Ecocene economics and design: nature-inspired economies and transition design

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Ecocene Economics and Design:

Nature-Inspired Economies and Transition Design

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Ecological economists describe alternative economies that open space for incorporating and valuing the provisioning services provided by the ecological context. In this paper, I will describe a theory of Ecocene economics and design as an ecologically engaged and generative response to the conditions of the Anthropocene. Here designers work to create new economies that mimic nature's patterns and processes. This vision involves a different concept of value than orthodox economics. It is an economics driven by values, rather than values driven by economic value – as is the case with the current economic system. Building on the theory of David Orr, Kate Raworth, other ecological theorists and my own recent paper (2018), this paper will consider nature-inspired economies for transition design. I have described (2018) how sustainable and socially just futures depend on the priorities embedded in the systems that determine what is designed. I have also described how design, with its conceptualising and reconceptualising practices (including visual modelling and mapping, the use of framing and metaphor, and other future-oriented techniques) can make critical contributions to the social change agenda of ecological economics. In this paper, I will outline an ecologically engaged economic theory for design. This potential is dependent on ecologically literate designers with an understanding of an economic theory fit for the challenges of the Anthropocene. The starting point for design transitions supporting the development of new economies must be humanity's long-term goals – which are now threatened by outdated orthodox economic ideas and structures.

Sustainability educational theorist David Orr coined the concept of 'ecological literacy' in 1992 (1992, 85-88) as a way of knowing that addresses and responds to the long-standing dismissal of environmental concerns in knowledge systems. The concept implies a radical transformation of education across disciplines and is especially important in the fields involved with the design and development of sustainability transformations. Orr's own work often emphases the importance of the design disciplines in sustainable transitions. In his recent essay 'The Political Economy of Design in a Hotter Time' Orr argues that "all design exists in a larger framework of political economy by which costs and benefits are distributed within society and across generations." (Orr 2018, 4) These economic structures encourage certain types of values, practices, design outcomes and ways of living with social and environmental consequences. For this reason, sustainability is a problem that

> "*...is not in the particular techniques of design, which have become very sophisticated, but in the haphazard structures – economic, political, social – in which design occurs, which slows the effort to take ecological design to the necessary scale. The rules of the system permit change only at the margins, which is to say only slight adjustments in the coefficients of change but none at the*

level of social structures and system design... To really improve the human prospect the precepts of ecological design must inform politics, governance, law, and economics" (Orr 2018, 8).

Economic structures limit or enable sustainable and socially responsive design. Where designers can help "design social systems that work for, not against, natural processes" (Orr 2018, 8) this work is dependent not only on design practice informed by ecological knowledge, but on the economic priorities of the system that determines what is designed. For this reason, designers concerned with sustainability must also consider the political economy: "the practice of ecological design must be applied the larger systems of politics, law, and economics" (Orr 2018, 8). Sustainable transitions are dependent on ecologically engaged practitioners: i.e. designers, economists and policy makers who have the basic ecological knowledge necessary to enable informed decision-making.

Kate Raworth's accessible and widely acclaimed *Donut Economics: Seven Ways to Think Like a 21st-Century Economist* (2017) brings ecological and feminist economics to wider audiences – including some communities traditionally skeptical of heterodox economic ideas. 'Doughnut economics' refers to Raworth's iconic model of an economy that respects both social needs and the ecological boundaries of the planet. Raworth's *Doughnut* models represent "a social foundation of well-being that no one should fall below, and an ecological ceiling of planetary pressure that we should not go beyond. Between the two lies a safe and just space for all." (Raworth 2018, 17). Her *Embedded Economy* model makes the social and ecological context explicit; divides the economy into four domains (market, household, state and commons); and depicts dynamics between the various spheres and domains. This focus of attention on: 1) the economy as socially and ecologically embedded and 2) the economy as comprised of three other domains other the 'market' implies dramatic changes current economic structures. Raworth outlines strategies for 'redesigning' economic processes and structures based on ecologically engaged design and economic theory. She maintains that ecological design knowledge is foundational for this process. With ecological principles, the economy can be organised to work with (rather than against) its ecological context through distributive and regenerative design processes (Raworth 2018, 230).

"An economy that is distributive by design is one whose dynamics tend to disperse and circulate value as it is created, rather than concentrating it in ever-fewer hands. An economy that is regenerative by design is one in which people become full participants in regenerating Earth's life-giving cycles so that we thrive within planetary boundaries. This is our generational design challenge" (Raworth 2017, 128-129).

An ecologically embedded economy calls for the design and development of economic structures that prioritise values other than the accumulation of profit (Raworth 2017, 18). Doughnut Economics describes an economic system designed to prioritise values that work "with, not against, the cycles of life." (Raworth, 2017, 62). An economic system that truly responded to these imperatives would be a radical alternative requiring a definitive break with capitalist economic priorities and structures. The doughnut is the visual metaphor for this new economy.

Design theory and practice can contribute to the economic transitions described by these and other ecological economic theorists in a variety of ways I will describe in this paper. Economies are complex systems that can be modelled and mapped as a means to understanding their basic structures, dynamics and systemic processes. System oriented design mapping strategies can contribute to more effective visualisations of economic systems to help reveal structures, dynamics and flows in economies on various scales. Mapping techniques illustrate systemic processes with stylised representations that can help to identify tensions. The practice of knowledge mapping, or

knowledge visualisation, facilitate collaborations and learning on complex, multi-dimensional and often controversial problems. It bridges disciplinary silos and sectors to address communication and learning challenges as it displays information of different types on various scales. Using graphic strategies to visualise multi-faceted conceptual propositions, complex systems and future scenarios, knowledge mapping helps designers and collaborators clarify system-level threats, opportunities and spaces for intervention. Mapping supports an understanding of complex systemic processes that enables more the identify possible points of intervention. Mapping functions to reveal context and multifaceted relationships on complex topics in ways that make it possible to also visualise future possibilities, imaging alternative economies to support the design of interventions to redesign the systems that determines what is designed.

The version of Ecocene economics that I will describe in this paper draws on ecological and feminist economics with their explorations of diverse economies in the commons, the household and the state. These alternative economies open space for incorporating and valuing currently undervalued work including the provisioning 'ecosystem services' of the ecological context. Economists, design theorists, anthropologists and others investigating the intersection of economic value and social values have exposed the ways that economic processes and structures colonise social and environmental values: ruinously systemically de-prioritising environmental imperatives. I will argue that an ecologically viable and socially just futures depends on 'redesigning' the system that determines what is designed. Economic processes are driven by what institutional structures are 'designed' to value, and these system structures then strongly influence social values. Design must encourage economies that will work with, rather than against, ecological circumstances. Raworth's donut economics serves as inspiration for transition design interventions supporting eco-social priorities. Designers can do this work with design skills including visual methods that helps people conceptualise and reconceptualize complex systems. While an ecologically sustainable future depends on a redirection of economics – clearly 'redesigning' economic systems is a social and political problem and not a technocratic one. Nevertheless, the transformation of the political economy is one of our greatest generational challenge. Ecocene design and economics responds to the challenges of the Anthropocene with a plethora of redirected, distributive and regenerative projects.

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