials; however, they do not question the underlying culture of consumerism nor the religion of economic growth at all costs.

Advocates for economic localisation do not argue that our societies need to be completely self-sufficient and that global trade needs to be completely abolished; rather the call for action is to mobilise the emergence of resilient communities that can provide for their basic needs through localised, circular supply chains (Hopkins 2008; Norberg-Hodge 2019). There needs to be an ongoing discussion to help define what types of global trade are viable and valuable – whilst centring on economies that are largely defined by local production coupled with a global knowledge commons (Read 2015). Shortening supply chains and localising the production of essential food, water, energy and goods can help to shift us away from throwaway culture towards conscious living within the limits of our one planet – Spaceship Earth (Bleischwitz 2017).

[1] Permaculture is a holistic design system formed at the confluence of ecology, agriculture and landscape architecture (Holmgren 2017). Closed loop systems especially as they pertain to food production aim to form synergies between actors in an ecosystem such that everything is recycled and waste is eliminated by design.

[2] Life cycle assessment in industrial design is a method of analysing the environmental impacts of a product or service across the stages of its entire lifetime including its material extraction, manufacturing, distribution, use and end of life (Golsteijn 2020).

2.3.1.3. More than just material flows

It is much easier to see the impact on other beings and to honour their sovereignty in a localised economy; with deep reconnection to others, and to life itself. Economic localisation helps to catalyse the growing movement for pluriversalist, distributed communities that strive to meet social foundations and ecological limits. This means that plural, vernacular design imaginations will be valued rather than the imposition of homogenous, modernist dreams upon so-called 'developing' and 'developed' communities (Escobar 2018).

The table below outlines two co-evolving socio-material dynamics that are helping to catalyse localised economies - *technical* and *cultural*:

Technical	Cultural
This involves building decentralised local circular economies by analysing material flows and services with the aim of identifying opportunities to form synergistic networks to locally cycle materials, increase resilience and self-sufficiency as well as reduce waste. Shorter supply chains through distributed production reduces reliance on global production networks that externalise social costs onto other communities, whilst also bolstering local producers and manufacturers.	This is primarily to do with bolstering individual and organisational practices of making, repair, sharing and commoning as alternatives to a reliance on passive consumption of goods and entertainment that primarily serves to increase GDP. The lifestyles and infrastructures that tap into a culture of localisation creatively embody the need for communities to slow down, build reciprocal relationships, consume less and live within ecological limits.

2.3.2. Distributed production

The capacity for distributed production coupled with a globally connected network of knowledge sharing turns economic localisation into a paradigm-shifting proposition. With the internet affording the existence of countless online communities for skill sharing and open-source design, the development of local circular economies for food, water, energy and materials is not stifled for innovation as it might have been previously. The Fab City Global Initiative taps into this evolution of distributed production by fashioning a model for self-sufficient neighbourhood building (Diez 2017). Their test case in the neighbourhood of Poblenou in Barcelona shows what it would look like to embody a DIDO (data-in, data-out) model rather than the prevailing PITO (product-in, trash-out) model (Chardonnet 2019). "Fab City focuses on the movement of data, use of local material supply chains and digital fabrication" (Armstrong et al. 2019, p. 13). In some cases, this has cut out the production-consumption supply chain altogether, with citizens supposedly having the ability to collaborate on an open-source design before the product is fabricated in their local makerspace. "For communities to locally produce material goods efficiently, physical products should follow open-source principles similar to the ones applied to the digital commons" (Lemos 2020, p. 172).

Figure 4 below shows the Fab City model for a distributed production ecosystem (Fab City Global Initiative 2016, p. 5):
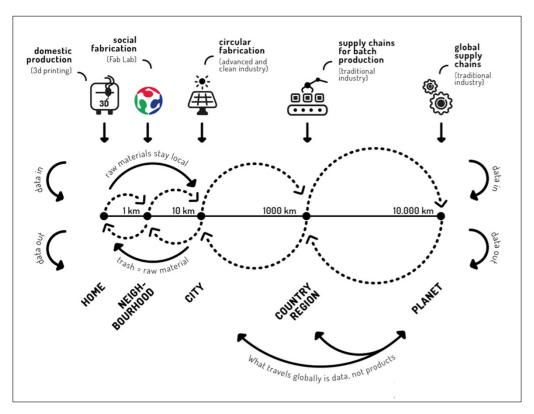

Figure 4. A multiscalar and complementary fabrication ecosystem (Fab City Global Initiative 2016, p. 5)

As depicted above, the various nested scales of distributed production work together to facilitate the development of local, circular economies and global collaboration on innovative methods. Biomaterial production along with thriving repair networks are important complements to makerspaces and distributed production networks in helping to localise our economies. Cultivating cultures of repair as a vital part of local material recirculation can offset industrial material recycling processes that are energy intensive and actually enable a continuation of our throwaway culture.

The challenge is for makerspaces and designers to embrace and develop practices that subvert the prevailing stigma of unfashionableness associated with repair and refurbishment (Crosby & Stein, 2020). Repair needs to become synonymous with design and consumption as an expression of the need to act as custodians of the materials and resources we use. The Bower Reuse and Repair Centre in Sydney is a fantastic example of the growing appreciation of upcycling practices as is seen not only through their individual customers but also their numerous partner organisations and local councils who are looking to challenge consumer culture and 'close their loops'. The emergence of these practices and networks is a step towards systems of local production and consumption, however their economic viability is hindered by poor policy.

2.3.3. Bioregional adaptation

Adding nuance to calls for economic localisation and distributed production, bioregionalists argue for a renewed emphasis on living in reciprocity with local places, their ecosystems and bio-geo-physical realities (Thackara 2019; Wahl 2020a). The emergence of networks of distributed human systems that are contextually situated within their bioregional ecological systems would be a fundamental shift to the way industrial economies are presently organised. Adapting to the bioregional realities of any given place would require communities to have a greater understanding of both the opportunities and limitations present, with which to shape their local economy. Bioregional adaptation of economies could see the emergence of distinct production cultures as they are uniquely fostered by the conditions of each bioregion (Wahl 2020b).

The following map shows the 89 bioregions of the Australian continent, which have been classified based on climate, geomorphology, landform, lithology and characteristic flora and fauna:
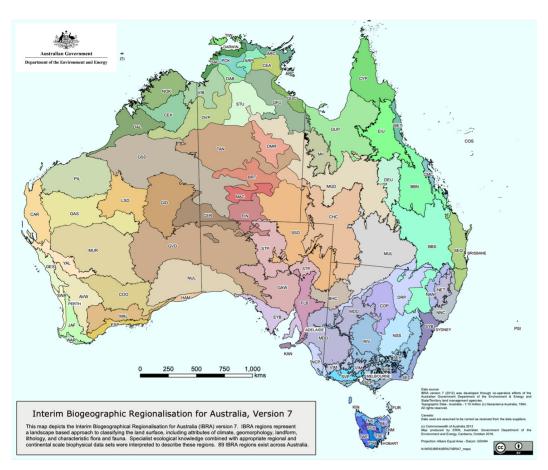

Figure 5. Interim Biogeographic Regionalisation for Australia, Version 7 (ERIN 2016, p. 1)

2.3.3.1. The decolonial imperative

It is important to note that this drive to live in harmony with the qualities of a place is not a new phenomenon and that Aboriginal nations across the Australian continent (like Indigenous communities around the

world) have been underpinned by this for tens of thousands of years, with great understanding of the dynamics of their local ecosystems. Aboriginal knowledge systems, laws and social practices have emerged from reciprocal relationships with Country and an ethos of custodianship. On the contrary, industrial, neocolonial 21st century cities and lifestyles are very much characterised by a homogenous dislocation from place and an illusory disconnection with their ecological support systems. It is imperative that projects aiming to foster regenerative economies on these settler-colonial lands also seek decolonisation. In moving towards bioregional adaptation there is much to learn from First Nations people, but any and all engagement must help to empower Indigenous communities rather than continue a tradition of transactional appropriation.

2.3.3.2. Critique of bioregionalism

There is an important distinction to be made between on the one hand, encouraging community-led economic adaptation to bioregions, and on the other hand an imposition of strict bioregional boundaries upon communities and their economies. The former is an orientation that looks to deeply connect the economy with the ecosystems and bio-geo-physical qualities of a place; the latter not only lacks cognisance of permeable boundary areas and changing bioregional boundaries over time (due to the climate crisis and otherwise) but also in the Australian context, could risk the continuation of colonial erasure of Aboriginal nationhood and regional dynamics. Rather than using the bioregional framework as a top-down solutioning mechanism, it would be preferable to use an understanding of bioregions as but one way to provoke the emergence of regenerative economies that are characteristic of their local ecosystems and bio-geo-physical contexts.

2.3.4. Cosmopolitan localism

Transition designer and social ecologist Gideon Kossoff describes localisation as "the process through which human needs are satisfied within the constraints and opportunities presented by particular bioregions" (2019, p. 54). Kossoff articulates cosmopolitan localism as a concept that strongly aligns with bioregionalism and economic localisation (localism) but also draws from contemporary cosmopolitanism which concerns itself with the co-emergence of cultures on equal terms, as well as the dynamic relation between local and global. Cosmopolitan localism draws from both contemporary cosmopolitanism and localism and does not conceptualise of the two as dichotomies but rather as united in their critique of neoliberal globalisation. Localised economies would be well served by an underpinning approach of cosmopolitan localism so as to avoid the pitfalls of isolationism and protectionism (Manzini & M'Rithaa 2016; Wahl 2020b).

Argentinian philosopher Walter Mignolo describes cosmopolitan localism as a decolonial alternative to the universalist imperial cosmopolitanism that prevails in our globalised world (Mignolo 2011). Mignolo frames the pairing of cosmopolitanism and localism with one another as crucial in the global project of connecting decolonial threads across cultures. In doing so, cosmopolitan localism facilitates the global networking of local expressions of pluriversality. "Cosmopolitan localism is another expression for pluriversality as a global project" (Mignolo 2011, p. 43). Cosmopolitan localism, as a conceptual framing has the paradoxical challenge of simultaneously networking towards shared goals of cultural and economic transformation whilst also upholding and valuing those approaches that are unique, uncommon or peripheral. For these reasons I find cosmopolitan localism an extremely rich concept with which to develop my ongoing research.

2.3.4.1. Multiscalar economics

Advocates of cosmopolitan localism call for the formation of nested networks of mutually supportive communities, with local production complemented by global open-source knowledge and skill sharing. As discussed earlier it is likely unfeasible and undesirable to produce everything that our societies need at the one scale – that of the bioregion or otherwise (Lemos 2020). Alternatively, a multiscalar approach could provide a sound foundation upon which to create thriving place-based communities that engage with ecological limits (White 2021). What can and cannot be produced at each of the household, community, city and bioregional scales? What (if any) global supply chains should exist as long as all social and environmental costs are accounted for? How do societies govern their economies at these different scales?

The questions posed are not theoretical, but rather, they are framings for ongoing research and development that will help to define the balance and dynamics between the different scales. A cosmopolitan localist approach to economic localisation would catalyse a globally connected 'coming home to place' (Wahl 2020a). To quote Kossoff once more, "we do not have to choose between our immediate, geographically proximate community and the larger community of humanity. Indeed, we cannot afford to make this choice: the fate of humanity and planetary ecosystems are inextricably intertwined at the local and global level" (2019, p. 52).

2.4. Collaboration for Earth Democracy

Earth Democracy is a living democracy

Living democracy is based on the democracy of all life and the democracy of everyday life. In living democracies people can influence the decisions over the food we eat, the water we drink, and the health care and education we have. Living democracy grows like a tree, from the bottom up. Earth Democracy is based on local democracy, with local communities - organised on principles of inclusion, diversity, and ecological and social responsibility - having the highest authority on decisions related to the environment and natural resources and to the sustenance and livelihoods of people. Authority is delegated to more distant levels of governments on the principle of subsidiarity. Self-rule and self-governance is the foundation of Earth Democracy (Shiva 2005, p. 10).

2.4.1. Distributed governance

Governance plays a key role in catalysing regenerative economies through its ability to shape both policy and socio-material interventions. Legislative and regulatory reform has the power to stifle or to catalyse the transition to regenerative economies. However governance should not be understood in limited terms and conflated with the word government; instead, governance can be broadly defined as both formal and informal mechanisms of self-determination. Localised decision-making aims to bring increased economic self-determination to citizens and communities, through processes that are guided by collectively-developed context-specific strategic visions (Carlisle & Gruby 2017; Shiva 2005). There is no one-size-fits-all model or blueprint for what a regenerative economy looks like in any given bioregion (Liaros 2019). Rather, the opportunity lies in forming a deeper understanding of local bioregions in conjunction with the dynamics of meeting human needs.

This ongoing process of realigning the activities of a community to the qualities of its local bioregions requires the input of diverse perspectives from across traditional disciplinary silos – hence the necessity for participatory multi-stakeholder governance (Dietz, Ostrom & Stern 2003). Multi-stakeholder governance taking place in a distributed manner would provide the means for a diversity citizens and experts to directly shape their local economies. The term *polycentricity* captures this notion of distributed governance that is characterised by multiple semiautonomous centres of decision-making (Carlisle & Gruby 2017; Ostrom 2009). Polycentric systems of governance are nested at various scales e.g., local, state and federal in a way that is reminiscent of the cosmopolitan localist notion of nested scales of production. The purpose of drawing this comparison between cosmopolitan localism and polycentricity here is to note that the collaborative exploration of Earth-centred economies (my research focus) can and should feed into policy reform, complementary to its focus on socio-material systems.

2.4.1.1. The neighbourhood scale and local councils

The emergence of forums that facilitate greater citizen and community engagement is crucial in the development of a networked polycentric governance system. The neighbourhood scale and local councils are suitable for projects attempting economic localisation and citizen-engagement for a multitude of reasons (Mocca 2019). The larger scales of federal and state government have shown in recent times their disconnect from community needs, corruption due to corporate interests as well as an inability to act on polarising issues such as the climate crisis and burgeoning wealth inequality (Maloney 2017). Local councils do not experience this problem of community disconnect in the same way, partly because in the Australian context they are not as politicised as the larger scales of government. Citizen participation in the larger, centralised structures of government is difficult to facilitate and piecemeal at best (Mocca 2019). On the other hand, local councils often already have well established processes for community input into strategic visions, service provision and urban development proposals (Totten et al. 2021). While the opportunites for community engagement are not perfect, there are also plenty of local councils nationwide that are eager to experiment with emerging processes of collaborative design and deliberative democracy (Moore 2019).

Local councils do not have the same policy reach as the state and federal governments however they do have the ability to experiment with ideas emerging from the sub-local scale (Mocca 2019; Totten et al. 2021). Ecovillages, Transition Towns and other similar experiments that prototype ecological economies offer a wealth of insights for exploration at the local council scale. Eco-communities such as these attempt to adopt low impact lifestyles and self-reliance for the provision of food, water, energy and materials for their relatively small populations (Alexander & Gleeson 2019). Local councils are in a unique position to act as enablers for the scaling out of such regnerative systems and practices with some Local Government Areas (LGAs) in the Greater Sydney region having upwards of 300,000 constituents. Local councils have the potential to actively support community self-determination towards a regenerative economy that harnesses this upswell from eco-communities - in a manner that includes a diverse range of local organisations, networks and sectors in the process (Jackson 2015; Regen Melbourne 2021).

2.4.2. Comparing design and deliberation

Collaborative design and deliberative engagements both offer forums in which governance of local economies can emerge. In this section I will explore these two evolving sets of distinct yet complementary approaches to community engagement. Both of these modes of facilitating participatory forums aim for the development of change strategies and pathways by synthesising and navigating diverse points of view. The two

approaches are increasingly being used in response to the inaction of centralised power structures to address various wicked problems. This is evidenced by the countless collaborative design workshops held by Transition Towns communities as well as the establishment of numerous deliberative citizens' assemblies as championed by the demands of Extinction Rebellion (Hollo 2020; Hopkins 2008). A better understanding of how the two approaches are similar yet different can help to highlight their complementary value. Some aspects to explore include the historical evolution of each approach, their intents, processes and focus as well as the role of participants (Moore 2019).

2.4.2.1. Historical evolution

The tradition from which deliberative engagements have emerged places an emphasis on the rights of diverse individuals to have their voices heard. Although earlier forms of deliberative engagement were motivated by educated political elites looking to protect their interests from the 'will of the masses', they have evolved into instead prioritising the broader common good of societies. Deliberative engagements aim for a truer representation of communities often by using *sortition* to better demographically represent communities in assembly processes – something quite essential considering the skewed representation seen in many federal political arenas as well as their corruption by corporate financial interference (Carson & Elstub 2019).

In contrast to this historical motivation for upholding individual rights in deliberative engagements, collaborative design has evolved quite differently from collectivist ideals. Varied manifestations including participatory design, human-centred design and service design have all sought to empower workers, end-users and disaffected communities in the face of top-down, expert-led design for social, technological and infrastructural interventions. These multi-disciplinary approaches have allowed for an increasing focus on meeting the needs of people through context-specific design interventions, but only when they are community-owned processes that are inclusive and confront implicit power structures (Costanza-Chock 2020). "By involving workers in the design of workplace solutions, the roots of [collaborative design] are firmly embedded in a collectivist rather than an individualist orientation" (Moore 2019, 17). As a result of their evolution, both collaborative design and deliberative engagements can be oriented to be acutely aware of systemic power dynamics and strive towards inclusion and equality.

2.4.2.2. Intent, process and focus

Collaborative design methods often involve extended explorations into a community's problem context, the diverse needs of stakeholders and inherent tensions as part of "an ongoing project of socio-technical

change" (Tonkinwise 2016). Rather than jumping straight to 'solutioning', spending more time understanding the nature of a wicked social problem can lead communities (and design facilitators) to reframe the problem - in a way that captures its context-specific complexities and better allows a holistic and networked response (Dorst 2015). Methods such as multi-stakeholder journey mapping, persona building, collective visioning and iterative prototyping help to manifest a creative, empathetic and emergent process. A particular focus on the socio-material world means that this approach lends itself well to the design and implementation of services and systems (Moore 2019).

Deliberative engagements by their very structured format are more critical in exploring the details of preferences that exist within a group of participants. Deeply embedded in deliberative processes is an intent to enhance legitimacy and impartiality through reasoned discussion in order to be able to justify decisions made (Ercan & Dryzek 2015; Moore 2019). In response to certain questions or focus areas, a cross section of society participates together in rationally studying the options available, including through directly questioning experts (Carson & Elstub 2019). Deliberative engagements aim to reinvigorate trust in politics and governance systems at a time when prevailing modes of centralised representation are alienating and undemocratic (Renwick 2017). Non-coercive and reflective discussions held during deliberations are adept in dealing with otherwise highly divisive or highly politicised issues such as same-sex marriage and decarbonisation. The clearly framed and in-depth decision-making processes of deliberations have much potential to redirect policy, governance and politics (Patriquin 2019).

2.4.2.3. The role of participants

Both collaborative design and deliberative engagement approaches are underpinned by an ideology of plurality and attempt not to aim for full consensus but rather the formation of plural agreements that accommodate a diverse range of sometimes conflicting needs and experiences (Moore 2019). Ongoing movements for decoloniality are aligned with this need to acknowledge and value difference over homogeneity - as revolutionary design theorist Tony Fry puts it "while the planet is singular, world is plural - for it is formed and seen in difference - as are we" (2015, 21). More nascent forms of collaborative design such as Transition Design and regenerative design even attempt to give voice to non-human and non-living actors in order to transform design interventions from anthropocentric into ecocentric (as explored further in section 3.4.3.3). Compared to conventional multi-stakeholder needs analyses this process works to further expand the circle of empathy through which participants reframe their collective understanding and take account of otherwise externalised impacts.

While collaborative design embraces participants as subjective community members with particular context-specific needs and experiences, deliberative engagements frame them as citizens with the capacity to reason, deliberate and have their minds changed through discussion. In a setting where participants largely reflect the demographics of the society that they are from, time is allocated for diverse viewpoints and offerings of reasoned dissent (Ercan & Dryzek 2015; Patriquin 2019). Deliberative engagements vary in duration, from a few hours to many days long, and participants have the opportunity to call for more information or demand clarification on various issues whenever needed. Participants are encouraged to critically deliberate on complex social issues, and it is often useful to include "an extensive learning phase prior to contemplation of collective decision" (Dryzek 2011, 37). Although voting ensures that all participants' views on a matter are valuable, invited expert witnesses do play a key role in broadening and shaping the opinions and viewpoints considered. The similarities and differences in the two approaches are depicted below.
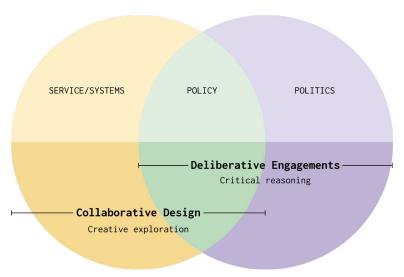

Figure 6. Defining spaces between collaborative design and deliberative engagements [adapted] (Moore 2019, p. 2)

To challenge the inertia of prevailing structural power dynamics it does not suffice for these platforms to be facilitated through the guise of neutrality. Rather than seeing facilitators and participants as discrete entities capable of isolation, it is imperative to frame them as intersubjective beings who are a part of interconnected systems. Having a clear stance as a facilitator can help to support honest deliberation and further establish trust amongst participants whilst still guiding open, respectful and empathetic discussions.

2.4.2.4. The complementarity of the approaches

There is no one-size-fits-all model for the types of Earth Democracy that could manifest itself in any given place but rather communities need to be given the platforms necessary to manifest their preferred futures

through both creative exploration and critical reasoning (Hammond, Dryzek & Pickering 2019). Both approaches described above have a huge deal of commonality and complementarity as they seek social impact through differing socio-material and political avenues. The practise of these approaches can play an important role in actively bringing Earth Democracies to life by harnessing the power of community voices to help transition our societies towards regenerative futures (Hammond, Dryzek & Pickering 2019; Hollo 2020). A structural challenge that the approaches must rise up to is to continue ask *whose voices are not being heard*, whether that means marginalised peoples or non-human entities. How do we 'bring into being' an Earth Democracy by developing deeply reciprocal relationships with the larger Earth Community? (Escobar 2018).

2.4.3. Engaging with ecological limits

In this section I will explore two specific organisations and their collaborative processes - the Australian Earth Laws Alliance (AELA) Greenprints model and the Doughnut Economics Action Lab (DEAL) City Portraits methodology. Both of these initiatives have distinct intentions and tools with which they attempt to catalyse action for our societies to meet ecological limits.

2.4.3.1. AELA Greenprints

The AELA Greenprints approach intends to move society to an ecocentric underpinning and defines bioregionalism as a core objective in actively engaging with ecological limits. Lawyer and national convenor of AELA Michelle Maloney describes Greenprints as an alternative to an "anthropocentric, 'top down', pro-growth governance system [instead building] ecological governance approaches that are uniquely suitable for the Australian continent" (Maloney 2020, p. 314). Laws and governance designed through this approach could help to redirect human activity towards localised economies that respect and contribute towards the regenerative capacity of the ecological world (AELA 2016). Greenprints attempts to facilitate this by building community literacy of planetary boundaries and ecological limits, analysing local human activity as well as developing subsequent transition strategies and scenarios.

In developing pathways to regenerative economies, the approach draws from numerous established methods including but not limited to Ecological Footprint analysis, One Planet Living tools and Doughnut Economics. The approach has a clear intent to encourage practices of reduced production and consumption in line with Earth's regenerative capacity as well as a centring of Aboriginal laws and knowledge systems in the development of governance for local community economies. The guiding framework of the eight Greenprints steps outlines the intent of each part of this rich community-owned process, with scenario development towards the

end leading to recommendations for law reform (Maloney 2020). It would be valuable to more tangibly appreciate how the various steps manifest in context through the Greenprints framework - conversations with Greenprints practitioners and explorations of the Greenprints Handbook (in development) might go some way to elicit further understanding.

2.4.3.2. DEAL City Portraits

The Doughnut Economics Action Lab (DEAL) City Portraits methodology takes a different approach which is not focused solely on local economies but also on the global implications of local human activity. The City Portraits tools and methods do not explicitly argue for economic localisation or Earth-centred cultures but rather they strive to account for impacts across four domains: local-social, local-ecological, global-social and global-ecological. The two local domains place an emphasis on the creation of thriving and regenerative local economies which is very much aligned with a move towards bioregional economies. The two complementary global domains seek to address the impacts of global supply chains and the externalisation of costs associated with prevailing cultures of overconsumption. These aspects are crucial mechanisms to help create accountable global relations especially when considering that our economies might not be localised in their entirety. In saying this, a clearer articulation of the global impacts of our supply chains, for example, ecological devastation through raw material extraction or oppressive labour conditions, could itself drive a move towards cosmopolitan localism. The City Portraits approach is broad and necessitates a diverse multi-stakeholder involvement to help ground the process in place. Varied outcomes can develop from this methodology including socio-material interventions and the formation of circular networks along with proposals for reformed governance.

2.4.3.3. Situating the need for qualitative approaches

Quantitative approaches to measuring biodiversity and ecosystem services are crucial to developing regulatory and socio-material responses however it is important to note that they only articulate a limited aspect of human impact on the non-human world. In striving for a holistic understanding of human impact, suitable *empirical qualitative* approaches must also be harnessed (Golias 2019; Wahl 2019a). It would help to identify which aspects of the environment and which marginalised voices have been left out of the conversation due to the narrow focus necessitated by quantifiable measurement. In the case of the climate crisis, a narrow focus on CO_2 emissions has betrayed any attention given to the plight of non-humans through global heating. Those voices left out of the conversation must not merely be brought into the mainstream frame of reference, but rather, we must 'go to them' to understand the situation from their perspectives (Dartington Trust 2020). Shortening the

distance of cognitive separation between humans and the non-human world is important in dismantling extractivist mindsets - processes that help to empower our sense of interconnection can catalyse more radical visions for human economic activity. These types of paradigm shifting activities are complementary catalysts to the quantitative redesign of our societal practices and infrastructures.

> *"While a perspective that takes into account the rights and needs of individual species does not address the interdependencies of whole ecosystems, developing ethics and a sensitivity for individual members of other species could be one way to move beyond a human-centered perspective" (Clarke et al. 2019, p. 61).*

The DEAL City Portraits collaborative model engages with the non-human world through numerous criteria articulated together as the ecological ceiling (Thriving Cities Initiative 2020). The ecological ceiling includes such aspects as climate change, biodiversity loss, land conversion and freshwater withdrawals which are based on planetary boundaries defined by Earth systems scientists as a framework for "estimating a safe operating space for humanity with respect to the functioning of the Earth System" (Rockström et al. 2009, p. 2). A key word in this definition is *estimating* which points to the dynamic and incomplete nature of setting (interconnected) planetary boundaries which are themselves based on "normative judgments of how societies choose to deal with risk and uncertainty" (Rockström et al. 2009, p. 3). The planetary boundaries should not be seen as a strict quantitative formula for managing human activity but rather as a useful tool with which to begin to estimate and reshape our intention and presence on the planet (Brockington 2020; Cooke, West & Boonstra 2016; Montoya et al. 2018).

The very premise of establishing a safe operating space based on the planetary boundaries is to avoid the catastrophic destabilisation of the identified parameters of Earth systems (Steffen et al. 2015). While this forms a *bare minimum* ceiling within which to reshape human activity, it calls for complementary processes that can help to develop regenerative strategies for *thriving Earth communities*. With this critique in mind, the doughnut economic model can be seen as a valuable but still partially anthropocentric framework that centres on thriving *human* communities and a bare minimum engagement with Earth systems impact. A deeper engagement with non-human needs is required if human activity is to be reshaped in such a way that the non-human world is not merely permitted to survive in the shadows of human societies but to actually regenerate and thrive in its own right. What would a City Portrait model look like if it was de-centred from the human, and embraced explorations of non-human needs? Anthropologist and UX researcher Chris Golias calls for "multi-species ethnography" to help doughnut economics collaborations better "locate the features of human activity in the natural realm, not just the cultural

one" (2019, p. 15). Engaging with the needs of the non-human world in both a quantitative and qualitative manner would provide a richer set of opportunities from which to build reciprocal relationships and a regenerative human presence.

2.4.4. Non-human representation

2.4.4.1. Learning from the Council of All Beings

"Deep ecology recognises that nothing short of a total revolution in consciousness will be of lasting use in preserving the life support systems of our planet" (Seed et al. 1988, p. 9). The Council of All Beings is a ritualistic manifestation of deep ecology ideologies into a forum that encourages a collective understanding of ecological interconnectedness beyond only the cognitive. Participants each take on a persona from the non-human world whether that is an animal, plant, mountain or otherwise and channel their wants, needs and experience. This powerful group setting can expand the way we empathise with the non-human world and can allow us to "hear within us the sounds of the Earth crying" as phrased beautifully by Vietnamese Zen Master Thich Nhat Hanh (Seed et al. 1988, p. 7). The Council of All Beings process leads participants to an expanded recognition of non-human existence which is subsequently integrated into their own beliefs and plans for action. Connecting deeply with the experiences of the non-human world is not to deny or delegitimise the experiences of humans but rather to re-situate humanity as one member amongst many in pluriversal Earth communities – a revolutionary act in this time considering that our societies fundamentally embody a human-nature separation.

The Council of All Beings process could be considered an example of **_ontological design_** in the way that participants are actively encouraged through a workshop to reshape their understanding of lived realities through an expanded Earth-consciousness (Escobar 2018; Lopes 2017; Willis 2006). Design theorist Tony Fry describes ontological designing as a critical application of design (both material and immaterial) such that human "modes of being in the world" are in turn redesigned and the "character of the worlds themselves" are redirected (Fry 2009, p. 252). This seems to capture the spirit of the Council of All Beings process which is very effectively focused on eliciting personal growth and inner transformations towards an ecocentric shift in participants' worlds. The development of reciprocal relationships is co-dependent on the emergence of relational ontologies that place humans in dynamic concert with the web of life (Yunkaporta & Shillingsworth 2020). There is a small amount of time allocated towards the end of the Council of All Beings workshop format in which participants reflect and discuss their intended "work for the planet", though there are no formalised visioning exercises (Seed et al. 1988, p. 116). The collaboration between participants in

crafting collective strategies might not be appropriate in the Council of All Beings setting, however I find it a worthy proposition to explore processes that could simultaneously help to manifest an Earth-consciousness as well as engage people in prototyping futures.

2.4.4.2. Non-human perspectives in multi-stakeholder collaboration

Collaborative design workshops act as crucibles within which participants can experiment with new forms of relations, social practices and worldviews. The iterative and emergent nature of facilitated design forums can help to foster both shifts in individual perspectives as well as the development of shared visions that might not otherwise have been articulated. The challenge is to form revelatory processes of engagement that draw from a strong bedrock of Earth-consciousness and shed the baggage of anthropocentrism. How can we better channel and connect with the experiences of non-human entities? Prototypes of collective visions that engage deeply with *non-human agency* could act as provocations that expand the sphere of progressive civic discourse to explore what it means to thrive symbiotically (Forlano 2016). This acknowledgement of non-human agency is not to say that entities such as a river system have sentient free will, but rather that they have intrinsic value and patterns of existence outside of their usefulness to humans. This is akin to the intent of 'reading the landscape' – a practice through which permaculture designers carefully observe the processes of nature (both human and non-human) with the intent of working symbiotically (Holmgren 2017). Rather than perpetuating the belief that non-humans are merely passive recipients of the consequences of human action, collaborative design processes can do much better to embody the spirit of non-human agency.

Veselova and Gaziulusoy are two design researchers at Aalto University, Finland who analyse how different types of non-human involvement could manifest in participatory design (Veselova & Gaziulusoy 2019). The authors suggest that directly involving the non-human world in participatory design is difficult and only possible with certain members of the Earth Community such as mammals (Westerlaken 2020). Rather, it might be preferable to indirectly involve non-human perspectives through proxy representation that is coupled with investigation and deep listening. "Non-humans are likely to have particular perspectives and experiences of the world that are unimaginable for humans or other non-humans" (Veselova and Gaziulusoy 2019, p. 1579). Clearly one of the biggest hurdles for non-human representation whether direct or indirect is that of communication – a challenge that exemplifies that it is not only the actual input of non-human perspectives that can be valuable but that even the very act of continually recognising non-human agency in collaborative forums can be paradigm-shifting.

2.4.4.3. Non-human representation in Transition Design

The Transition Design process attempts to facilitate expansive systems thinking by engaging with the interaction between global and local dynamics (spatial), long time horizons (temporal) as well as diverse stakeholder perspectives including those of the non-human world (empathic). Non-human representation in the Transition Design process is primarily contained in the multi-stakeholder mapping step (Irwin & Kossoff 2017). This step facilitates an exploration of the fears and hopes of non-human, non-living and human stakeholders in order to gain a greater understanding of the relationships between stakeholders and the problem context. Through this process the nature of both affinity and conflictual relations between stakeholders come to the fore. Listening to and channelling the perspectives of the non-human world in this way can help us to both expand our understanding of the impacts of business as usual (current state), as well as to open up opportunities for regenerative interventions (future state).

While this is a valiant nascent effort to bring a sense of agency to non-humans within the longer time horizons of Transition Design project contexts it would be great to further integrate non-human perspectives throughout later steps in the collaborative process. Anthropologist Arturo Escobar suggests that Transition Design needs to more actively move away from "sheltering modernist commitments" to anthropocentrism, individuality and human-nature separation (2018, p. 208). It should go without saying that Transition Design (and strategic design) projects have their problem framings largely directed according to any funding organisations involved, however this should not preclude a call to hasten the facilitation of intersubjective and interdependent Earth communities. There is room here to more deeply consider non-human perspectives during goal setting both before project commencement as well as whilst conducting problem reframing (Veselova & Gaziulusoy 2019). It is vital that non-human perspectives are elicited not only such that shifts in worldview and discourse might take place but also to engage with the structural transformations needed to meet ecological limits.

> *"In emphasising the interdependence of all beings, transition visions bring to the fore one of the crucial imperatives of our time: the need to reconnect with each other and with the nonhuman world. The localisation of food, energy, and the economy is seen as essential for the transitions" (Escobar 2018, p. 151).*

2.4.4.4. (Radically) de-centring the human

We need tools and methods through which to *listen* to the non-human world – not only to measure non-human needs but to be receptive to non-human agency so that we may reshape human presence in co-existence with rest of the ecological world (Forlano 2016). Design researcher and director of Critical Futures Lab, Laura Forlano makes the following incisive comment

about the significance of de-centring the human - "non-anthropocentric design could radically shift our experience of the world and allow us to dramatically re-evaluate our 'needs' and, instead, find pathways toward asking the right questions of corporations, governments, and of ourselves as designers. Designers who consider the non-human might find themselves reorganising entire social and environmental systems" (Forlano 2016, p. 50). I emphasise here that to de-centre the human does not act to diminish human potential but rather to resituate it in the context of intersubjectivity and interconnection with non-human worlds (Forlano 2017; Smith, Bardzell, S. & Bardzell, J. 2017). To consider not only the agency of humans but also that of non-human worlds starts to blur the boundaries of separation and shape reciprocal relationships with the rest of the Earth Community (Escobar 2019).

2.4.4.5. Tuning in to qualities of relationality

Exploring manifestations of radical interdependence by de-centring the human in design processes can not only be achieved by drawing out non-human perspectives, but also by tuning in to qualities of relationality that exists between co-emergent worlds in the many-world world (Escobar 2019). Escobar postulates in his book the importance of considering "how the designers' understanding of humans and worlds changes when all kinds of non-humans, and the heterogeneous assemblages of life they bring into existence, are brought into the picture" (2018, p. 125). Political ecologist Patrick Bresnihan articulates the concept of the 'more-than-human commons' as an entangled many-world world in which humans and non-humans are subjects who are tied together "within a mesh of reciprocal relations that must be negotiated" (2015, p. 13). David Bollier and Silke Helfrich, activist scholars in the commons call this a "differentiated relational ontology" and compare it to the way that the pluriverse is described by Escobar (2019). De-centring the human draws from these diverse discourses and allows for an appreciation of our shared commons as well as facilitating the cultivation of active custodianship of the quality of relationality that exists between humans and non-humans (de la Bellacasa 2012; Weber 2015; Yunkaporta & Shillingsworth 2020).

It is imperative that human individuals, communities and systems are able to incorporate the needs of the non-human world into their being. Attempting to connect with non-human experience calls for a sensitivity to their agency, form and senses such that we may gain an understanding of their world-making practices (Forlano 2016; Westerlaken 2020). Feminist scholar Donna Haraway evocatively captures this need for relationality through her description of sympoiesis (making-with) - "sympoiesis is a carrier bag for ongoingness, a yoke for becoming-with, for staying with the trouble of inheriting the damages and achievements of colonial and postcolonial naturalcultural histories in telling the tale of still possible recuperation" (Haraway 2016, p. 125).

2.4.5. Earth-centred economic governance

The three primary multi-stakeholder collaborative processes introduced and discussed in the literature review - Transition Design, City Portraits and Greenprints - each have their own mechanisms through which humans are de-centred, and participants are facilitated to engage with ecological limits and the needs of the Earth Community. They each also have diverse frameworks through which to unveil the needs and thresholds present in a community - the navigation of which is vital to articulate visions and strategies to shape a regenerative economy that meets those needs. It is a creative exploration of the nuanced interplay between *needs* and *thresholds* (both human and non-human) that is at the very core of collaborating towards cosmopolitan localism and Earth Democracy. Needs describe what entities require for their thriving; thresholds are the bare minimum limits that might be impingined upon by interconnected needs (e.g., social foundations, ecological ceilings).

My initial explorations of the three aforementioned approaches have revealed to me some mechanisms by which their application is aimed towards regenerative economics and bioregional governance. The nature of these three processes is that they offer the potential to better focus visions and strategies on localisation, accountabilty in governance and de-centring the human towards relational ontologies. There is a clear and urgent need to catalyse an Earth Democracy - through the emergence of an economics of cosmopolitan localism along with creative community self-determination that is grounded in Earth-centredness. Through my literature review I have explored the nuances of these concepts, and have gleaned that there are numerous precedent collaborative processes that feed into this mammoth challenge.

4. Research design

4.1. Research focus

4.1.1. Introduction

A significant insight that has helped to shape the scope of my proposed research has come out of my literature research – an understanding that there is no single blueprint for how cosmopolitan localism could manifest in a community, but rather that it must emerge in context through citizen participation. I initially intended to find and apply in the Sydney context an appropriate model drawn from insights into the dynamics of small-scale pioneers such as Transition Towns and ecovillages. Attempting to move larger urban scales towards ecological economies cannot simply involve transposing these dynamics due to the greater complexity of their interdependencies as well as the need for context- and stakeholder-specific engagement. In light of this, it became imperative for my research to investigate the key potential of collaborative processes as tools to enable the emergence of regenerative economies.

A second imporant shift in my research focus area pertains to the manner in which I explore co-design through field research. My earlier approach looked to analyse and test co-design processes in participatory forums that were entirely curated by me as a participatory action researcher. Whilst this would have given me greater control over the specific instances of co-design applied and tested, it ultimately would have proven to be an isolated exploration devoid of deep contextual relevance. The evolution of my research design in this regard situates the emergent contexts of Regen Sydney and Coalition of Everyone as two discrete sites within which to understand and analyse the nuanced manifestation of co-design - as it serves the goals of regenerative economics and bioregional governance respectively.

The organising teams at both Regen Sydney and Coalition of Everyone continue to conduct various instances of novel co-design processes, drawing from a range of approaches including Transition Design, Doughnut Economics and Greenprints. Through my research I aim to harness my role as a team member in both of these organisations to study the co-design processes being developed and used. I conduct this qualitative research (1) from a post-constructivist paradigm, (2) as an insider research, (3) using a critical design ethnography methodology, (4) with participant observation data collection methods, and (5) supplemented by subsequent expert interviews.

4.1.2. Research questions

Engaging with the three primary domains of exploration outlined earlier
- collaborative design, regenerative economics and Earth-centredness - my
research seeks to investigate the following questions:

**What kinds of co-design best enable transitions to bioregionally-adapted
regenerative economies?**
- What processes help to collectively articulate place-based visions and
  strategies?
- What processes encourage an emergent engagement with the
  interconnected needs and thresholds of all Earth citizens?

4.2. Research paradigm

I approach this research from a participatory, post-constructivist paradigm underpinned by a pluriversal relational ontology that assumes that there are numerous co-existing views of regenerative systems change that each arise from their unique contexts of interconnectedness (Knol 2011). Exploring the nature of regenerative systems change through participatory processes is key to revealing marginal professional and lived experience perspectives, understanding power dynamics and navigating through the social complexities present in this inherently transdisciplinary research context. Not all participatory research is transdisciplinary, but my investigations seek this orientation through holistic systems approaches that integrate the diverse views of individuals and citizens towards a social purpose (Bijl-Brouwer 2018; Bijl-Brouwer & Malcolm 2020). Daniel Christian Wahl captures this intent succinctly – "designers have to shift into the role of facilitators of social transformation by enabling transdisciplinary dialogue and widespread citizens participation in the co-visioning and co-design of our collective future" (2016, para. 20).

4.2.1. A post-constructivist philosophy

Harnessing a post-constructivist philosophy, I have the ability to move past the dichotomy between social constructivist and realism, as well as to recognise that the complex interconnections between social interactions and material reality are of interest in my study (Acreman 2014; Knol 2011). This philosophy holds that meaning is co-produced through social interactions that are situated in the context of a material reality (Knol 2011). Through my research I intend to study both the objects, materials and artefacts of co-design as well as the patterns of meanings emerging through the social interactions involved (Lippert, Krause & Hartmann 2015). Various aspects of co-design, including workshops, strategies, reports, diagrams, infographics, maps, roadmaps are all hybrid arrangements of both material reality and social interactions, and call for a systemic paradigm such as that offered by post-constructivism.

4.2.2. Positioning as an insider researcher

The post-constructivist, qualitative and participatory nature of my research calls for a position other than that of positivist, objective data collection. As a co-design team member in aboth sites of field research (Regen Sydney & Coalition of Everyone), I embrace the position of insider researcher such that I can harness my unique position within the context of my professional practice (Costley, Elliot & Gibbs 2010). As an insider researcher I will be able to continue to deeply engage with my colleagues on ongoing co-design programmes, while seeking to harness research methods that suitably capture the complexity and messiness of my area of focus – the discursive and transdisciplinary forums of co-design (specifically those that enable transitions to bioregionally-

adapted regenerative economies). As an insider researcher I will be able to deeply engage with participant-colleagues and aim to critically inform our shared collaborative design practices. This position will also better allow observation and analysis of co-design processes which are place-specific and responsive to the professional expertise of participants.

A challenge to taking up this position of insider researcher is in analysing and synthesising the research findings - it can be difficult to separate my experiences from those of participants (Finefter-Rosenbluh 2017). Finefter-Rosenbluh suggests that an effective technique to avoid conflation is for the insider researcher to separately (1) anchor their own perspectives and (2) dissect the perspectives of others. Other criticism about and insider researcher position includes its subjectivity, lack of impartiality and vested interest in the study (Costley, Elliot & Gibbs 2010). Instances of co-design must therefore be documented with transparency and attempt to find a balance between rigidity and flexibility in their structure in order to allow for emergent research potential as well as clearly definable insights. The messiness and sometimes conflictual nature of participatory design research can be delicate to facilitate, however these qualities can also be very fruitful when ethically navigated. Simultaneously holding and taking part in participatory spaces with critical reflexivity means that I will better be able to challenge my own assumptions and to nurture the conditions for an evolving research practice that stays accountable to the other participants involved.

4.2.3. A critical design ethnography methodology

Barab et al. (2004, p. 254) describe critical design ethnography (CDE) as "an ethnographic process involving participatory design work aimed at transforming a local context while producing an instructional design that can be used in multiple contexts". Researchers employing this methodology could be seen as agents of change similar to those using participatory action research (PAR), however with a key difference that with CDE, researchers seek to provide insights for scaling out application into other contexts with local considerations (Reason 2004).

The participatory methods of CDE, primarily involving participant observation, workshops and interviews are suitable to answer my research questions as through these I will be able to make value judgements about the nature of collaboration, with the subjective processes of co-design revealing implicit power imbalances, unheard voices etc. Through my research I intend to contribute to co-designing change processes whilst simultaneously observing the processes undertaken - helping to co-evolve the impact of the organisations in question whilst also reflexively observing the nature of key discursive co-design forums in emergence.

4.3. Sites of research

My formative professional design research through DIRC has been hugely influential in shaping my inquiry of co-design processes in the context of bioregionally-adapted regenerative economic transitions. The paper I have written for Design & Culture's special issue on 'design-led repair' facilitated my development of critiques of precedent co-design approaches, and in doing so paved the way for engagement with organisations which would be valuable sites of research for my doctoral field work.

Through my doctoral research I will study the novel co-design processes and methods of engagement that are being trialed and tested as a part of the work at Regen Sydney and Coalition of Everyone. Regen Sydney has a focus on developing regenerative economics in Sydney by reframing eco-social wellbeing through a relational ontology, while Coalition of Everyone aims to pilot novel collaborative processes to foster bioregional governance. The co-design processes in these two sites of research draw from the approaches of Transition Design, Doughnut Economics and Greenprints. Figure 7 below shows the instances of co-design mapped on a timeline through three sites - the completed NSW Circular project at DIRC along with those in my two sites of doctoral research.
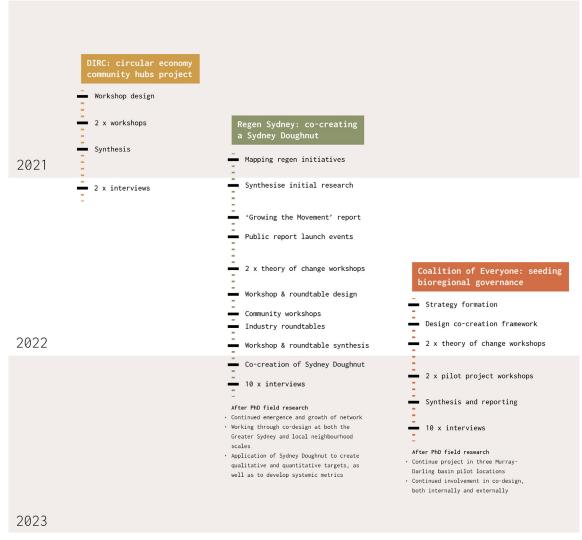
Figure 7. Key co-design milestones across my two sites of doctoral research and preceding design research

The following sections will characterise the nature of co-design in each of these sites of research, with respect to their similarities but also their different intervention points in nested systems, the diverse actors engaged and their distinct thematic areas of focus.

4.3.1. Regen Sydney

Regen Sydney is an emerging network of over 300 practitioners coalescing to bring about a shift towards regenerative economics in Greater Sydney, starting by collaborating and experimenting with Doughnut Economics. This growing network has been nurtured by the organising team which faciltiates co-design forums - enriching articulations of regenerative visions and transition pathways as well as thickening the relations through which individuals and organisation might find greater agency in this context (see figure 8 below). The organising team itself is comprised of 10 co-convenors (of which I am one) with diverse professional backgrounds who work together towards surfacing Regen's Sydney strategy and modes of operation in line with its goal to achieve eocnomic transformations - shifting measures of eco-social wellbeing and socio-cultural paradigms.
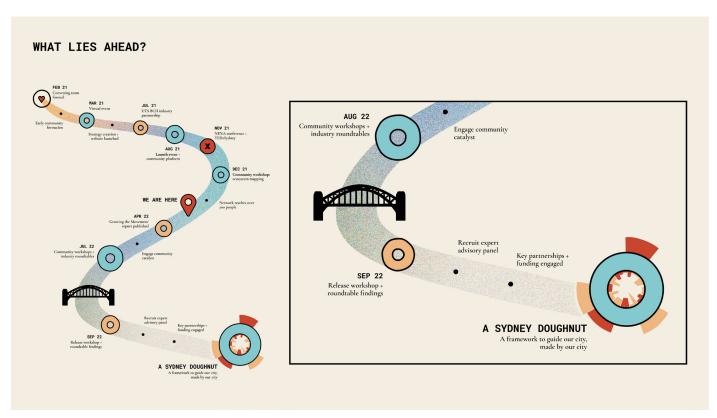
Figure 8. Regen Sydney's roadmap of activities as of April 2022

Firmly embedded in Regen Sydney's approach is the need to 'walk with First Peoples' on the journey towards these economic transformations. Early and ongoing engagement with members of the First Nations community has helped to shape the relational culture and values of the network as well as to guide Regen Sydney's approach to collaboratively hacking and contextualising the Dougnut Economic model to place. Regen Sydney aims to

create a 'Sydney Doughnut' through collaboration over the next six months - with co-design playing a dynamic role in the curation, facilitation and synthesis of a series of network engagements set to inform this outcome. The current co-design of Regen Sydney builds upon initial research and community engagement carried out a year ago, which culminated in the Growing the Movement report. Found in this report is the map of existing regnerative initiatives and organisations as seen below in figure 9 - this was an essential step for Regen Sydney to be able to identify its scope and scale of operations.
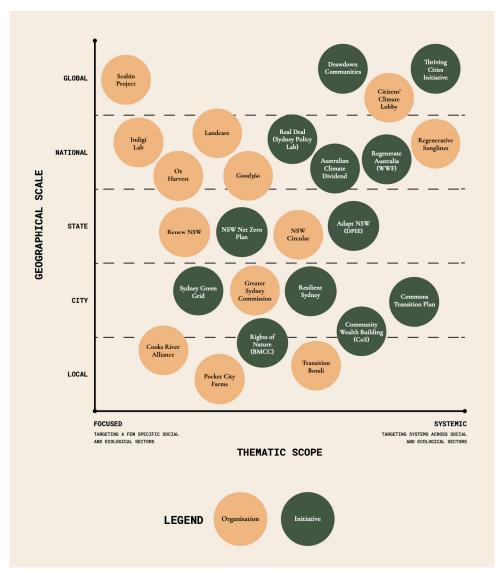
Figure 9. Regen Sydney: mapping regenerative initiatives and organisations across scales

Another area of strategic development where co-design processes will be of particular interest is the evolving emergence of Regen Sydney's theory of change. Further instances of collaboration are required to clarify what seems to be a two-fold focus in harnessing Regen Sydney's potential towards economic transformations - one on strategic projects at the Greater Sydney scale working with coalitions of organisations, and secondly working at the neighbourhood scale with local citizens, communities and councils.

4.3.2. Coalition of Everyone

Coalition of Everyone is an organisation working towards discrete projects primarily in Victoria to enable citizen-led bioregional governance. The organisation is undergoing a shift from not-for-profit to social enterprise, with the aim of increasing its capacity to conduct pilot projects prototyping deliberative engagements. Previous work has included citizens' assemblies and visioning assemblies across a range of contexts, however over the last twelve months, Coalition of Everyone has been realigning its strategic capacity to focus specifically on facilitating regenerative transitions at the bioregional scale. The organising team members (of which I am one) are in the process of clarifying through co-design the strategic purpose of the organisation and in doing so articulating a theory of change. Coalition of Everyone seeks to be active at the bioregional scale connecting existing initiatives working towards systemic regenerative transitions whilst iteratively building capacity for citizen-led deliberation.

The key upcoming pilot project that Coalition of Everyone is currently embarking on is to work with Wararack Initatives in Castlemaine, Victoria to guide their development of a Community Transition Plan. Co-design practices amongst the working group will be vital in aligning their outcomes to the Mount Alexander Shire Council 10 year community strategy. This process will require creative collaboration, in particular with naunced forms of consideration of ecological data. A prototype design for this type of engagement can be seen below in figure 10.
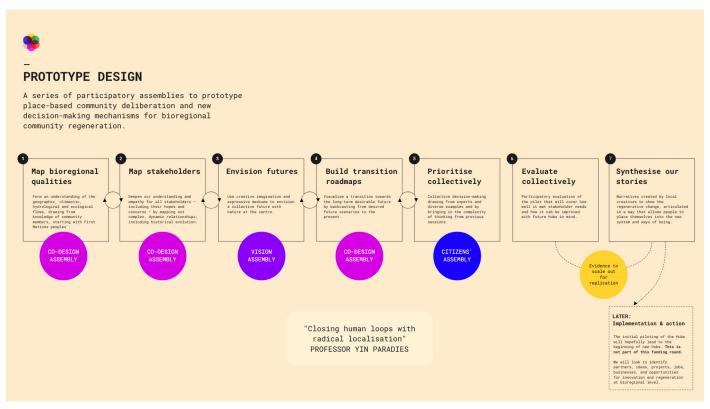
Figure 10. Coalition of Everyone's prototype engagement methodology

4.3.3. Two complementary sites

There is a question about the suitability of the sample size - that is, whether or not these two sites of research are adequate to answer my research questions. I believe that any additional sites of research would require an extended period of research that would not be feasible considering the time restrictions and duration of my PhD. It is worth mentioning also that these two sites of research have been included due to their complementary contexts of operation and potential contribution to answering my research questions. Respectively the two sites are focused on both regenerative economics and bioregional governance as well as neighbourhood/city and bioregional scales. With these complementary dynamics, the two sites of research in question can provide rich data for my critical design ethnography methodology - through which to articulate a synthesised 'instructional design' that could be valuable in other co-design contexts altogether (Barab et al. 2004).

Each of the two sites of research is without a doubt creating uniquely novel assemblages of key precedent co-design approaches, the strategic underpinnings of which are presently coalescing. It will be valuable to analyse the theories of change across both sites of research with respect to their different scales of intervention - and in particular with regards to the co-design approaches, practices and processes involved. The collaborative efforts involved are unique despite a common goal to *make visible our invisible relationality*. Principles of creative emergence and collaboration are being embodied by each in various manners, for example in visioning through performance, interactive role-play and mapping. The ways in which these are applied in context will continue to reveal valuable insights about co-design, especially when aided by my own reflective practice in analysis and synthesis across the sites.

4.4. Reflective practice

4.4.1 Participant observation

Participant observation research methods are valuable in helping me to answer my research questions - as a researcher who is already deeply embedded in the co-design forums of Regen Sydney and Coalition of Everyone in an ongoing manner. This research method is supportive of my efforts to contribute to co-designing change processes through these organisations, whilst simultaneously observing, analysing and reflecting on the processes undertaken. This dynamic - of both participating in the change making capacities of the organisations, whilst also observing and reflecting on the processes used - is highly suitable for me as an insider researcher interested in drawing out insights related to practice rather theory. Through this research method I can help to co-evolve the impact of the organisations in question whilst also reflexively observing the nature of key discursive co-design forums in emergence.

Each of the instances of data collection through participant observation build upon the findings of the previous research such that there is an ongoing reframed understanding of co-design processes that catalyse bioregionally-adapted regenerative economics in Sydney. Through participant observation I will be able to make judgements about the nature of collaboration, with the subjective processes of co-design revealing implicit power imbalances, unheard voices, axiological shifts, stakeholders tensions and many other aspects.

4.4.1.1 Participation through this research method

Those who are to take part in the participant observation include the 10 organising team members in Regen Sydney and the 10 colleagues in the Coalition of Everyone pilot project team. These numbers are a coincidence of the number of staff that are involved in each of the teams. The participants are not expected to commit any additional time for the purposes of my participant observation research than they already intend to contribute towards the work of the organisations. I am observing the co-design activities that entail the ongoing operations of these organisations over a 6 month period. The participant observation will largely take place online - using Zoom for video conferencing and Miro for collaborative whiteboarding. Some in person sessions may take place at Digital Storytellers (for Regen Sydney) and at Wararack Initiatives (for Coalition of Everyone).

4.4.2. Semi-structured interviews

Interviews will be conducted in a semi-structured format with 10 experts in each of the two sites of research. The discussion will cover the participants' previous co-design expertise, emerging opportunities for experimentation and improvement, as well as context specific questions about the regenerative economics and bioregional governance contexts.

Through the interviews I aim to draw out critique and comment on the co-design activities being conducted by Regen Sydney and Coalition of Everyone, as well as more broadly to highlight opportunities and challenges when conducting co-design in this context. For a list of questions to be drawn from see the interview guide in Appendix B.

The interviews will be held either in-person or online depending on the state of COVID restrictions and they will run for a maximum of one hour. The interviews will be recorded however the data collected will be de-identified as the focus of these interviews is to synthesise common themes across interviews and draw out reflective insights about co-design rather than focus on the individuals themselves.

4.4.3. Visual and material methods

As seen in the illustrations scattered through this report as well as in the outline above for the types of activities to be used as methods of synthesis in both phases of research, visual and material methods play an important role in my design research practice. Their value for me is fundamentally about conceptual and relational sensemaking - it is two-fold: (1) as a personal process of cultivating conceptual understanding and (2) as a manifestation and synthesis of collaborative emergence.

The first could be described as a process of *thinking through making* whereby my understanding of ideas gathered through reading, analysis and reflection is aided by mutually clarifying processes of symbolising, mapping and illustrating (Ingold 2013). These alternating processes of creation and reflection help to draw together personal processes of cognition and intuition. The second aspect captures visual and material methods in participatory research as a way to synthesise ideas as well as provoke further discussion. Materialising concepts in illustrations, maps and mockups can help to form a cognitive bridge between the present and the future – this can help participants clarify and distil the tangible manifestation of their input. As such, they are valuable not only for depiction but also as a tool for navigation through the tensions, contradictions, paradoxes and messiness that will inevitably arise through field research.

4.4.4. Thematic analysis

A systematic record of Regen Sydney and Coalition of Everyone meetings will be kept in the form of written notes and diagrams, supplemented by recordings of key co-design sessions. Data from co-design workshops and interviews will be transcribed. I will send a copy of any raw visual artefacts produced along with some synthesised findings for participants to review and feedback on, forming a part of iterative co-design processes. Where appropriate, tools such as NVivo might be employed for

analysis. All data collection, including note-taking and diagramming will be de-identified of any participants.

A thematic analysis of the transcripts, collaborative artefacts or observation notes and diagrams will be used to identify emerging themes. This form of inductive analysis sees themes emerge from raw data through steps of coding, theming, decontextualizing, and recontextualizing the data (Nowell et al. 2017). In order to ensure and communicate the rigour of this analytical process it will be crucial to record, systematise and disclose the methods of analysis so that one may determine the credibility of findings. To strengthen the validity of the interpretation the results will further be tested during further internal workshops and community engagements.

It will be evident from the emerging themes (through analysis of co-design sessions and interviews) as to which aspects of the collaborative processes lent themselves most effectively to the impacts sought in my research questions. One example of this is to highlight co-design processes best inclined to harness deeper understanding about bioregional ecosystem mismanagement in the Castlemaine context (Coalition of Everyone) in development of their 10-year Community Transition Plan.

4.5. Research outcomes

The insights drawn through this research will help to clarify the role of co-design in encouraging the transition to bioregionally-adapted regenerative economies. Various facets of co-design to be investigated through the lenses of the aforementioned research questions include the intent and arc, workshop design, activity templates, facilitator positionality, diversity of stakeholder engagement, navigation of tensions and manner of emergent discussions. Specifically, these co-design elements will be analysed with regards to their ability to (1) help to collectively articulate place-based visions and strategies, and (2) encourage engagement with the interconnected needs and thresholds of all Earth citizens. This research will seek to show how consideration may be made of non-human needs and ecological limits along with regular consideration of diverse human needs when shaping place-based economic strategy. Co-design processes will attempt to achieve these outcomes, with subsequent analysis and reflection to allow for insights to also be drawn as to the limitations faced by co-design in this context.

The research will also provide greater understanding of the ways in which the Transition Design, Doughnut Economics and Greenprints methodologies are complementary yet distinct. Literature research and practical experience with these methodologies has shown that they are each valuable for different reasons in the context of co-designing transitions towards bioregionally-adapted regenerative economies. My research presents an opportunity to document, analyse and synthesise the insights gained as both Regen Sydney and Coalition of Everyone draw from these three methodologies in curating various instances of co-design. Testing the varied elements of these co-design processes through novel assemblages can help to draw out the ways they are each valuable in context. None of these three methodologies purport to provide perfect, conclusive processes through which to collaborate, and so this research will aim to highlight the benefits and drawbacks of each, whilst also providing methodological insights that could be applicable in building upon and improving the practise of each.

My thesis and its findings will be presented to both Regen Sydney and Coalition of Everyoen through reports, diagrams and presentations to convey relevant insights. Reflections on the research process will help to shed light on the internal operations of the organisations along with learnings about the their respective co-design practices - the primary focus of my research.

4.6. Ethical considerations
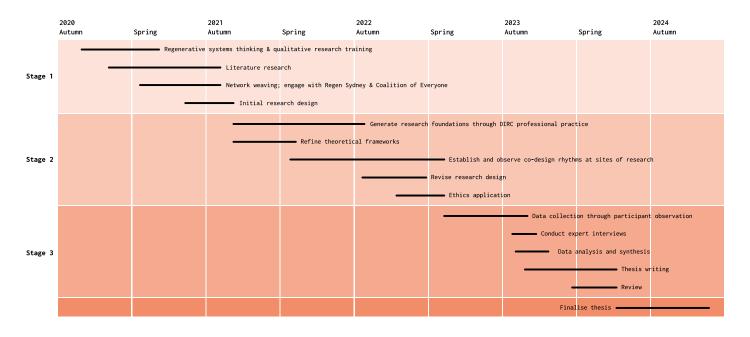
While my approved ethics application can be found as an attachment to this document, the following section outlines some of the key ethical considerations to be made in conducting my research.

The study in question is fundamentally concerned with expanding the ethical foundations of ecological economies through collaborative processes. The intensive, discursive collaborative processes studied through this research are inherently entangled with issues of power and conflict. The social 'messiness' of unpacking and confronting tensions between various stakeholders can reveal imbalances in their pre-existing relationships and hidden power dynamics. My role as facilitator, participant and insider researcher in these forums will draw from previous experience and will seek to manage any emerging issues of this nature. It can be a helpful technique to give all participants a voice - cultivating their agency in the process by collectively embedding their underlying values and motivations into the design process and outcomes (Akama 2009).

Another ethical consideration is the nature of participation in the second phase of research – I will have to consider the implications of encouraging voluntary participation by those who have an interest in the collaborative focus area as opposed to having a true sample representation. While seeking diversity of expertise in the participants, it should be acknowledged upfront that the collaborative processes are not neutral and there should be transparency about their inherent values and position of subjectivity.

4.7. Research plan

My ethics application has recently been approved after having gone through two rounds of review, while the design-led repair paper for Design & Culture journal is also due for publication. The co-design rhythms that I have been observing in my two sites of research have provided a firm foundation upon which to continue my field research under ethical conditions. I am conducting my data collection through participant observation at Regen Sydney and Coalition of Everyone for an extended six month period, toward the end of which I will hold my expert interviews. Anlysis of data and thesis writing is to follow, prior to my third stage review in late 2023.

	2020 Autumn	Spring	2021 Autumn	Spring	2022 Autumn	Spring	2023 Autumn	Spring	2024 Autumn
Stage 1	Regenerative systems thinking & qualitative research training								
	Literature research								
	Network weaving; engage with Regen Sydney & Coalition of Everyone								
	Initial research design								
Stage 2			Generate research foundations through DIRC professional practice						
			Refine theoretical frameworks						
			Establish and observe co-design rhythms at sites of research						
			Revise research design						
			Ethics application						
Stage 3						Data collection through participant observation			
						Conduct expert interviews			
						Data analysis and synthesis			
						Thesis writing			
						Review			
								Finalise thesis	

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Appendix A: Principles of Earth Democracy

The following ten principles are outlined by Vandana Shiva (2005, p. 9):

1. All species, peoples, and cultures have intrinsic worth

All beings are subjects who have integrity, intelligence, and identity, not objects of ownership, manipulation, exploitation, or disposability. No humans have the right to own other species, other people, or the knowledge of other cultures throught patents and other intellectual property rights.

2. The Earth Community is a democracy of all life

We are all members of the Earth family, interconnected through the planet's fragile web of life. We all have a duty to live in a manner that protects the Earth's ecological processes, and the rights and welfare of all species and all people. No humans have the right to encroach on the ecological space of other species and other people, or to treat them with cruelty and violence.

3. Diversity in nature and culture must be defended

Biological and cultural diversity is an end in itself. Biological diversity is a value and source of richness, both materially and culturally that creates conditions for sustainability. Cultural diversity creates the conditions for peace. Defending biological and cultural diversity is a duty of all people.

4. All beings have a natural right to sustenance

All members of the Earth Community, including all humans, have the right to sustenance - to food and water, to a safe and clean habitat, to security of ecological space. Resources vital to sustenance must stay in the commons. The right to sustenance is a natural right because it is the right to life. These rights are not given by states or corporations, nor can they be extinguished by state or corporate action. No state or corporation has the right to erode or undermine these natural rights or enclose the commons that sustain life.

5. Earth Democracy is based on living economies and economic democracy

Earth democracy is based on economic democracy. Economic systems in Earth Democracy protect ecosystems and their integrity; they protect people's livelihoods and provide basic needs to all. In the Earth economy there are no disposable people or dispensable species or cultures. The Earth economy is a living economy. It is based on sustainable, diverse, pluralistic systems that protect nature and people, are chosen by people, and work for the common good.

6. Living economies are built on local economies

Conservation of the Earth's resources and creation of sustainable and satisfying livelihoods are most caringly, creatively, efficiently and equitably achieved at the local level. Localisation of economies is a social and ecological imperative. Only goods and services that cannot be produced locally - using local resources and local knowledge - should be produced non-locally and traded long distance. Earth Democracy is based on vibrant local economies, which support national and global economies. In Earth Democracy, the global economy does not destroy and crush local economies, nor does it create disposable people. Living economies recognise the creativity of all humans and create spaces for diverse creativities to reach their full potential. Living economies are diverse and decentralised economies.

7. Earth Democracy is a living democracy

Living democracy is based on the democracy of all life and the democracy of everyday life. In living democracies people can influence the decisions over the food we eat, the water we drink, and the health care and education we have. Living democracy grows like a tree, from the bottom up. Earth Democracy is based on local democracy, with local communities - organised on principles of inclusion, diversity, and ecological and social responsibility - having the highest authority on decisions related to the environment and natural resources and to the sustenance and livelihoods of people. Authority is delegated to more distant levels of governments on the principle of subsidiarity. Self-rule and self-governance is the foundation of Earth Democracy.

8. Earth Democracy is based on living cultures

Living cultures promote peace and create free spaces for the practise of different religions and the adoption of different faiths and identities. Living cultures allow cultural diversity to thrive from the ground of our common humanity and our common rights as members of an Earth Community.

9. Living cultures are life nourishing

Living cultures are based on the dignity of and respect for all life, human and non-human, people of all genders and cultures, present and future generations. Living cultures are, therefore, ecological cultures which do not promote life-destroying lifestyles or consumption and production patterns, or the overuse and exploitation of resources. Living cultures are diverse and based on reverence for life. Living cultures recognise the multiplicity of identities based in an identity of place and local community - and a planetary consciousness that connects the individual to the Earth and all life.

10. Earth Democracy globalises peace, care and compassion

Earth democracy connects people in circles of care, cooperation and compassion instead of dividing them through competition and conflict, fear and hatred. In the face of a world of greed, inequality and overconsumption, Earth Democracy globalises compassion, justice, and sustainability.

Appendix B: Interview guide

The following questions will be used to guide the semi-structured interviews (to take place after the extended period of participant observation in both sites of research):

1. What are your key areas of expertise?

2. How does co-design play a role in your professional engagements?

3. What co-design methods do you employ?

4. In what ways can co-design be a valuable approach in the context of bioregional governance/regenerative economics?

5. What are some challenges faced by co-designers in these contexts?

6. Using what methods has Regen Sydney/Coalition of Everyone helped develop place-based visions; what has worked well, and what could be improved?

7. How has Regen Sydney/Coalition of Everyone collaboratively developed transition strategies; what has worked well, and what could be improved?

8. With what methods has Regen Sydney/Coalition of Everyone facilitated engagement with the perspectives of non-human entities; what has worked well, and what could be improved?

9. How has Regen Sydney/Coalition of Everyone facilitated consideration of social and ecological limits; what has worked well, and what could be improved?

10. At what nested scale(s) do you find greatest potential for collaboration towards regenerative transitions?

11. How do you see distributed governance (through co-design) playing a role in the future of Australia's political economy?

Appendix C: Detailed table of contents

Part 2: Field research foundations

Part 3: Designing as systems, in systems

Part 4: Conclusion