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COMMENTARY

Provocation Soil Trust: Designing economies inside an interspecies world of feeders

Markus Wernli
School of Design, The Hong Kong Polytechnic University, Hong Kong, SAR China
mswernli@gmail.com
http://orcid.org/0000-0002-8027-7354

Kam-fai Chan
School of Design, The Hong Kong Polytechnic University, Hong Kong, SAR China
tatlogos@gmail.com
http://orcid.org/0000-0001-8643-7278

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Abstract: What if prioritizing urban soil care to nourish stomachs, households, and civilizations would be a provocation that simultaneously engaged hotels, farmers, communities, and researchers? By closely attending to the inter-agentive, alimentary relations across humans and the world that feeds them, we introduce the Soil Trust (泥玩) forest garden lab in Hong Kong. The cross-sectoral action research is prototyping a feeders' economy based on mutualist digestion that revolves around micropolitical rhythms and multispecies protocols. This feeders' economy derives from the provisional reciprocity of growth and decay in nature; hunger and satiety in bodies; hosts and guests in households; as well as rights and relations in collective action. Here residual vitality from kitchen scraps feed soil ecologies, while human sweat feeds precipitation cycles and penetrated skin feeds underappreciated insects. The harvest grown is not sold; instead, awarded to loyal contributors. The diversity of its members affords unexpected perspectives and openings that bring vibrancy to Soil Trust. Within inescapable capitalism, this feeders' economy is crowdfunded by hospitality partners that remunerate the growers, not for crops but their ecosystem services—unprecedented in Hong Kong.

Introduction

This article is concerned with collectively designing multifunctional agricultures, which are crucial for reintegrating organic waste into soil care practices, redistributing local food to vulnerable communities, and reconnecting urbanites with their biophysical foundation in Hong Kong. Our account counteracts the economic logic of dominant food localization efforts. Contrary to Mainland China, smallholder agriculturists in Hong Kong do not receive government subsidies to meet the demand for shorter food chains, thus they rely on maximizing their yield of organic cash crops catered to Hong Kongers with disposable income. This market-driven farming business neglects to return excess organic resources to soil ecologies, inhibits access to food and arable land for underprivileged, and foregoes agriculture's critical role in ecosystem services. Our strategic eco-social experimentation with food economies is rooted in 'reflexive localism' (DuPuis and Goodman 2005). It entails diverting Hong Kong's three thousand tons of food waste daily (Nele and Lou, 2019) from landfills to farms while meaningfully engaging diverse parties in the laborious eco-farm practices involved. This way, nutrient pollution in water and the atmosphere can be avoided, soil-invigorating farm innovation is spurred, and intimate body-nature relations are enacted through food consumption.

Our process of creating eco-social value chains from eating and composting well emphasizes close contact with waste through attention to techniques and enacting shared responsibilities for overcoming indiscriminate wasting and rejection of decay. By coordinating diverse collaborators around the commanding operation of artisan compost, we also confront industrial-scale waste infrastructure that converts organic resources into electricity or renders it invisible. Such modernist 'solutions' undermine the opportunity for exploring together with people ways to reduce waste at the source, to innovate industry practices through integration of excess, and to reconfigure economies that also nourish yet-to-be-born, more-than-human life in the face of an increasingly volatile climate.

We take inspiration from food anthropology (Sahlins 1972, Chao 2022) that understands organic waste as part of life-renewing, constant interpenetrations with a world that is a generously giving

environment out of which we all are composed. Circularity with organic waste points to an economic condition that generates qualitative wealth without accumulation of self-devouring excess based on knowing when is enough and not desiring any more. For this satiety to be fully registered, pacing, slowness, and leisure are not a luxury but a necessity in humans—allowing them to relax, become resourceful, socialize, and attune (Porges 2011) to the pre-existing abundance and mutuality surrounding them. Making room for this ongoing noticing and redirecting within the world replete with organic residues engages us in the work of design. Enacting alternative food economies by design depends upon creating, trialing, and developing processes of reflexivity to shape an alimentary world that also shapes us. In this essay, we explore a prototypical economic arrangement revolving around urban soil care through socially-led experimentation across life domains, technologies, and sectors for confronting preconceptions, practices, and policies with the provision for more-than-human flourishing.

By stepping into an ongoing social pilot with organic waste in rural and urban Hong Kong, we aim to understand better the provisional reciprocity of growth and decay in nature; hunger and satiety in bodies; hosts and guests in households; as well as rights and obligations in collective action. To contrast the dominant discourse that prioritizes efficiency and expansion, we conceptually highlight the importance of small-scale economies paying attention to mutualist digestion. We draw on design studies and evocative multispecies ethnography to encourage socio-technical experimentation with the indetermination of waste constantly mediated by biosocial protocols and micropolitical rhythms. In the concluding section of this article, our encounters with organic waste prompt us with ethical questions for navigating what eating well and consuming well mean in an increasing mal- and undernourished world.

The nourishing forest garden

As we crisscross a vegetable farm in rural Hong Kong, we entered the forested fringes below the Kai Kung Leng mountain range (雞公嶺). This forest garden is the home base of Soil Trust (泥玩), a university-led, social farm experiment for prototyping more ecologically regenerative economies. Standing over a large tub with arms buried deep into sawdust, we encounter Hasri

and Liswini, two Nepalese women in their thirties. Both are members of Soil Trust's service learning program, Growers Without Borders (泥玩無國界). They show us how to marinate the sawdust with ground eggshells and a fermented fruit peel brew called 'eco-enzyme.' With their marinated yet nimble hands, they skillfully mix the fruit peel brew and eggshell powder (recovered by the collaborating hotel) with fluffy sawdust until the material has a sandy moistness to its touch. The resulting microbial bedding is used for layering and collecting food scraps in bokashi containers (figure 1).

At last, the women compress this enzymic bedding into airtight pails for curing. Once fermented after two weeks, Soil Trust sends the bedding to the partner hotel, where hygiene manager Leonard and his chefs will use it to pack large, sealable drums with layers of recovered food scraps alternated with layers of Hasri and Liswini's bedding. The enzymes involved will acidify the excess food, not unlike a pickle—thereby curbing smells and predigesting it in ambient conditions. The Nepalese women walk over to the other side of the garden to assist student volunteers Annemarie and Joan with turning compost. The steaming pile was stacked the previous week by fellow gardeners with the hotel's excess food, garden clippings, wood mulch, and buffalo manure collected from the surrounding forest. Fresh compost is microbially hyper-active, quickly overheats, and requires regular restacking so hardworking bacteria stay well aerated, hydrated, and fed. The air surrounding the compost becomes alive with the sounds of wind, birds, and water buffalos munching away nearby. Hasri and Liswini secured a batch of ripe and ready compost from a pile stacked four months ago. It is time to feed the earthworms, black soldier flies, and infant plants in the nursery for the upcoming growing season.

Figure 1: *Growers Without Borders' (泥玩無國界) gardeners Hasri and Liswini making enzyme bedding at Soil Trust (photograph by Shing Wai Ng).*

Before Hasri and Liswini wrap up their garden tending routine, they carefully inspect the undersides of baby cabbages for hungry caterpillars, check the corn stalks for hungry grain moths, and shield the zucchini with netting bags from hungry fruit flies. Watching out for how nonhuman life nibbles on the vegetal abundance makes Hasri and Liswini feel somewhat satiated. Finally, the gardeners embark on a foraging exploration for harvestable produce. They point us to the fleeting fungi colonies atop the wood mulch and the edible flowers unexpectedly sprouting from long-forgotten water spinach. As Hasri and Liswini conclude their morning tasks, their sweat has mingled with the bokashi bedding or the sweet potato leaves, and some of their blood has fed hematophagous insects like the ever-present gnats or mosquitoes. The Nepalese women laughingly remark how Soil Trust members share their flesh and fluids through growing food and eventually with another. It is soils, plants, and insects nourished by the sweat, blood, grease, chaff, and animals today that will continue to live in the bodies of creatures that consume

them tomorrow. Hasri and Liswini mention the eggshells they grind down and add to the sawdust drenched with ‘eco-enzyme’: the eggshell calcium, through enzymic activity, will eventually be reconstituted as exoskeleton in insects, cell walls of plants, or bone tissue in animals. The redistribution of anatomical strength through recovered eggshells becomes part of an interspecies feeding and alimentary relating across humans and the world.

Designing for mutually satiating economies

Hasri and Liswini’s foraging expedition constitutes an integral part of Soil Trust, a cross-sectoral research collaboration initiated by the authors. Cross-sectoral research refers to a test bed for experimentation (and transformation) with waste-integrating food futures that require new modes of business or organization and new roles for technology users, customers, or citizens across multiple social domains (Ryghaug and Skjølsvold 2021, p. 55). Here, ethnic minority mothers come together with smallholder farmers and design students in rural Hong Kong to build a working alliance with a hospitality foundation, downtown hotel, and food localization platform mobilized by pursuing an ecologically regenerative city. Yet, regenerative practices like bokashi food scrap recovery and hot-composting necessitate prolonged, collectivized maintenance practices. Such a level of commitment is facilitated by the alignment of interests and connectedness whereby the people involved share ownership of critical processes and negotiations (Bannon and Ehn 2013) essential to living together in mutuality with the ecological world. It recalls the Greek *oikos* to mean ‘house-holding’ that is linked to *-logos* and *-nomos* to become the words ecology and economy: the reasons and the rules for living attuned to the world that is our mutual home (Perolini and Fry 2012). Designing for this shared house-holding implies that we no longer can afford to take without restraints and consume without limits. Our metabolic overconsumption with unchecked growth and destruction is at the heart of the problem. In response, ecologically attuned living, then, is about designing economic conditions that bring forth qualitative wealth creation without accumulating excess (Sahlins 1972, p.11–12).

As activist research, Soil Trust proposes patterns of communitarian consumption that enable people to self-determine their own lives (Greenbaum 1992). It emphasizes the pre-existing

mutuality with living otherness, human or not. The cofeeding economies outlined above extend mere environmental regulations by emphasizing satiety as means of control over consumerism and productivism. Satiety, the condition of knowing when is enough and not desiring any more, is the opposite of indifferent hunger and greed. Crucial for this self-mediating sensibility of declining satisfaction is to slow down. Human stomachs and brains need at least twenty minutes to register the feeling of fullness and being fed. It is fullness gratified and respected at the point of satisfaction before consequent renewal of stimulus and appetite can occur. The chance to acknowledge our satiety depends on arriving in the present through grounding rituals and companionship that compel us to focus on *what* is consumed. Only in the awareness of the here and now do we enter a parasympathetic state (Porges 2011, p. 153) of rest and digest where our body can fully appreciate, apprehend and absorb what is consumed.

Hasri and Liswini explain that satiety in their regenerative practices depends on appreciating the vitality of living organisms from whom the foods are procured (figure 2). For instance, taking time and venturing through the thorny undergrowth of the surrounding forest reveals unexpected subsistence options. It includes wild mulberries, native bananas (whose leaves make for formidable food wraps), heirloom turmeric, lemon grass, and fallen wood for mulch or the occasional barbeque. This interspecies robustness also includes abiotic forces like sun, creeks, rain, dew, soil, and mountain, which in unison with organismic life, bring forth the sentient ecology of the forest garden—proliferating, procuring, preparing, and consuming commands a code of conduct that upholds this ecosystemic mutuality. It includes food and harvesting restrictions as expressions of respect towards plants and soil life, like barring trampling fragile topsoil, cropping plants at early stages of maturation, and ensuring leftover harvest remains for the subsequent garden members. Abiding by these limitations of satiety, Soil Trust gardeners are attuned to the doings in the environment and make respectful use of garden resources without depleting them.

Figure 2: *The weekly ritual of foraging and documenting the vitality of the harvest (photograph by the authors).*

Research indicates how environmental attunement and collective futures depend on counterbalancing rights-based obligation with relation-based care described above. In this contingent effort, Soil Trust comes into being from the complimentary "navigation of obligation and care perspectives" (Light and Akama 2019) for designing householding eco-nomies *with* people. For the authors who come as outsiders to agriculture, it means asking permission to use the host farmer's spare plot (obligation to protocol) and building trustful relationships with the different groups involved (manifestations of care) before any activity can be implemented. For the generous host farmer who provides Soil Trust access to a meshwork of land and resources, it means retaining the right to restrict visitor access while helping expose local agriculture to new social formats and younger generations. For the guest gardeners from Nepal, Indonesia, the Philippines, Pakistan, and Ukraine, it means receiving the right to access arable land and wholesome produce while tending to suffocating compost microbes, thirsty plants, and famished critters. For the students involved, it means self-defining their design project at the farm studio while accounting for and articulating insights along their learning journeys with peers and mentors. For the eco-hospitality foundation, it means deciding on the appropriateness of the

knowledge generated (industry practices to be revealed) while keeping a good rapport with the donors who cover Soil Trust's operational costs. For the partner hotel, it means upholding its management structures when implementing the bokashi practice in its kitchens while building relationships with local agriculturists. For onlookers, this feeder economy can demonstrate how the right to reclaim underused organic resources and work towards local nutrient autonomy comes explicitly with the demand for satiating care work, whereby satiety is a guarantor for mutual thriving.

The satiation is further enhanced by close attention to process with a vast body of knowledge where the immigrant gardeners exchange horticultural, regenerative, and culinary customs from their respective home countries. Essential here is the tacit dynamics of nurturing companionship with each other (Light 2022), like jointly walking to and from the farm, having informal conversations in the tool shed, or sharing a meal. These intersubjective activities of engaging with each other in a deliberated way can be critical in making encounters count for the specific situation, building trusting relationships, and shaping the willingness to partake. They help to facilitate the garden as a composite, nourishing and provisionally patterned, rich context with diverse peers, organisms, habitats, and seasons. In this regard, Soil Trust strongly discourages one-off engagements and impartial participation. Instead, garden members like Hasri and Liswini subject themselves to a meticulous, year-long apprenticeship concerned with multi-purpose composting, soil invigoration techniques, seed nursing, crop cultivation, citizen science monitoring, and what meaningful signs to consider along the way—for example, interpreting the coloring, texture, smell, and vapor of an active compost pile, or the occurrence of an ant invasion on a freshly amended field cautioning against over-fertilization. Transmitted from older to newer members in the form of vocalizations, doings, rites, and skilling together imbue this feeder economy with a shared narrative that is at once bodily and affective, human and nonhuman, individual and collective. Foraging explorations or food scrap layering as ritualized forms of ecologically regenerative consumption perpetuate when enacted in groups. Membership in such satiety-directed feeder economies then qualifies as 'communitas' (Turner 1966, p. 131–164), whereby the house-holding praxis is unstructured in rites of differentiation and restructured in rites of reincorporation and maintenance. This negotiation welcomes the collectivism of our preferences while acknowledging the symbiosis of our bodily existence.

Biosocial boundary and permeability

As Hasri and Liswini enacted during bokashi making inside the garden shed, feeders' economies are satiating because they enable and depend on the sharing of boundary and permeability, which express the health status in fermenting substrates, bodies, and worldly relations. Boundary refers to the exterior, holding capacity, and visible surface of life forms. It includes the physical enclosure of fermentation vessels, the skin of humans, the bark of trees, the lining of leaves, the exoskeleton of insects, the trench of the garden furrow, and the landscape's topography. For the authors working on emancipatory, societal transformation, boundary stands for the person's or group's right to self-determination, outlined in the sections above.

Boundary's counterpart, permeability, refers to the various social currencies that animate human and nonhuman bodies. The sharing of interspecies permeability takes many forms. Bacterial permeability may include mushing sauerkraut, compressing bokashi, or effervescent discharge of the fruit peel brew. In vegetal organisms, permeability manifests in the release of resin, sap, nectar, pith, and water-transporting xylem in roots, stems, and shoots. In animal organisms, permeability is evident in saliva release, muscle-flexing, sweating, bleeding, and shedding tears. It also includes post-digestive and reproductive functions like breastfeeding, urinating, excreting, ovulating, and ejaculating. Aquifers, rivers, wetlands, morning dew, and clouds are imbued with life-sustaining flows and circulations that enable ecosystemic permeability and functioning.

Regarding activist research, permeability stands for the relations-based nature of care manifestations that, in interplay with the rights-based nature of obligations, produce the performance of *people taking considerate action together* within shared locales and embodied 'communitas.' In indigenous conceptualization, the bodily attributes of boundary and permeability are referred to as 'sharing skin and tasting wetness' (Chao 2022, p. 77–94) and testify to the ability to regenerate life-propagating, symbiotic relations with other organisms both as feeders and as the fed. The generative negotiation between boundary and permeability gives rise to the aesthetic, gustatory, and nourishing quality of plants and animals as food for humans.

For example, the flesh of strawberries pollinated by well-fed bees and nourished by bokashi compost leachate, fermented seaweed, and earthworms is crunchy and flavorfully complex yet melts delectably in the mouth. The foods in the forest garden, alongside mulch, companion crops, and weeds, replenish the terrestrial flesh and fluids of kindred organisms from whom they derive as part of a continuous interspecies transfer of vitality.

Becoming yummy food (not waste) for others

Making compost, tending the land, and gathering harvest is not just about human satiation. As essential as the nourishment that human members obtain from the forest garden is the nourishment that people themselves provide for their nonhuman kin. Hasri and Liswini mention how working at Soil Trust entails becoming yummy food for others. It means participating in mutualistic chains of eating, digesting, and being eaten within an interspecies meshwork whose ecological welfare depends on every single organism to perform across multiple interdependent subjectivities of the feeder, the fed, and the food.

Transmissions of bodily fluids are one route to becoming yummy food for others. For instance, as they feed soil microorganisms with bokashi compost, or fungi with wood mulch, the sweat of the gardeners infiltrates the soil and roots, nourishing various critters and vegetation. Soil Trust members enhance this transfer of fluids on the respiratory level by intentionally aerating the soil using a broadfork (figure 3). This manual device connects a row of steel tines along a crossbar with two pole handles. It allows the gardeners to put their foot and weight on the tool for driving permeating openings into the ground without ruining the living meshwork of soil organisms. Being bitten by insects, Soil Trust gardeners also become involuntarily a food source for nonhuman others.

More indirect transmissions of flesh and fluid are promoted in feeders' economies through the biosocial protocols accompanying food preparation, consumption, and disposal in the kitchens of the hotel and the households involved. For example, several gardeners' families are pooling their veggie and fruit trimmings for coordinated bokashi collection to enrich and balance the resulting compost. Similarly, the collaborating hotel added a 'Soil Service Menu' to its alimentary

offering whereby the chefs of its five kitchens collect in an orchestrated effort source-separated fruit peels, veggie trimmings, eggshells, and cardboards for regenerative soil application. Eventually, excess food from the plant, animal, and human consumption is matched with wood mulch, ashes, garden clippings, and manure slurry from iterant buffalos for assembly into venerable compost piles—to be ingested by microbial successions, earthworms, beetles, millipedes, black soldier flies, and fungal spores. For example, the *parasola auricoma* fungi and *actinomycetes phylum* bacteria sprouting atop this organic reactor feed off the flesh and fluids and enhance the enriched soil that this decomposing produces.

Figure 3: *Preparing for planting with the broadfork to aerate the soil without tilling and infuse it with hotel-generated bokashi fertilizer (photograph by the authors).*

The pleasure of becoming yummy food for others through tending to compost or bokashi point to a transition whereby buffalo manure, social techniques, and close attention can actually transcend denial at decay and thoughtless wasting. When Soil Trust members partake in the stirring beauty of *parasola auricoma* or the unsettling energy of vapor rising from microbial compost activity, ‘we see the end of mastery, we see becoming’ (Hawkins 2006, p. 37). These moments of intense responsiveness require shifts in affect and movement of the self in relation to

otherness. Turning the compost together thus not only reconfigures categories of putrescible waste. When urban dwellers return their excess foods to the soil as a way to regenerate local landscapes instead of burdening landfills and the atmosphere, it sparks their explorative aspiration to become agents in ecological circulations—confronted with the dominant management regimes for waste and sewage that make it extremely difficult for citizens to sensibly recover vital nutrients and resources for food provision and collective services. It provokes the question: what would 'the right to nutrient sovereignty' (Tornaghi 2017, p. 13–14) mean for challenging the collective neoliberal arrangements currently in place that so profoundly *food-disable* our cities and disconnect organic waste from depleted soils as well as producers from consumers?

Consuming well inside a more-than-human world

Eating and composting well is relevant not only for the comfort and health of the consumer. It also enables the consumer to become yummy food for others. Consuming well is then a care of the self that also is a care for many others, including nonhumans, across time and space. The constant contact with boundaries and exchange of permeability enables a vitality of bodies that dissipates, produces, and reproduces within the inter-feeding flows of the garden's nourishing terrain concretized as the diversity and fertility of the landscape itself. Here the thriving of bodies affects that of the environment and vice versa. Across these nourishing relations, specific feeds – like ground eggshells, brewed fruit peels, foraged harvest, knowledge provision, or eco-farming sponsorship – serve specific transformative purposes. Each feeding contact relies on and is indicative of the provisional mutuality between the consumer and the consumed, between eating and being eaten. In material, ontological and economic relations, multiform food connects humans and nonhumans within entangled eating and being eaten. It highlights the invisible work of regenerative agriculturists, human or not, on which the thriving of future eaters and worlds depends.

Reckoning with these connections raises the ethical question of what eating well and consuming well mean in an increasing mal- and undernourished world. In the current Waste Age of self-

consuming growth (McGuirk 2022), when capitalist exploitation is depleting ecosystems at local and planetary scales, the prototypical Soil Trust eco-nomy and its interpenetrating practices may provoke us to generatively ask: How can we reimagine ourselves as delectable food for others that counter human exceptionalism? How are social arrangements shaping not only what we eat but what remains undigested and is devouring us (at whose expense and at whose benefit)? How do consumption practices connect us in (mostly invisible yet) complicit ways to seemingly faraway places and communities? How can designing for mutualistic co-digestion more fully present, account for, verbalize and report the processual dimensions of care that matter heavily in such feeders' economies? What if research agendas invested profoundly (and playfully) in labor-intensive care and regeneration practices? What if pursuing feeders' economies was considered a pragmatic pathway forward and clinging to the status quo as self-devouring utopian? What if everyday eating, consuming, and discarding were considered the interspecies political arena (Youatt 2020) for challenging and renewing inclusion and exclusion, survival and elimination, management and institution across more-than-human life forms?

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