

# Meandering as Praxis: Participatory Designing in Entangled Coexistence

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## Abstract

This paper theorizes *meandering* as a durational, participatory design praxis that resists goal-driven interventionism by embracing indirect, exploratory approaches. Grounded in the social enterprise Soil Trust in rural Hong Kong, the study examines how reclaiming organic waste and regenerating soil health can catalyze societal change. Meandering design navigates structural constraints through relational logic, temporal fluidity, and intentional ambiguity, fostering emergent collaborations across communities, institutions, and nonhuman actors. Drawing on agential realism and strategic indirection, the authors analyze 80 site engagements and 60 interviews using narrative inquiry and analytical abduction. Findings reveal four dynamics—nimble resistance, relational logic, temporal fluidity, and intentional ambiguity—that reconfigure participatory design as ecological accompaniment over time. The paper contributes a transdisciplinary framework for design-led societal transformation, emphasizing local viability, environmental attunement, and collective reinvention. Meandering offers a heuristic for engaging complexity, enabling designers to respond to eco-social crises with humility, adaptability, and long-horizon commitment.

## CCS Concepts

• Networks; • Human-centered computing;

## Keywords

Strategic indirection, Agential realism, Intersectoral collaboration, Soil health convergence

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## 1 Introduction

This paper theorizes and practices meandering toward societal change, an underexplored mode of inquiry in participatory design. Meandering is a slow, stepwise movement that stays with emerging questions and treats obstacles as invitations to delve deeper. It explores existing relations, practices, and oppositions, repurposing them for unintended uses. Instead of rushing to conclusions, meandering loosens rigid positions and grand ambitions. The designer fosters curiosity that moves between fascination, restraint, and detachment [1]. Directionality arises through entangled patterns—flows and boundaries shaping design terrains, echoing Karen Barad’s [2] notion of phenomena co-constituting through “intra-action.” Meandering is relevant in design through its circuitous reconfiguration of societal legacies and milieus behind complex problems.

In design, soil is often seen as inert—just a background or substrate for human activity like construction, agriculture, mining, or speculation. Yet, the fates of soil, climate, and people are linked: depleting one intensifies stress across the others [3] and requires urgent design responses. Viewed through planetary and intergenerational lenses, soil is a dynamic ecosystem shaped over millennia by gravity, water, and climate cycles. Living soils detoxify contaminants, renew water, produce food, and store carbon. These functions hinge on myriad relationships among rocks, sediments, microbes, plants, animals, and human practices [4–6].

Participatory design that reinvests organic waste to rebuild soil health, replenishes carbon pools, thus open liveable futures. Converting local waste into shared resource flows can alleviate food scarcity and climate pressures beyond the immediate site [7]. Designers increasingly explore material ecologies and practice-led infrastructures that reintegrate metabolic flows within bioregional limits [8, 9]. Recovering these capabilities is vital, as governments and market incentives trail ecological realities [10]. Still, research shows inertia, fragmentation, vested interests, and short-termism hinder the social dynamism needed to repair soils and reconnect people to their bioregions [11, 12].

Participatory designers face two key challenges in addressing our eco-societal crisis. First, societal decisions often replicate past

norms and preferences, reinforcing structural conditions that demand long-term change over quick fixes. Second, rebuilding metabolic collaborations and soil ecologies requires implementation-heavy work across decades and generations. This work remains precarious as conventional design tends to be surface-oriented, solutionist, and ill-equipped for protracted issues [13]. To counter reductive methods, we ask how participatory designers can foster redistributive, restructuring change beyond imagination—by meeting radical differences with perseverance and indirect action.

We ground our paper in Soil Trust, a social enterprise in rural Hong Kong that embodies meandering design to mediate past, present, and future. Partnering with a farm, retailer, hotel, welfare center, and food scientists, Soil Trust reclaimed organic waste across sectors to revitalize unused land and latent potential. In Hong Kong, rapid urbanization, outsourced food production, and contested waste policy limit regenerative uses of biodegradables for soil [14]. Since its 2021 launch, Soil Trust has initiated a participatory, emergent, and reconfiguring design inquiry whose ripples continue to unfold.

Meandering took shape as Soil Trust encountered pushbacks and detours that redirected its path: from educational proposal to field survey; eco-social farm pilot to community/industry alliance; and public advocacy to social impact case—without abandoning its insurgent course. Engaging environments, infrastructures, and communities revealed indeterminacies that unlocked new functions. We argue design is boosting local viability and designer sensitivity by uncovering opportunities within resistance and revaluation. In contrast, external investments often bring hidden costs, disrupt integration, and create bioregional disconnects.

## 2 Participatory design and societal change

Scholarship on collective resource governance stresses designing relations with existing or emerging institutions [15, 16]. It emphasizes biocultural commons—tangible landscapes and infrastructures, and intangible contributions like heritage and customs—entangled in their terrestrial context [17, 18]. Research highlights relational processes and contextual specificity as key to collective identity and personhood in regional development [19–22]. Studies from the Global South show how community self-determination arises from design knowledge tied to struggles for recovering localized ways of living [23, 24]. Some work describes participatory design that intervenes in collaborative infrastructures [25] or addresses harmful production and consumption patterns [26, 27] to build local resilience against external pressures [28, 29]. These framings can unintentionally limit interventions to fixed identities of locality, peripherality and designer [30]. Predetermined notions of utility also fail to explain how societal change often stems from emergent intuition, disengaged actions, and everyday experiences [31]. Rigid intentions leave designers – particularly in the Global North – unprepared for resistance or obstacles. To address this, we explore design-led meandering as a lens for multifactor affordances and strategic emergence amid challenges unsuited to quick, predefined ‘solutions.’

## 3 The meandering praxis

We propose meandering as a concept for durational participatory design without goal obsession: an open-ended exploration grounded in curiosity that can lead to evolutionary pathways unanticipated by intentional logics. In the natural world, meandering reshapes landscapes as currents in oceans, rivers, glaciers, and magma shift laterally. Rivers and their tributaries are constantly remade assemblages in meandering movements, shaping entire watersheds of entangled water, rock, sand, sediments, animals, and plants [32, 33]. We adopt this mutually nourishing unpredictability as a practical approach for design research, embracing purposive, exploratory movement that challenges creation paradigms fixated on functionality, efficiency, and technology. Meandering design involves category-defying immersion, following detours, reading across disciplines, and convening unexpected partnerships by respecting ambiguity in existing challenges and reweaving them toward unexpected reconfigurations [34].

Anchoring this approach in transdisciplinarity [35], we place Karen Barad’s agential realism [2] in generative dialogue with Robert Chia’s and Robin Holt’s strategic indirection [1]. Barad’s feminist theoretical physics details how people/world relations emerge through entangled, continually reworked intra-actions, positioning the designer as co-constitutive of what unfolds [36]. Chia and Holt implement intra-action through praxis: pragmatic coping actions arising from unspectacular, locally adaptive, timely attuning in immediate situations [37]. For both, difference and otherness are not concerns of tolerance or inclusion but forces for rethinking how designers know, act, and exist in a world that is always already relational. Barad welcomes difference as patterns of generative interference rather than division (“diffraction”) while Chia engages ambiguity, unknowability, and paradox as opportunities for mutual transformation (“the foregrounded other”). Meandering thus becomes a life-embedded, humbling mode of inquiry that honors complexity and unpredictability through concurrent knowledge-making and responsibility grounded in preconditioned locality.

Prior research discusses movement in contingency as a program for repositioning the designer within complexity through decentering [38], nomadizing [39], or drifting [40]. Often, this movement is anchored in developing tooling, visualization, products, technology, or speculations that overlook renewal processes in resource-constrained settings [41]. Meandering speaks directly to these conditions, relying foremost on what is locally available and workable. Structural problems require radically durational, deeply participatory approaches that exceed project timeframes, goal confinement, and shared norms [42]. Our narrative inquiry into Soil Trust explores how social innovation can engage predefined factors over the long haul when ready solutions are unattainable, and how strategic meandering reconfigures people/world relations through collective action.

## 4 Methods, data, analysis

Between 2021 and 2025, the authors collaborated with an organic farmer and permaculturist to implement the Soil Trust enterprise. We investigated how social networks and collective fermentation practices could locally regenerate soil nutrients from organic waste, while establishing exchange relations that make such practices

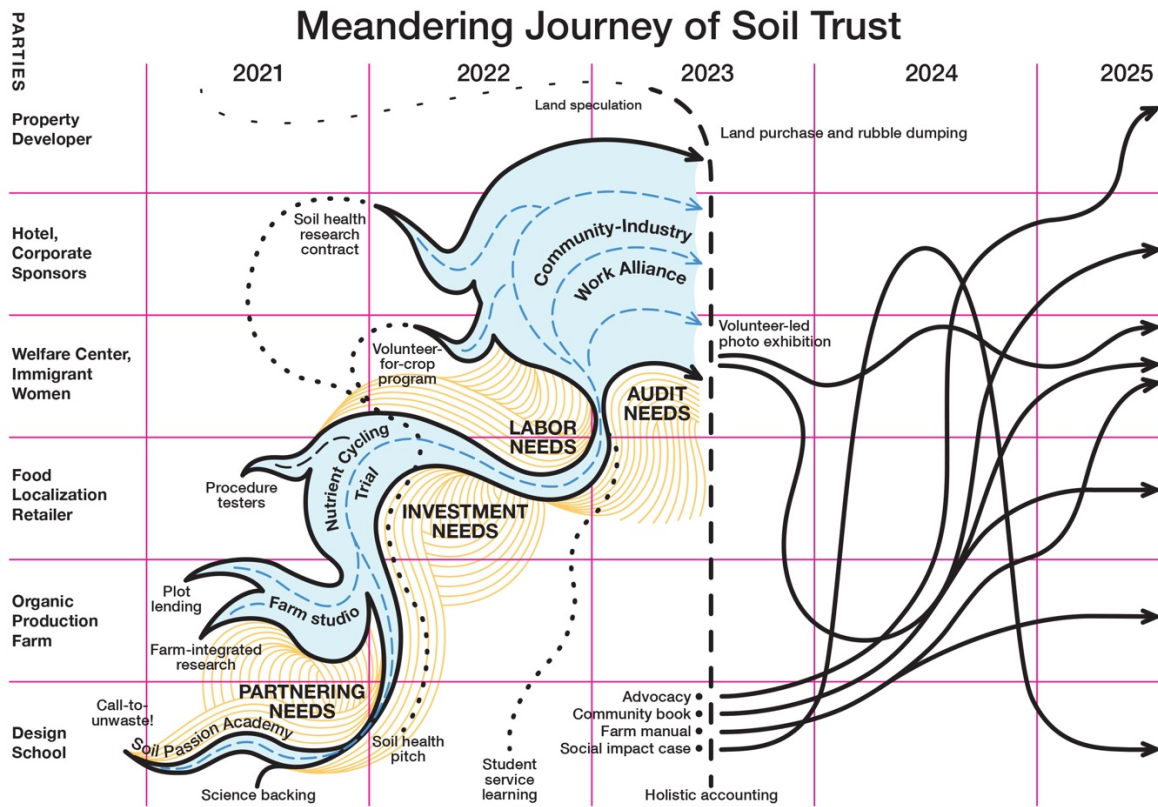


Figure 1: Emergence, interventions, and challenges (capitalized text) of enterprise over time and parties.

Table 1: Dynamics in the meandering design praxis

Nimble Resistance	Relational Logic	Temporal Fluidity	Intentional Ambiguity
INTERVENTIONS—RECONTEXTUALIZING			
Reclaim waste imperative	Redirect design paradigms	Ritualizes land care	Community alliances
Endorse versatile land use	Activate sensory engagem.	Savor whole-life cycles	Account for generativity
Uphold manual practices			Polyphonic identity
TECHNOLOGIES—ENTANGLING DIFFERENCE			
Emancipatory sensemaking	Protocols for curiosity	Knowledge continuum	Multi-layered organization
STRATEGIES—INDIRECTING PROPENSITIES			
Refuse dominant reasonings	Privilege relationality	Unfold through ritual	Power of not full legibility
Sidestep confrontation	Mundane intuition	Work unpredictably	Useful vagueness

viable. Our team comprises a bioregioning designer, an anthropologist, a media expert, and a community artist. Responding to Hong Kong’s 3,000 tons of food waste landfilled daily, low recycling rates (in absence of a waste-charging scheme), and marginalized agriculture, we experimented with collective soil care formats that engage younger and diverse populations. Loss of nutrient cycling

traditions, fragmented governance, speculative land banking, lax zoning, and urbanization-driven planning have depleted landscapes and prospects across the territories’ countryside [43].



**Figure 2: Immigrant women advising farm manager on planting potatoes without soil disturbance.**

#### 4.1 Nimble Resistance

Rather than exerting frontal attacks against dominant systems, Soil Trust engaged challenges by repurposing what already existed and noticing underutilized capacities. As Author 2 puts it: “We were not fixated on predefined plans but recognized those inherent, not yet realized potentials from emergent, weak signals.” Nimble resistance reclaimed waste, endorsing multifunctional land use, and upheld manual practices as shown in Figure 2.

**Reclaiming waste as imperative** resisted linear consumption and dependence on costly infrastructures (landfills). “We simply upcycled waste with waste,” Author 1 remarks, capturing the idea of using one discarded material to mobilize another without external inputs: fruit peels as microbial starters, rice bran as catalyst, recycled plastic containers as collection bins, and cardboard as mulch. Combining such materials facilitated nutrient cycling while counteracting unregulated waste streams.

**Endorsing versatile land use** involved adopting an unused plot within a production farm for research, agriculture, education, and convivial activities. Author 3 captures this tension: “We borrowed and reactivated this land, it was a gift, and then we had to give it back—we lost the gift to conventional progress.” As part of slow diplomacy, we regularly showcase Soil Trust at ‘zero waste’ or ‘carbon neutrality’ events of urban developers to keep farmland regeneration (and speculation) on the radar.

Upholding manual practices prioritized decentral, human-propelled methods over costly, high-tech approaches. We revived folk wisdom by brewing enzymes from fruit peels and pickling scraps that preserve nutrients and curb smells. Applying these ferments in land care has stimulated soil microbiology and beyond, as Author 4 notes: “The limitations imposed by labor-intensive communal methods carry no longer the negativity of inefficiency but keep us in tune with the reality of living on a shared planet.” Limitation thus became a precondition for humility and collaborative creativity, therefore suspending narratives of convenience and automation.

Nimble resistance was underpinned by emancipatory sensemaking that embraced contrasts. Participants used mapping, waste diaries, social media, drone footage, and academic diagramming to share encounters with bubbling bacteria, fungal infestations, unidentified plants, and developers dumping rubble. Instead of smoothing differences, digital tools honored the clashes across kitchens, natural and public life. As Author 2 observes: “Here joy is how we relate, engage, and commit to joint purpose and obstacles, not just about feeling good.” This mediation emphasized diversity as a strength and collective agency amid constraints.

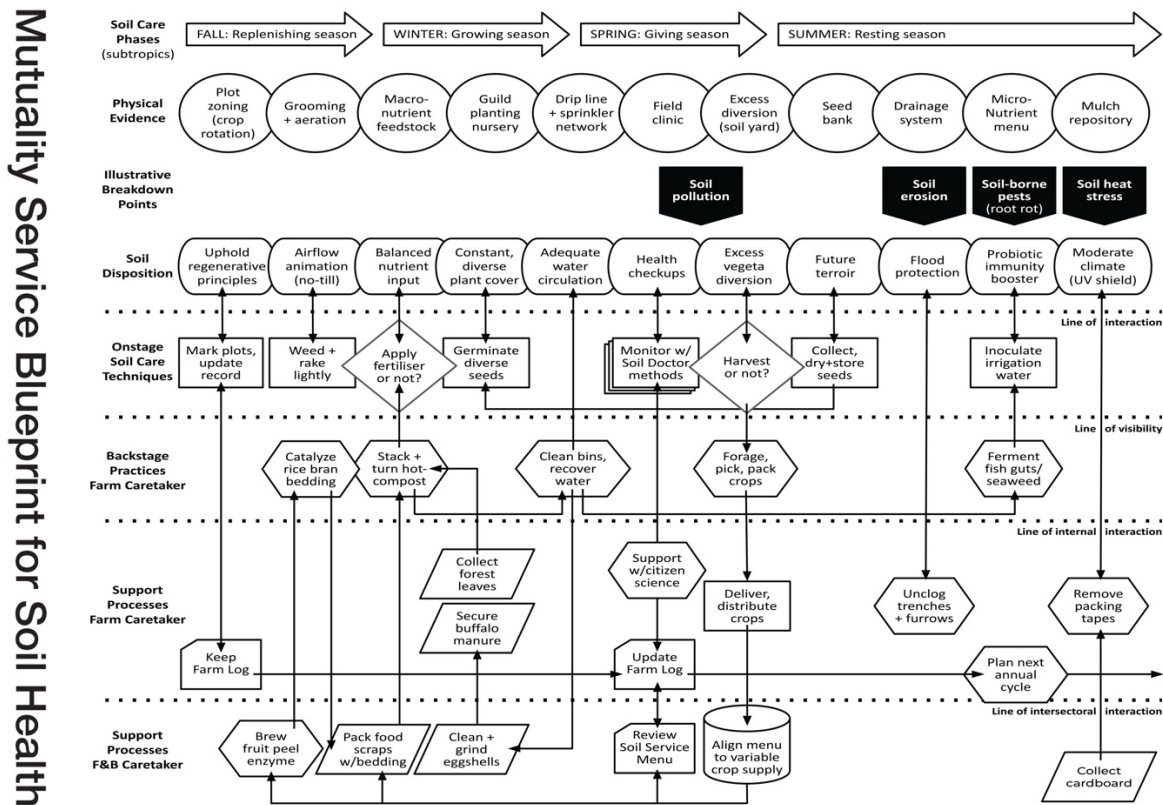


Figure 3: Soil health service journey to foreground backstage of care at households involved.

### 4.2 Nimble Resistance

For Soil Trust, nutrient cycling meant addressing intergenerational relations, compensating (nonhuman) work, coordinating consumption and production, and reconsidering what counts as ‘alive’ and worthy of care. Our reasoning favored contextual sensemaking over isolated facts or linear causality. Author 1 emphasizes: “Since we cannot precede our relations, our existence and meaning are conditioned on inhabiting the connections across people, institutions, cultures, and the natural world.” Outcomes were configured by local specificity rather than universality. We responded by redirecting design paradigms and activating in situ sensory engagement.

**Redirecting design paradigms**, questions mapping, and design thinking conventions that abstract users and value. Author 2 asks: “How might we destabilize conventional consumer-driven thinking by challenging our visual language and factoring human nature mutuality, for example, into the service blueprint?” This reorientation pushed us to reconcile human needs with soil dispositions, subverting ecologically indifferent valuations and shifting to ecosystem-centric frames as rendered in Figure 3 [48, 49].

**In situ sensory engagement** involved eco-social codes of conduct: distributed bacteria culturing, shared farm responsibilities, studio reflections, or blind tasting of harvested crops. Author 3 notes: “People are meeting, moving, touching, smelling, sensing, conversing with human and nonhuman others.” Multisensory interactions with soil and peers co-produced knowledge that intensified

and multiplied across social domains, producing embodied intuition rather than abstracted metrics.

Digital technologies amplified relational logic by sparking curiosity. Social media brought volunteers together through awe, change, and complexity. As Author 2 explains: “We’ve been analyzing the exchanges on the instant messaging groups, how members talked about insects or incidents at the farm and in kitchens. People were moved by each other.” Digital connectivity transported curiosity through the playful or the urgent, thereby motivating volunteers to become attuned or take action.

### 4.3 Temporal Fluidity

Soil Trust insisted on the afterlife of materials, interventions, learning, and configurations to counter design cultures enamored with novelty and instant gratification. Time, here, is open-ended, layered, responsive, with latent futures emerging across rhythms of practice. Author 2 reflects: “Our process is a strategy constantly informed by encounters—the impact is not apparent unless its entirety is lived through, which has to be accounted for from the very beginning.” We enacted temporal fluidity by ritualizing land care, savoring whole life cycles, and redistributing communal legacy.

**Ritualizing land care** created rhythms across distance: households reproduced microbial starters quarterly; hotel kitchens pickled scraps monthly; farm volunteers convened weekly. Author 1

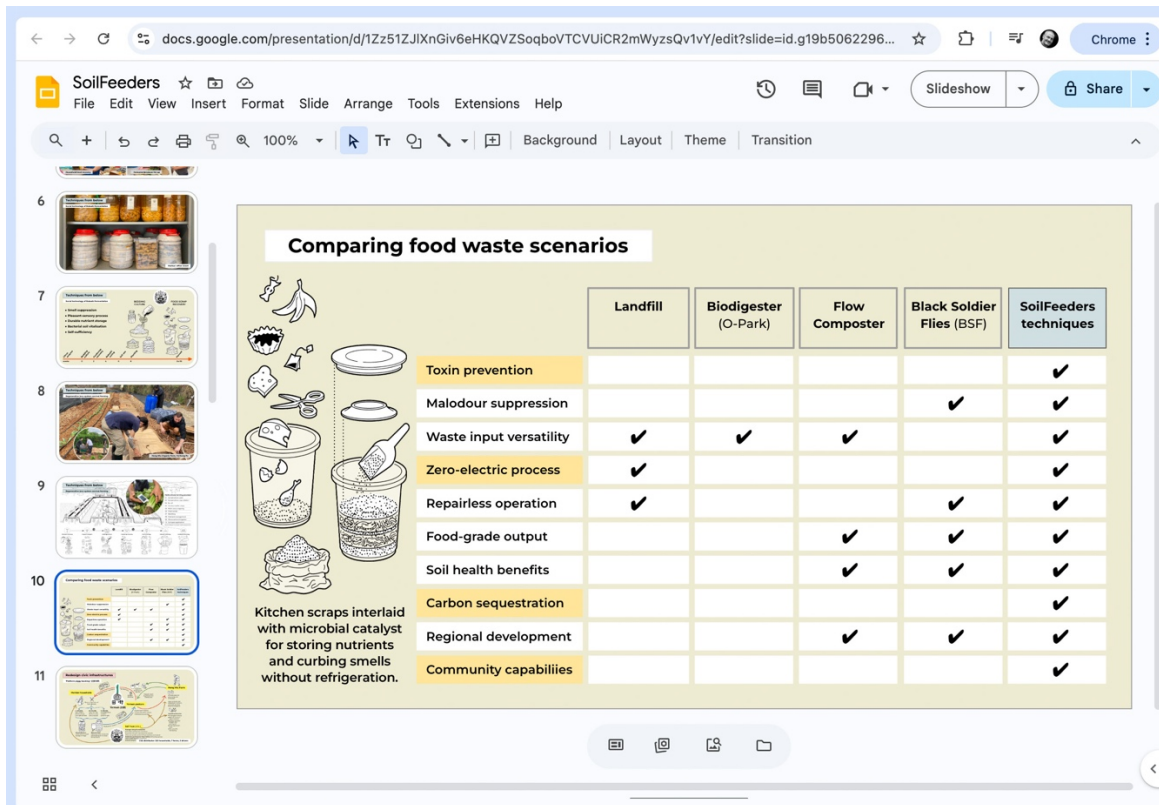


Figure 4: Pitch deck for corporate funders advocating collective fermentation to recover hospitality food waste.

observes: “Despite social and geographic distances, we stayed connected metabolically and recurrently with the farm plot and each other.” Evermore the plot is unfit for agriculture, we revisit our partner farmer and the dumping site, staying with their unfolding fate.

**Savoring whole life cycles** meant tracing birth, growth, succession, decay, and renewal in fermentation bins, compost stacks, and crops. Author 4 shares: “We witnessed many plants going all the way to seed; you see its beginning and you see its end, it’s complete.” And discoveries followed. Celery is edible beyond stems with seeds steeped into tea, leaves ground into pesto, roots stewed into soup. Compost’s off-grid heat can be harnessed for passive cooking, turning microbial activity into a utility.

**Distributing communal legacy** describes how different groups continue carrying Soil Trust’s message beyond its active phase. Author 4 explains: “Fond memories spread through networked sharing from one point to another.” The eco-social farm welcomed villagers, hoteliers, students, and the underprivileged. Despite sweat and toil, it offered respite from daily hustle, attracting family relatives, passersby, and nonhuman visitors. These entanglements constitute collective impact that now outlives the physical project, traveling through intertwined relationships, practices, and stories.

Digital platforms supported temporal fluidity via knowledge continua. Internally, instant messaging, online workspaces, and repositories aided task management, agrowaste inventory, crop planning, and citizen science across time and space. Externally,

social media channels, pitch decks (Figure 4), publications, and forums attributed contributions to partners and audiences, keeping knowledge relevant within and beyond the organization.

#### 4.4 Intentional Ambiguity

Throughout, Soil Trust remained ambivalent about framing, justification, and communication—not by accident but as a prudent design choice. Ambiguity enabled adaptation to changing conditions. Author 1 recalls: “Our initial intention was to convene various groups to a fermentation-led training program for upcycling biowastes. Then, unforeseeable, not to be missed opportunities carried us off track.” Collaboration became a matter of bridging experiences and translating learning, not a goal-driven instrument. We pursued proliferating community alliances, accounting for generativity, and realizing polyphonic identities.

**Proliferating alliances** meant opening hybrid spaces that straddled academia/practice, commons/commerce, interior/exterior. Villagers, ecologists, entrepreneurs, and consumers joined a collective enterprise with ambiguous ownership that puzzled even our farm manager: “Isn’t it confusing to run Soil Trust with four parallel initiatives under different names: Growers Without Borders, Soil-Feeders, Belongs to the Field, and The Farm Studio?” Precisely such investment in diversity created fertile ground for dialogue across differences and functional expansion. Structural open-endedness



Figure 5: Soil service menu for hoteliers, upskilling program for immigrants, community action for families.

shifted agency from individual assumptions to collective reinterpretations, transforming waste into resources and competition into collaborations.

**Accounting for generativity** required sidestepping conventional impact metrics in favor of capability-based evaluation. Author 2 asks: “How could we measure the quality of interactions among people and nonpeople in the whole process of learning? Any standard assessment would be reductive of the process and context.” Generativity emerges through access to diversity and shared responsibility that shape capabilities, mindsets, and common potential. Soil health, likewise, manifests relationally—some crops prefer sandy soils, others loamy—manifesting value situationally rather than absolute.

**Realizing polyphonic identity** stemmed from manual farm work with low barriers to entry, which equalized status, blurred roles, and flattened hierarchies across all involved. Author 4 observes: “The farm is not just a backdrop: depending on the person who enters, it takes on different significance. Design students turned it into a studio, TV directors into a scenery, night owls into a campground, dancers into a stage, visitors into a destination.” Immigrant women shared agricultural knowhow from their home countries, thereby transcending distinctions between nonlocal and local, observer and protagonist. It displaced assumptions about identity and belonging.

Intentional ambiguity was supported digitally through multi-layered organizational attribution. Soil Trust communicated via

dedicated websites and social channels, while SoilFeeders engaged hospitality professionals, The Farm Studio convened design students, and Growers Without Borders mobilized volunteers from diverse walks of life. This array kept identities plural and adaptable, helping us resist capture by any single narrative or institutional category (Figure 5).

Collectively, the meandering praxis worked against the grain of dominant systems, addressed seemingly intractable structural challenges, and persevered past the enterprise’s active phase. Continuous coping responses within constraints led to personal and organizational reinvention, expanding functions based in communities that enact locality.

## 5 Discussion

Meandering as praxis in design involves shifting socio-material structures, which Barad calls “diffractions” [2], by persisting, moving indirectly, unlearning, and welcoming emergence to invigorate latent opportunities locally. It repositions participatory design from intervention in time to accompaniment over time [50]. For practitioners, it reframes mundane otherness as the source of nimble, circuitous pathways toward wider futures. In Soil Trust, meandering between localized exploration and enabling constraints reconfigured the practice, practitioner, and praxis—altering identities, relations, and capacities alongside.

The concept raises four questions for participatory design: (i) How to become authorized to design with the social? (ii) How to remain transparent about positionality, standards, and limitations? (iii) How to be participatory in difference and mundane? and (iv) How to hybridize design praxis?

**Authorization with the social.** Our work centers on societal implementation, extending participatory design beyond ideating paradigms, problems, or plans. This shift reconfigures designers as capability builders—locally, collectively, and durationally [13]. Though rooted in locality, meandering affirms that historical socio-technical patterns need not shape future paths. Engaging the unknown, overlooked, or stagnant [51], prediction becomes irrelevant. Meandering designers pursue overarching propositions (e.g., design for soil health) through small, iterative, or oblique actions, creating focus, momentum, and longevity across domains [8, 52]. Disciplinary silos alone fall short when only synergy can address structural issues [53, 54].

**Transparency about positionality and limits.** We became accountable not only for our interventions but also for prior relations and decisions. Understanding these legacies helps reveal functional fixations. Waste, for example, is poorly recognized, limiting reimagined uses. As in-migrating conveners, we stayed alert to our status and responsibilities: declaring limits, justifying choices, and clarifying ethics. Meandering supports the idea of “design as equipment for social learning” [50]. Impact here is not a score to chase but a web of reciprocal connections and vibrancy, measured through realization potentials in people, communities, and society [55].

**Participatory in difference and the mundane.** Our study focused on embedded practices and coping tactics that shape organizational life and agency beyond formal roles or top-down directives. External actors played a role, but the collective embeddedness of locals and nonlocals strengthened Soil Trust’s resilience. Both invited and uninvited groups sparked encounters, activities, and potentials, enabling exploratory journeys [56]. Participation emerged through the skilled, situated use of old and new technologies within social routines. Endurance relied on continually renewing members and partners, embracing unlikely allies, and sustaining trust.

**Hybridizing praxis.** Soil Trust straddled indoors/outdoors, profit/nonprofit, education/practice. This hybridity prompted shared rethinking beyond personal views. Meandering between waste/reuse, production/consumption, and contestation/coordination required sustained investment across sectors, building redundancies that enable functional expansion. Contrarily, functional specialization poses risks during fluctuations; therefore, expert design clashes with evolutionary concepts like meandering [57]. As crosscurrents strengthen and interest in geomorphology increases, so does understanding participatory design as circuitous reinvention, transdisciplinary heterogeneity, and movement reservoirs.

Meandering offers heuristic relevance for design because it embodies multiplanar worldmaking movements as indirect strategy that extends post-structuralist debates on interventionist design from within [58].

## 6 Conclusion

What does meandering offer to participatory design? Conceptually, when using meandering, we refer to ourselves as be(coming) part and parcel of a heterogeneous concurrent, an immanent unfolding amongst constituents. It differs from lingering (in time) [38], wandering (in place) [39], or drifting (in flow) [40] that do not reframe the idea of the agent that is acted upon and separate the designer from what is being designed – as external reality – thus still retain the vestiges of a subject/object divide. Methodologically, meandering refers to ever-evolving, bio-geographically situated conversations between multiple genealogies arriving at the present that, in unison, are performing future-casting processes [59]. It changes how we make sense of futures. We can no longer ‘ground’ the future in thinking that forecasts a desired trajectory. Neither can we ‘unground’ the future in pure speculations. Instead, a meandering designer engages in other-asserting transformation that not only attends to how matter matters but also who matters in matter, and why it matters for futures. Hence, meanderable designers work with materials, life forms, organizations, data, fictions, and narratives in an accompanying, counterfactual, and defamiliarizing manner by practicing the embrace and balance of complexity, equivocation, corroboration, and conjecture [60].

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