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Journal of Urban Management

Provided in Cooperation with:

Chinese Association of Urban Management (CAUM), Taipei

Suggested Citation: Forester, John (2019) : Ecological wisdom through deliberative improvisation: Theory and practice in challenging cases, Journal of Urban Management, ISSN 2226-5856, Elsevier, Amsterdam, Vol. 8, Iss. 1, pp. 12-19,
<https://doi.org/10.1016/j.jum.2018.04.003>

This Version is available at:

<https://hdl.handle.net/10419/271333>

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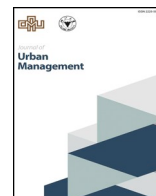
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Research Article

Ecological wisdom through deliberative improvisation: Theory and practice in challenging cases[☆]



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This essay explores ecological wisdom in practice, less philosophically than empirically, in actual cases.¹ Part I will sketch a conceptual framework rooted in earlier studies of deliberative practices and planners' pragmatic improvisation (Forester, 1999, Laws & Forester, 2015; Forester, 2017c). Part II then examines and draws lessons from three cases of instructive ecological practices—in New York, Philadelphia and Sicily.

But what do we mean by “wisdom”? For a first approximation, consider “wisdom” as practically engaged, appreciative judgment, in contrast to technical calculation (Vickers, 1965; Nussbaum, 1970; Xiang, 2014, 2016; Forester, 2017a). We all know people who are excellent technicians, but poor listeners. Precisely right about what they've heard, they have heard the words of the speaker but they have not listened carefully to the speaker of the words. We know friends who might be very intelligent, but they take others too literally: so they have missed the problem at hand. Intelligence, then, helps when problems are well-defined and clear; but wisdom is necessary too when problems are ambiguous, when contexts are dimly lit, and when, long before choices are evident, we must craft appropriate choices as options in the first place (Schwartz and Sharpe, 2010; Forester, 2017b). “Wisdom,” here, then will mean a discriminating perception—including more than, but also embracing, intelligence, science, or engineering.² As Martha Nussbaum and Wei-Ning Xiang argue, in moral and ecological domains, wisdom cannot be pre-scribed: it must be creatively and responsively improvised.³

A simple framework can help us understand real cases. Ecological change can hardly be the work of scientists, or environmental planners, designers or even politicians alone. Trained “specialists” must deal with each other—as will politicians—and with diverse stakeholders. In addition, these diverse professionals, politicians and stakeholders will generally have differing priorities: they will rarely all agree, and so disagreement, dispute and perhaps conflict will be commonplace. As a result, modes of conflict resolution will matter whenever questions of environmental design and change arise: such “dealing with differences” practically means “negotiating” our interdependence.⁴ These are weak presumptions: any wise ecological practice must engage complexity and plurality, conflict and power, and multiple avenues of negotiation too.

In such contexts, environmental designers have few rules telling them what to do. So they need not only to learn with others, to be deliberative (Forester, 1999, 2009, 2013), but also to be responsive to fluid, contested, unique settings—thus to improvise creatively

[☆] Peer review under responsibility of Zhejiang University and Chinese Association of Urban Management.

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¹ Prepared for the Inaugural TONGJI Advanced Lecture Series on “Frontiers in Eco-Phronetic Practice Research” at TONGJI University, Shanghai, May 31–June 2, 2017. I am indebted to work of Xiang (2016) and Young (2016), as well as to provocative comments from Dorian Fougères and an anonymous reviewer. I would like to dedicate this paper to the memory of Rob Young, a dynamo of critical ecological thinking who died so tragically in January of this year.

² Abraham Joshua Heschel evoked this distinction when he wrote, as I only recently discovered, “When I was young, I admired those who were clever; when I became older, I admired those who were kind” (quoted in Blum (2016)). Appreciating cleverness, we take the world as presenting engineering puzzles to be solved; appreciating kindness, we take the world as made up of human relationships and unique interconnections deserving attention with care.

³ Nussbaum (1990) gives an account of moral improvisation which Forester (1999) elaborates in the context of urban and regional planning practices; Xiang (2016) argues that any ecological wisdom must also demand a discerning and responsive improvisation in practice: thus the challenge of this essay. Cf. Barrett (2012); Wheeler (2013).

⁴ Lawrence Susskind has devoted his career to developing the implications of this point: any meaningful form of “participation” or even more generally interdependence will require multi-stakeholder negotiations of difference, for better or worse, requiring, in turn, inquiries at the heart of planning and public policy analysis (See e.g. Susskind, McKernan, & Larmer, 1999; Raiffa (1985); cf. Innes & Booher, 2010; cf. Steinitz, 2012).

and practically. This is not rocket science: it builds upon the moral improvisation that we do all the time.⁵ But calling for “responsive and creative improvisation” is as vague as calling for “wisdom,” and these labels do not *themselves* help us: we must examine how we can “improvise creatively,” *how* we might actually be ecologically “wise” in practice. So we must explore both theories—*about* practice, as in moral philosophy (Nussbaum, 1990)—and complex cases informing the actual performance of ecological wisdom “on the ground.” Similarly, we must refine and extend fragmentary conceptions of improvisation that restrict it to the “Yes, and...” moves of recognition and proposal-making (Boyer & Hopkins, 2018; cf. Barrett, 2012; Wheeler, 2013).

Deliberative improvisation involves a triad of practices characterized respectively by three practical questions (Forester, 2017c). Facing complexity and conflict, plurality and politics, *ecologically wise planners must ask and evoke answers in three domains—to three abiding, but distinct, sets of questions:*

“A”: “What matters here—what is significant, in the case at hand?” By asking and answering this question, planners frame or diagnose problems, learning not just about “the facts,” but about “the facts that matter” (Nussbaum, 1990; Forester, 1999);

“B”: “What do we *know* and still need to *learn*?” By asking and answering this question, planners leverage expertise through argumentation and debate, scientific research, local and independent knowledge; and,

“C”: “What can we actually *do* in this case?” By asking and answering this question, planners *negotiate agreements on action*—perhaps by mediating disputes or building partnerships and coalitions for practical interventions.

These three sets of questions are distinct, virtually unavoidable practically, and distinct processes and practices (or even methods) can help, respectively, to answer them. Ordinary *conversations* (in dialogues or focus groups) help us to identify problems, but technical “*arguments*” or “*debates*” (and underlying methods of science) help us to establish knowledge claims. In contrast, processes of *negotiation* help us to produce agreements upon action.

Evolving over time, these different processes and practices become three strands of an *interwoven “triple helix”* of questions and responses, arguments and counter-arguments, moves and next moves, as stakeholders wrestle with important problems, try to learn about them, and try to find resolutions together. Such deliberative improvisation, then, calls for far more than ad-hoc incremental action: it encompasses but moves beyond the partisan mutual adjustment of Charles Lindblom’s classic “muddling through” to integrate results of three distinct learning processes—interpretive and hermeneutic, argumentative and scientific, and negotiated and value-creating (Lindblom 1959).⁶ This work is deeply pragmatic, allowing us to reframe at times “mistakes” into “mis-takes,” moves gone wrong into opportunities for learning and perhaps repeated trials (Klemp et al., 2008; cf. Forester, 2017c).

The practical value of this “triple helix” becomes apparent in a thought experiment. Just imagine the costs of *ignoring any one strand* of this helix:

- 1) If we have arguments leveraging expertise and negotiations to act, without dialogues about significance, then we have action that is well-informed, but we risk solving the wrong problems.
- 2) If we have dialogues about significance and negotiations about action, but without leveraging expertise, we might act on important problems, but we risk doing so stupidly, inefficiently, and ineptly.
- 3) But if we have dialogues about significance with the leveraging of expertise—without processes of negotiation—then we risk talk, talk, and more talk, with reports and more reports on shelves, without any pragmatic actions taken to address problems at hand.

This triple helix suggests an intellectual infrastructure for the work of ecological wisdom, integrating together the context sensitivity of practical judgment, the inquiry and intelligence of systematic research, and the pragmatic, political inventiveness of grounded deliberative and negotiated practices (cf. Forester, 2017b, 2017c). So ecological wisdom represents both a provocative Aristotelian idea (Xiang, 2016), and this triple helix of pragmatic inquiry suggests how ecological wisdom can take shape in practice—by answering three central questions in any given case. Normatively: what *matters* here? Scientifically: What does our best research teach us, upon which we might now build? Pragmatically: What can we actually negotiate to do here?

Discussing wisdom, the planning and public policy literatures might contain more theory, but fewer cases.⁷ So Part II turns to examine arguably emergent ecological wisdom in actual practice. We exploit here a ‘bias for practice’: We hope learn about ecological wisdom by examining the practices of environmental professionals, scientists and lay people alike (Forester, 1999).

Part II: Instructive Cases of Emergent Ecological Wisdom.

A. Brooklyn: Between Nation and Neighborhood, Learning from Practice.⁸

⁵ This work, I have argued (Forester, 1999; Laws & Forester, 2015; Reardon & Forester, 2016) draws upon our more ordinary abilities to make practical judgments, to exercise the wisdom and Aristotelian phronesis, of our everyday lives (Forester, 1999; Nussbaum, 1990). Moral improvisation is the lived, practical improvisation that we do all the time with individual friends and family members as we must respond sensitively, perceptively and creatively to who *they* are, in new situations and changing contexts as interests and values conflict or compete as they often do. But *how* can we do such work? Cf. Forester 2018a.

⁶ Vast literatures of scholarship exist as testimonies to the significance of these questions, for after all, these are distinct but related questions of value and significance (thus ethics and interpretation, cf. Nussbaum, 1990; Taylor 1971), “fact” and knowledge claims (thus science and epistemology), and action and practice (thus pragmatism and politics). For recent applied work, cf. Matsuura and Schenk (2016). Learning practically and step-by-step in these ways does not so much contradict Lindblomian incrementalism but complexify, deepen and transform it substantially. Cf. Innes’s powerful reformulation of comprehensive planning—now seen as mediated multi-stakeholder negotiations—in response to Altshuler’s critique paralleling Lindblom’s (Innes, 1996).

⁷ This paper builds upon the fresh and stimulating work of Xiang (2014, 2016) and Young (2016). Young quotes an earlier work of Xiang characterizing ecological wisdom in part as “evidence based ideas, principles, strategies and even approaches that have led to the creation and sustained longevity of ...ecological projects [used] ...in conjunction with principles and strategies of economic, political, social and cultural relevance to inform the practice of urban sustainability research, planning, design, and management (Xiang, 2014:67).”

⁸ This first case presentation closely follows Corburn’s participatory observer’s account in Corburn (2007).

In Brooklyn, population density and industrial development, economic inequality and uneven environmental regulation led to levels of pollution that concerned both local citizens and officials of the federal government's Environmental Protection Agency. As University of California, Berkeley, Planning Professor Jason Corburn tells the story, we'll see that science and politics, complexity and coalition-building, accountability and discovery all matter.⁹

The Greenpoint/Williamsburg neighborhood was ethnically diverse, poor, and “also one of the city's most polluted...” [yet,] in the early 1990s, the first multi-ethnic environmental coalition in Brooklyn [had formed] to stop ... a municipal waste incinerator.” Due to the presence of hazards, a lack of health studies, and the history of local activism, the federal Environmental Protection Agency had chosen to pilot its Cumulative Exposure Project there.

Corburn tells us that the EPA scientists “had developed a research methodology ... that included exposure models assessing health hazards from food-borne toxins, air toxics, drinking water pollutants, and lead... Partnering with the City's [environmental professionals],” EPA officials “scheduled a series of community meetings to present [their] research protocol.”

Corburn reports fascinating results: “[A]gency scientists explained that the dietary assessment would combine i) data on contaminant concentrations in specific foods with ii) data on patterns of consumption...[BUT] since the agency did not have neighborhood-specific data on what residents were eating, the scientists [said they would estimate] local food consumption from [a national survey, so calculating an] ‘average urban diet’ for residents living in the northeastern United States.”

To that, Corburn says, “Residents...reacted with questions and disbelief.” One said,

“When we heard they were going to assess dietary risks using some default diet, we all just rolled our eyes. You've got Hasidic Jews here eating only kosher; Poles eating an Eastern European diet; Puerto Ricans, Dominicans and Guyanese. You're gonna tell this community we've got an “average American” diet?”

Corburn explains: “For many residents, the EPA assumption of an ‘urban default diet’ represented a lack of sensitivity to local culture, [it] stirred mistrust, and [it] aligned with their past experience of environmental injustice:” ... the project ... presented ... community members with crucial decisions already made, ... what was going to be studied, which data would be used, and who was going to perform analyses.” This, Corburn suggests, “generated a severe skepticism that any recommendations...from the study would improve the neighborhood environment.”

But this was the beginning, not the end. Corburn continues: “During the community meeting, residents also suggested that [many] local people were *eating and probably surviving* off a diet of fish caught in the East River. This was the first time the EPA had heard of this potential health hazard.”

An EPA official said: “When the residents raised the concern about people fishing out of the East River, we initially responded by saying, ‘We understand recreational fishing can pose a health risk, but we do not think the practice of eating fish is that widespread.’ But, the residents insisted that fishing was not a recreational activity but a matter of survival, and [it] acted as a staple of some families’ diet. To be honest, [the EPA scientist continued,] we were in disbelief and shocked.”

So, “the EPA agreed to ... a community-led tour of the piers where locals were fishing. The tour was a significant event for convincing EPA about the seriousness of the problem and ...[they] agreed to help the [community members] collect information about the practices of local anglers [people fishing].” An EPA official explained, “This was one situation where residents raised an issue we hadn't considered, defined the extent of the problem, and provided the data for analysis.”¹⁰

Newly calculating the cancer risks, the EPA found that “compared [to existing standards]...the risks to subsistence anglers, [local people fishing,] ... were deemed significant, but would have been missed without the community-generated information.”

Now, this story of better data collection involves more than pollution and cancer risk, more too than the fallibilities of expert and local knowledge, for it squarely poses the challenges of the proper problem framing at the foundation of any problem-solving analysis (Seeley, 1967; Rittel and Webber, 1973; Forester, 2017b). Corburn quotes a local activist:

“Our data on who was fishing and how much ... changed ... EPA's assessment, but the stories of local people, their struggles to feed their families, and the barriers ... [here] for making healthy choices, showed them [EPA] that this was more than just an environmental problem. I think we showed that you can't separate issues of poverty, immigration, culture, discrimination, and segregation from environmental risk

What drove the immigrant populations to fish to feed their families included, Corburn argues, “their lack of access to food stamp assistance,” “the scarcity of local supermarkets,” “the costs of high housing rents,” as well as immigrants’ “cultural norms and networks,” despite the risks of toxics in the river. Corburn writes, “The EPA presumed that... the “real” challenge was getting ‘the right data’... but these questions [food vouchers, market availability, high housing costs, social networks] were “fundamental to how local people understood the hazards they faced,” and how they *acted* as a result.

Two problems are interwoven here, one of the science of cancer risk and one of environmental change—and the scientific problem is the simpler of the two. A local official put this poignantly but powerfully, “You can't tell people to just stop fishing! This totally ignores who they are, their culture, and what they need to do to survive in this city.”

This official does not dispute toxicity or risk, science or the researchers’ recalculations, not what's “right” but what's appropriate, what's wise, for officials or policy or planning analysts to do. At issue, this community member knows, is not only knowing *smartly*,

⁹ Corburn writes as both a participant and an analyst, and he hopes to explore five interesting developments: first, “how residents of one Brooklyn neighborhood co-produced science policy expertise by tapping community knowledge”; second, how “that helped highlight a hazard previously ignored by the [Environmental Protection Agency]”; third, how they gathered “new data the agency was unable to collect;” and fourth, how they linked “technical analyses with the social, economic and cultural context where it was being performed.”

¹⁰ “Community members spent 3 months ... observing and interviewing over 200 anglers...why they ate fish from the East River, if they knew the fish could be hazardous ..., other types of food they fed their families, and where this food was purchased.”

but *acting well*, and so the community coalition members did not stop with new risk *calculations*. They needed, they knew, not only intelligence but wise action.

A new coalition linking community organizations and regulatory agencies took new steps: community theatre and art oriented to health education and the hazards of fishing, a new community garden helped local residents to supplement their diets, neighborhood rezoning encouraged new supermarkets, affordable housing, and park space. Local and regional groups, also, Corburn tells us, “teamed up with the EPA to monitor ... local polluters” [and] through legal action, “a concrete manufacturer was found guilty” of illegal discharges.

Corburn argues, “By explicitly recognizing community-expertise, ... policy making can ... ensure that problems are defined, analyzed, and addressed in ways that reflect actual lived experiences.” Stressing such “defining, analyzing, and addressing” problems, Corburn sees ecological science and systematic *analysis*, just as one component within an encompassing ecological wisdom that also works practically in two other ways: first, to “*define*” whatever is to be analyzed and, second, to shape how morally and politically to “*address*” those problems effectively. Practical wisdom adds to science, here, two bookends: problem-formulation and post-analytic practical engagement.

B. Reading the landscape in Philadelphia.

Since 1987 Anne Whiston Spirn has directed the West Philadelphia Landscape Project in one of Philadelphia’s poorest, largely African American neighborhoods, Mill Creek (Spirn, 2012, 2016). She wrote of this work, “The single feature of the Mill Creek landscape that has had the most significant, persistent, and devastating effect is the least recognized: the buried floodplain of the former creek (from which the neighborhood takes its name) and the hydrological processes that continue to shape it... Although the former creek bed is buried, the valley bottom still functions as a floodplain, where the soil is sometimes saturated...”

She explains, “Polluted by wastes from slaughterhouses, tanneries, and households,” in the 1880s, the creek “was buried in a sewer, its floodplain filled in and built upon, but it still drains the storm water and carries all the wastes from half of West Philadelphia and from suburbs upstream... [The pipe], about twenty feet in diameter, is now too small for the ... combined sewage and storm water it must convey after major rainstorms.”

Homes have collapsed, cave-ins have swallowed cars, houses have been condemned and demolished. Spirn writes of decades of newspaper coverage of “broken pipes and cave-ins. In the 1940s forty seven homes were demolished ... “plagued with rats and filled with sewer vapor. In 1945 a neighborhood of small row homes ... was destroyed when the sewer collapsed. In 1952 a thirty-five-foot cave-in on Sansom St. swallowed two cars ... On July 17, 1961 the sewer caved in beneath Funston St. near Fiftieth. Three people died...four houses [were destroyed]; [and] ultimately 111 homes [there] were condemned and demolished, leaving hundreds homeless and many others fearful ... By 1980 entire city blocks lay open within the buried floodplain...older gardeners remember when buildings sank, their foundations undermined by subsiding [land] fill.”¹¹

Nevertheless the City of Philadelphia in the mid-1990s persisted in locating subsidized housing on the buried floodplain. Spirn writes, “the City Planning Commission’s disregard for the health, safety, and welfare of Mill Creek residents renewed my commitment. It also ... sharpened and enlarged” her research questions.

She explained, “Confronted with skepticism about the existence and dangers of the buried floodplain, I began to *understand this resistance as a form of illiteracy: an inability ... of public officials, developers, and even Mill Creek residents themselves to read the landscape*”.

With her university students she began an environmental education program with a local public school—“Sulzberger”—that soon addressed landscape literacy and community development. From 1996–2001, hundreds of children at Sulzberger — and [Penn students]—“learned to read the neighborhood’s landscape: they traced its past, deciphered its stories, and told their stories about its future, some of which were built...”¹²

She says, “My [university] students brought in texts, tables of statistics, maps, and photographs, ... The idea was to encourage the children to form the habit of looking for significant detail, framing questions, and reasoning out possible answers. The goal was that ... the students would transfer this process to ... reading ... the landscape itself.”

Spirn shows us how such “significant detail” informed an ecological wisdom: “One by one, the Penn students presented a time line... of events in Mill Creek’s history, each represented by a document of the period:

[first] a 17th Century *map* of the Delaware valley showing a *river in the midst of the forest*,
 [second,] an 18th Century *engraving* of a Leni Lenape *Indian village*,
 [third,] a [19th Century] *map* of 1872 showing *several mills* along Mill Creek,
 [fourth,] a *photograph* of the Mill Creek *sewer under construction* in the 1880s,
 [fifth,] Louis Kahn’s *plan* for the *redevelopment of the neighborhood* in 1954,
 [sixth,] a *newspaper* report of the *sewer’s collapse* in 1961,
 [seventh,] the city’s *Empowerment Zone proposal* of 1994.”¹³

Consider what her students could now “see” happening in this same place over these four centuries: We begin with valley, forest

¹¹ See Spirn (2012: 212).

¹² The program had four parts: reading landscape, proposing landscape change, building landscape improvements, and documenting these proposals and accomplishments.” (179)

¹³ What’s missing from this extraordinary list of maps and documents—as snapshots of the ecology-in-place, in what is now part of Philadelphia—is a photo, too, of Spirn’s students themselves leading this deliberative seminar about the socio-ecology of this place.

and river. We then see an indigenous population, all too soon displaced by European settlers, one way of life in place soon invaded by an alien attitude toward ecology and society. Next we see beginnings of industrialization, textile mills, thus the name, “Mill Creek.” Then comes modernity, its “march of progress” and nature-harnessing ambition: hired workers transform “creek” into “covered sewer,” soon buried and built upon: some white “we”, the photo suggests, can control nature and take command. Next we see system, rationality, the re-ordering of environment and place: a famous architect’s “redevelopment Plan,” a government document interweaving power, architectural expertise, even social design, with the *buried* creek, now a sewer for human waste and storm waters, but nowhere visible in the Plan. Yet nature persists: the newspaper reports yet another collapse of neighborhood into sewer. Readers in 1961 no doubt asked what we might ask today: how could this have happened, been allowed? But 33 years later, in 1994, we see another city proposal for “neighborhood development,” still ignoring the buried creek. Was this bad planning? Poor engineering? Foolish governance? All of these? Perhaps we can learn about ecological wisdom from its absence.

These documents represent a history, not merely chronology; they reveal responsibility, decision-making, risk-taking, failures of governance response. As residents could recognize histories of responsibility, their senses of facticity (“this is how it is”) or inevitability (“it had to be this way”) could now turn toward the beginnings of an ecological wisdom—“no, it really didn’t have to be this way,” and potentially “we could act to protect human health and the environment...”

Re-reading the dangerous and also opportune ecology of their homes led Mill Creek residents to develop a richer “landscape literacy,” in Spirn’s words—the seeds, possibly, of a “landscape wisdom.”¹⁴ An emerging ecological wisdom may not *assess blame*, but still suggest both public and private responsibility for a multi-faceted “problem” beginning to become more clear, more accountable.

The project organized presentations at the University, then in the State capitol. Neighborhood students were, Spirn recounts, working harder, learning more, performing better in school. U. Penn. students, learning about “nature, race, and place,” [she says] “acknowledged their surprise that some [neighborhood] students were smarter than they were, and this led them to reflect on their own prejudice and privilege... [It also] challenged the assumptions and theories ... they were reading for other courses.” So planning and design students, Spirn suggests, were changing themselves, reflecting upon their blindnesses, becoming morally wiser and technically more skilled.

She continues, “From 1998, Sulzberger Middle School and the Mill Creek Project received increasing local, national, and international attention... In 1999 Sulzberger was ... on the [nationally televised] NBC Evening News... In 2000, President Bill Clinton visited the school.” Here ecological wisdom had catalyzed the transformation of a neighborhood school—and gained state and national political recognition.

But when city control of several schools, including Sulzberger, shifted to a for-profit management firm, Edison, Inc., key teachers from the Mill Creek Project resigned. As federal regimes shifted, Spirn wrote, a Water Department “demonstration project ... would not be built as envisioned. New houses would be built, but the program to integrate storm water management to improve water quality was curtailed as was the collaboration with Sulzberger.”

“Since 2005,” she later wrote, “the municipal government has built new houses, ... including many on the buried floodplain of Mill Creek, and this initiative continues.... The patterns of vacant land are no longer so clear as they were ten years ago, but what is worse,” she wrote, “the opportunities for addressing the city’s combined sewer overflow problem have been diminished.”

We see here setbacks and promise, interwoven questions of technical feasibility, political ambition and will. Ecological wisdom involves, Spirn suggests, understanding the behaviors not only of flood plains and storm waters, but of those half-blind, fact-resistant animals in our ecologies, those puzzling humans.

Looking back, Spirn reflected: “Before the Sulzberger students learned to read their landscape more fully... many believed that the poor conditions were the fault of those who lived there ... Learning ... other reasons sparked ... relief ... They came to consider the possibility of alternative futures and brimmed with ideas. Secure in their knowledge ... they challenged public officials with confidence and impressed them with articulate proposals. To read and shape landscape,”—she argues—“is to learn and teach: to know the world, to express ideas and to influence others.”

We see no magic solution. We see science and engineering both complicit in transforming creek into sewer and a resource to mitigate the failing sewer’s threat to public health and safety. Spirn presents no unique “problem,” but a socially and ecologically living story in Mill Creek.¹⁵ Residents could now see the creek-become-sewer-become-overburdened-infrastructure; before they denigrated their own neighborhood as having inexplicable “dangers.” We too have learned: technically about cave-ins and subsidence, politically and morally, about public responsibility, the politics of infrastructure and possibilities of remediation. Not least, the Mill Creek story reveals ambitions and humility among scientists and engineers, attention and neglect of politicians and city leaders, and shifting senses of deference or coming-to-consciousness of ordinary citizens.

Spirn illuminates an *emergent* ecological wisdom of re-imagining opportunity, recognizing both responsibilities and possibilities of remediation, regeneration. She stresses not only analysis and understanding, but also clarifying possibilities for change by understanding history, clarifying technical options, and seeing new paths for rebuilding. She summarizes, “To read this landscape is to understand that nothing stays the same... To read landscape is also to anticipate the possible, to envision, choose, and shape the future: to see, for example, the connections among buried, sewer stream, vacant land, and polluted river and to imagine rebuilding

¹⁴ The families of Mill Creek no longer have good reason to see themselves as natural victims of random cave-ins, subsidence, and overflows; those disasters and their mitigation, or their lack of mitigation, were as much matters of political choice and even design as they were consequences of natural, amoral or apolitical events.

¹⁵ This story has what Martha Nussbaum has called “morally entangled” characters: ground that might give way, overflows when rains and suburban discharges exceed sewer capacity, engineers who designed the sewer, politicians who hired those engineers, today’s and yesterday’s politicians who turned a blind eye to the impending failures, residents who never knew why their neighborhood was called “Mill Creek”—and who never knew about the failing sewer and the risks it posed to housing and health.

a community while purifying its water” (Spirm, 2012: 215).

These Brooklyn and Mill Creek stories suggest that neither scientists nor politicians have any monopoly on ecological wisdom. Such wisdom, then, might be less the possession of any profession and more the quality of a critically interactive, deliberative and action oriented engagement between human beings and our environments. Let us allow the Sicilians now to address these issues.

C. From River Mapping to Ecological Governance¹⁶

In Sicily, near the small city of Paterno, environmental activists and concerned citizens had also fought a proposed trash incinerator. Suspecting Mafia involvement, citizens went to court to stop the incinerator’s construction. They succeeded!

But that local organizing effort generated new environmental planning questions regarding the nearby Simeto River. University of Catania researchers Laura Saija and Giusy Pappalardo have described the “participatory action research project” that addressed these issues (Saija et al., 2017; De Leo & Forester, 2018). Saija, an architectural engineer and a PhD in Urban and Regional Planning, notes what the project accomplished:

“The official endorsement of a Simeto River Agreement...is the first example...nationally, of bottom-up, watershed scale, environmental planning. [T]his River Agreement has been selected as ...an experimental area of national significance. It’s an innovative policy framework to spur economic development, [to] deal with technical issues ...[and to develop] environmental strategies to really improve the way communities ... use water and energy, [how] they live on the land, [including] broader issues of quality of life...and ... culture.”

University-based expertise contributed, she says: When “they came and asked for help,” the members of ViviSimeto “wanted to organize ... a scientific conference on the environmental importance of the river and on the possibility of establishing a river park... We started a long conversation, whether the conference and the river park were good ideas or whether there were better strategies...”¹⁷

After many meetings, she says: “[We] realized that...there were experiences of [bottom up planning processes] all around the world, and... [the] one thing that all these experiences shared, was participatory mapping: ... actually looking at maps and places, ... representing those places physically... on a map...[together].

[So,] one day [we] said, ‘Ok, ... we should call it, “Simeto Community Mapping.’ ... [W]e’ll try this out; we’ll see how this community mapping really works... We’ll invite everybody who’s already been in contact with us, ...all the groups, ... and individuals ... [who’d been] involved in the anti-incinerator campaign [and who were interested in] ... changing the direction ... of development...in the valley.”

She says, “We wanted...people to recognize places they were familiar with, but ... to see the geographic scale of the valley, so we decided to print out a huge map on an entire wall, ten meters long per three meters high of the entire valley...”

“The idea was to have people gathering in face of this map, none in small groups, in a very dynamic way...[What happened] was amazing—because we were seeing the valley for the first time, and people said, “Wow, so this is ...the land, the river, this is the mountain, this is awesome!” ...They were very excited, looking at the valley for the first time...about one hundred people that [first] [day...We had people doing interviews: what do you like about your place?, ...and... stations with several activities, [with] people, including kids, ...doing mental mapping...to study ... their physical relationships to the river...[mapping] places they liked, places they didn’t like, places they used to like...[places] not there anymore, ... and we mapped a lot of places of heritage—and places [where] they would like things to happen.”

Saija says, with some surprise:“The interesting thing was that people started to interact with each other—but also with the things people had written ... in the morning...so it was also a process of sharing a vision, it was not just collecting information...it was a building process, there was a vision of reconnection with the river, ...places where...heritage needed to be acknowledged... People identified priority roads to be restored—which eventually happened—signs at corners...places that were crucial...they were all very pragmatic...giving very practical suggestions on what to do.”¹⁸

There was little precedent here, Saija suggests: “Many [people]...were very skeptical...[A previous mayor] was among the most skeptical ... She thought it was a great way to be together, but she didn’t think this would ...[help to] impact decision making...But [trying it,] she loved it: “This actually makes a lot of sense!”

Giusy Pappalardo, working with Saija, explained how this mapping exercise expanded:

“There were different municipalities, and different associations ... [arguing about] what should be done...”

“Saying, ‘We don’t want the incinerator,’ ...was...easier..., ‘We don’t want that!’, but when it came to ‘We want to do *this* instead of *that*,’ it became more complicated...because everyone wanted to do something different.” So wise participation here obviously involves far more than voice!

Pappalardo explains, “we really collected ... different ideas ... [and] so ... instead of having just a list of projects, the [real]

¹⁶ This case presentation follows closely three sources, De Leo and Forester (2018), containing two detailed and instructive practice-focused oral histories of the work on the Simeto River Project by Laura Saija and Giusy Pappalardo in distinctive chapters, and Saija, De Leo, and Forester, (2017)

¹⁷ Judgments of “appropriate” strategies and goal selection are interpretive issues of wisdom, encompassing but hardly reducible to calculation, technique or intelligence. Cf. Umemoto 2013.

¹⁸ Alberto Magnaghi, perhaps one of the wise old men of Italian river mapping and the “territorial school” of Italian regional development commented on Saija and Pappalardo’s work: in the construction of the map I think critically important is the mobilization of local artistic knowledge (painters, poets, writers, artisans, historians, teachers and students...): the art of making the map is an expression and a work of folk art, but it is also the first constitutive and statutory act of incorporation of the new community that self-recognizes itself in the creative and collective act. In this sense, I think that a very important indicator in the assessment of a participatory process should be the artistic quality of the collectively produced map, which reveals the depth, richness and creative effort of exploring and studying the identities of places and the emerging re-identification with them.” (Saija et al., 2017: p152–153)

challenge was to understand what *were* the priorities—and what has to come next...”

She says, “The ideas and the knowledge came from the people...what we did as planners was just to try to make sense of that diversity...technical knowledge came into play because...people had studied ..., for example, alternative forms of collecting garbage...or selling products in local markets...[or] of course they knew more than me about agriculture...[but] ...they were learning from each other too...So, after the meetings, then, you could ... hear, ‘OK, that was interesting because...’ [or] ‘Oh, I didn’t know that before.’”

Diverse participation, she suggests, became co-generated education—they were educating each other—but she says more: “Some people just think if you get groups together, they are [just] going to ... [complain] about how bad everything is. That could happen, and it could happen too that you have people [in conflict] with each other of course...and I have learned—[she explains]—that I have to let them, for a little bit at least, express their conflicts, their complaining... But you have to keep the discussion on track. So, whenever there is a complaint, you have to ask: ‘OK, that’s the problem! What do you think could be the solution?’ Or ‘OK, that’s the conflict, you are right; but what do you think, how can we overcome that...what are the issues?’”¹⁹

She learned, she says, that acknowledging conflicts and respecting differences had to precede deliberately asking, “How can we overcome that?” Here Pappalardo expresses the practical wisdom of mediation—listen carefully, acknowledge differences, leverage expertise, solicit and craft the invention of next steps to address, “Now what?” “How can we overcome that?” (Susskind et al., 1999; Forester, 2009, 2013).

But what about institutional power? Pappalardo went on, “At the beginning [of these meetings], it was just the university with [citizens’] associations... [and later] we understood that it was necessary to involve ... government, all the agencies at every level ... to transform this discussion into reality—otherwise it’s just discussion. So then we...shared [our] documents ... with [the government] institutions. They liked what we had done—because we had done that with no public money!...”

But she says more: “In the very beginning ... [people just represented] ... their own associations, and at the end they ... were working together in a very, very different way... An activist ... said, ‘OK, thanks to the community mapping initiatives, we finally learned that we have to listen to each other.’” So they may well have been learning technically and practically too, becoming, perhaps, both smarter *and* wiser about future options.

Pappalardo suggests that her own practical judgment grew, too: “Before starting the project I couldn’t imagine how powerful a map could be. But ... [doing] mapping with people ... not used to having a map in their hands ... really helps them to understand things in a different way ... [to] deal with the complexity of the space, ...not just saying, ‘I want...a greenway,’..., [but] ‘OK, let’s see, where should we do something like that? What does it affect? Who are the people ...[we must] involve because the greenway is here instead of there?’”

The mapping process, she argues, enriched stakeholders’ arguments, their recognition of interdependence and connectedness, and the significance of their own and others’ proposals. She says, “So this was more dealing with the complexity of doing things for real, rather than just saying ‘we want this because we want this.’ It was like, ‘OK, we want this, and now HOW do we do that? Let’s take the map and let’s see what should be done.’”²⁰

We see here an emerging ecological wisdom reaching well beyond technical questions alone: we see an increasingly distributed mutual recognition, an appreciation of interdependence, the joint search for creative next steps, the crafting of proposals together, spatially, though a mediated deliberation. We see community members develop a wisdom of place together—as their mapping enriches their languages of representation and refines their initial ideas into more considered judgments—as they realize that initial proposals have unforeseen consequences.

So initial views can grow into more appropriate, more effective, more responsive and wiser ideas and design options.²¹ Crucially, too, the Sicilians emphasize action, always with skill and analysis, not sequencing—first science, then ethics—but always integrating, wisely, learning with action. Notice who has learned here: not simply researchers but also government officials, diverse community members, activists and farmers, politicians too. They have learned about the river, the watershed, their heritage, their future possibilities—and one another, learning to listen, recognize differences, make priorities and craft well-informed actions. So we see here a creative, argumentative, negotiated process that comes to manifest a distributed wisdom drawing upon distributed intelligence and insight as well. Not only do laboratory and local knowledges inform each other, but the interactive, critical and generative processes of mapping here have refined multiple intelligences into a distributed, multi-stakeholder ecological wisdom.²²

Conclusion: Wisdom Grows Through Interaction

We see in Sicily as in Brooklyn and Philadelphia, too, that without the inevitably normative, careful work of problem

¹⁹ The questions of action were important, Pappalardo stresses: [W]e came to one point when we had done so many meetings and we had written so many documents that if we didn’t do something real on the ground, ... we were going to lose all these things, all that work.” I am indebted to Dorian Fougères for remarking here that this case appears to rediscover, in the Italian context, many significant axiomatic practices of multi-stakeholder negotiation process design and related processes of joint fact finding in public disputes involving scientific complexity (personal correspondence, July 2017). Cf. Matsuura and Schenk (2016) and Forester (2013, 2009).

²⁰ Baraka Mwaui noted in regard to this work: “Maps facilitated a deeper understanding of the context, opened up reflections from the local community, and relationships improved between planners and the local community. Often, participatory mapping ends up “mapping the un-mapped” – assigning spatial attributes to phenomena that formal mapping and planning would not identify, and provoking critical reflections about alternative solutions. Eventually, various aspects that were underestimated become part of the building blocks towards solving the problem.” (Saija et al., 2017: p 148)

²¹ This complexity matters, and Pappalardo adds: “In addition to the technical skills, an important skill is ...keeping track of the process ... there’s the question always of what we can do now... So it’s not giving up on problems, it’s just trying to find alternative solutions– and to put them into the discussion...to trigger these things, to be there to remember what you have to find out about, and to discuss ...how to move forward, continuously.” (Saija et al., 2017; 139)

²² This develops further arguments characterizing the “wisdom of mediation” in Forester, 2009.

identification, we risk rigorously *solving the wrong problems*. We see in Sicily, too, that if problem choice and expertise remain detached from those with the power to implement environmental protections, the analysis may be correct, but ineffectual, impractical, *never to be implemented*. We see in each case that powerful coalitions or institutions must be informed by deliberatively focused expertise. We see through these cases too, I suggest, not a prescribed but an improvised and emergent ecological wisdom—not the possession of one professional or leader but the achievement and *developing capacity* of engaged citizens acting together.

Ecological wisdom involves, then, not a philosophical idea alone, but a practical ability: focusing on environmental *issues that matter* and leveraging ecological and other *expertise* to inform the *negotiated crafting* of environmentally regenerative *actions* as a result.

Becoming *ecologically wise*—not simply following rules but *improvising practically*, creatively and responsively—requires us, then, over time to interweave a triple helix of practices: identifying significant threats and opportunities in novel and changing settings, leveraging the best science and expertise, negotiating differences to act *well now*—not in separate organizational silos, but in deliberative practices together.²³ In environmental planning and policymaking, carefully *integrating*, not radically separating, the asking and answering of *these three questions of problem diagnosis, critical knowledge, and negotiated action* may be the practical beginning of ecological wisdom, both intellectually and pragmatically.

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²³ I take one consequence of the triple helix framework to be a practical specification of the improvisational work so essential to practical judgment and to ecological wisdom in particular, as Xiang (2016) has argued so well.