9-1-2010

Making EcoDistricts Concepts and Methods for Advancing Sustainability in Neighborhoods

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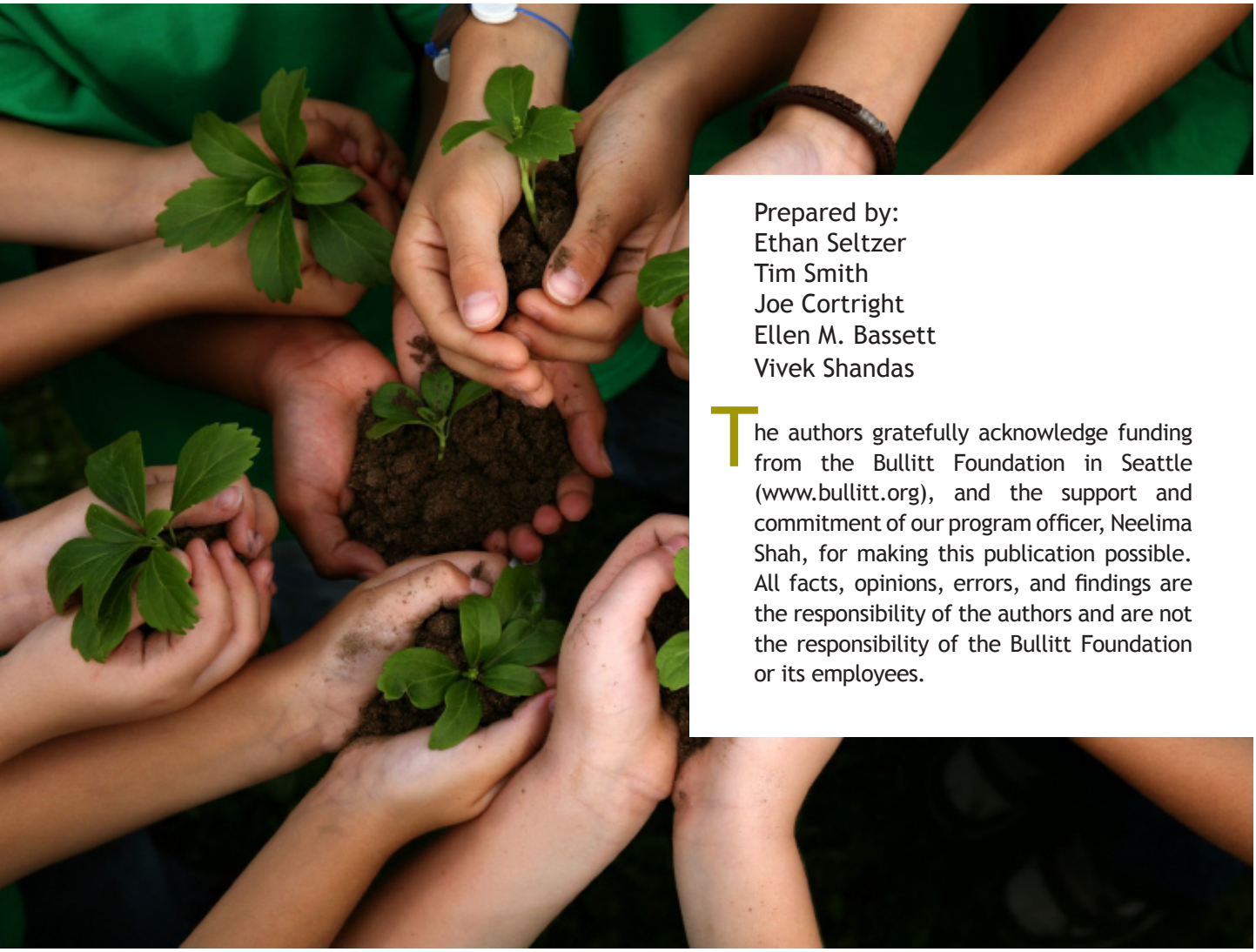
September 2010 Portland, Oregon



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The authors gratefully acknowledge funding from the Bullitt Foundation in Seattle (www.bullitt.org), and the support and commitment of our program officer, Neelima Shah, for making this publication possible. All facts, opinions, errors, and findings are the responsibility of the authors and are not the responsibility of the Bullitt Foundation or its employees.

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Executive Summary

Imagine a sustainable neighborhood. What would you see? Would it look and feel different than the neighborhood you currently live in or near? Certainly we'd see a lot of choices presented to us through the physical form of the neighborhood that can help to reduce resource use and household costs. However, though a lot of choices in the physical form of the neighborhood is a good and necessary start, it's of less consequence to those lacking access to those choices because of circumstances, background, broader contextual issues, race, or class. Environments of choice need to characterize our cities, but enhancing access to those choices for all residents is equally, if not more, important.

However, expanding access is not easy, and certainly not as easy as making physical changes in buildings and urban form. How does a neighborhood become more "equitable?" What is the scale at which access can be expanded? Who needs to step up? Over what period of time? Though it is easiest to start to envision sustainable neighborhoods and cities in terms of their physical attributes, their form, design and technology, it's the roles of and for people that ultimately determine whether the characteristics of choice and access are teaming in more sustainable ways for everyone.

The Portland Sustainability Institute (PoSI) has made an essential and powerful observation: a neighborhood or district approach offers the most likely and effective scale at which the overall goals for City sustainability can be addressed. Matching the challenge of sustainability with the scale at which citizens and communities are meaningfully empowered is at the core of PoSI's observation. Ensuring that this neighborhood scale adds up, in the end, to that of the City and of real sustainability is a critical task.

However, neighborhoods need to have a say in this as well. What do neighborhoods care about? For that matter, what is a neighborhood? To PoSI, almost anything can be a neighborhood. However, the term "neighborhood" does have real meaning in the Portland context. In Portland, neighborhoods are not business associations, urban renewal areas, major redevelopment sites, watersheds, or other geographic areas. They are, in fact, a specific kind of geography in Portland that scales up, institutionally and intentionally, to the scale of the entire City.

If the goal is a more sustainable ***city*** and not just sustainability ***projects***, then the ability for these individual EcoDistricts Initiatives to scale up, and for City agencies and processes to both scale up and down, will be essential. If the Portland notion of neighborhoods

is not going to be adopted, then the EcoDistricts Initiative will need to craft scalable relationships to connect the various initiatives to each other in order to make the citywide promise of sustainability a reality.

Knowing more about what the neighborhoods want will be key to better understanding whether the EcoDistricts Initiative is a useful vehicle for accomplishing their goals. If the EcoDistricts Initiative can demonstrate its ability to advance neighborhood aspirations as defined by the neighborhoods themselves, the potential is great for making a major impact on citywide sustainability since the effort can then be applied to every neighborhood in the City.

This report is about how developing "EcoDistricts" in Portland can result in more sustainable neighborhoods and a more sustainable city. With generous funding from the Bullitt Foundation in Seattle, we have been able to take a deeper look into core concepts underlying the notion of pursuing citywide sustainability through neighborhood-scale action. The question becomes: What needs to be done to enable communities to self-manage their resource using behavior by creating community-inspired interventions that change relationships between people and between people and place?

To answer these questions and to contribute to the emerging practice of EcoDistrict formation and development, what follows are four chapters that help to bring a "people first" EcoDistrict strategy into focus. Chapter 1, from Tim Smith, describes what he terms "Civic Ecology" as the basis for EcoDistrict practice. He writes that:

> *Civic Ecology is the integrated web of energy, nutrient, resource, financial, information, and cultural flows and interactions that are envisioned, created and managed by citizens acting for the common good within a geographically-defined community and its city-region. It is a human ecology of place, intimately integrating both natural and social/ culture systems.*

In his chapter, he distinguishes between the "hardware" of sustainability—pipes, devices, buildings, etc.—and the "software"—relationships between people, meaning, flows in and through the community, etc. Importantly, he makes distinctions between community action in a local versus global context, and between expectations for consumption and resource use based on old assumptions versus those accompanying real sustainability.

At the heart of the Civic Ecology model is the expectation that the community is in control, and in need of links to bigger institutions and systems. If a community chooses to pursue Civic Ecology as a strategy for making an EcoDistrict, Smith suggests that they will find five major benefits. First, Civic Ecology is locally controlled. Second, the Civic Ecology framework creates real and enduring value. Smith identifies benefits accruing to all forms of capital —physical, monetary, environmental, and social—as a result of proceeding with the Civic Ecology model in mind. Third, using Civic Ecology as a guide will create greater resilience for the neighborhood or district. Fourth, as should now be apparent, a key outcome is a stronger community, something that all communities have as a critical

concern. Finally, using Civic Ecology as a framework for thinking and acting holds the promise of creating a "living culture" in the neighborhood. Should a community elect to use Civic Ecology as a way of thinking and acting, Smith provides a five step method for implementation. Smith writes:

> *Creating an EcoDistrict using the Civic Ecology Framework will require that neighborhood/district stakeholders collaborate in public discussions to answer five questions:*
>
> *1) Where are we now?*
>
> *2) Where do we want to be in 5, 10, 20, 50 years?*
>
> *3) How do we get to where we want to be?*
>
> *4) How do we know if we are getting there?*
>
> *5) Who wants to help find out?*

Answering these questions can be done through the five steps of what he calls the "CIVIC Process: Convening, Investigating, Visioning, Implementing and Charting progress." Chapter 1 concludes with a series of questions needing additional thought and action:

- Can neighborhoods be the loci for innovation, the kind of innovation needed to make the promise of EcoDistricts real?
- What kind of governance framework is needed at the neighborhood level to enable EcoDistricts to not simply be created, but to become vehicles for the day-in/day-out business of realizing goals for sustainability?
- How can we know whether the practice of Civic Ecology has yielded outcomes for sustainability that are both important locally and able to be scaled up into the outcomes needed to make Portland a more sustainable city?
- If communities utilize Civic Ecology as a means for becoming more sustainable, what might that suggest for the nature of plans and planning in a city like Portland?

These questions are addressed in the following chapters.

In Chapter 2, Joe Cortright directly addresses the inter-related issues of innovation, place, and scale. In his chapter, he takes on three inter-related groups of questions:

> - *Geography, Scale, and Sustainability: Is it global, national, metropolitan, neighborhood or individual? Can we save the planet one city or one neighborhood at a time? How do we achieve and measure sustainability at each of these different scales?*

In this section of the chapter, Cortright acknowledges the advantages of using small scales, like found in neighborhoods, to relatively rapidly test concepts for broader use. However, if scaling up is an important purpose, it needs to be identified and committed to at the outset. If we want sustainability to be more than branding, we need to seek it clearly and directly up front.

- *Technology and Culture: What is the mix of physical characteristics of community and human behavior that will be required to achieve sustainability?*

In this part of the chapter, Cortright discusses the requirement that sustainability efforts must combine a mix of physical and behavioral strategies.

- *Innovation and Place: How are new ideas brought to bear in particular places in ways that lead to more sustainable communities and living?*

Here, Cortright considers the literature about innovation, and the critical roles played by users. In the case of neighborhoods, the democratic and open "crowdsourcing" of solutions and objectives is of paramount importance for the nurturing and emergence of innovation. Cortright concludes that EcoDistricts will need to wrestle with questions of scale at the outset, and with the advantages and disadvantages of pursuing neighborhood-based and scaled innovation.

Ellen M. Bassett follows in Chapter 3 with an examination of what governance can and should mean in the effort to make neighborhood sustainability a vehicle for citywide sustainability. Her chapter utilizes cases studies of neighborhood governance efforts in Los Angeles, Portland, and elsewhere as a means for exploring the challenges of establishing neighborhood-scale governance structures for EcoDistricts.

This chapter concludes with five insights for PoSI and others interested in moving forward with creating EcoDistricts in Portland:

> *Insight 1: Successful governance institutions have strongly shared goals; these emerge according to circumstances/felt need, and influence the form governance takes.*
>
> *Insight 2: Legitimacy is paramount; leadership must be representative and accountability to residents must be clear.*
>
> *Insight 3: All governance institutions are not created equal—the need for capacity building and commitment of government resources should not be underestimated.*
>
> *Insight 4: Respective responsibilities between institutions (within hierarchy and across same levels of power) must be clear.*
>
> *Insight 5: Evaluation must be built into governance experiments.*

Finally in Chapter 4, Vivek Shandas tackles the question of what it means to evaluate outcomes, and what the practice of measurement, ongoing monitoring, and reflection means for sustainability more generally. Shandas reminds us that neighborhood-based sustainability is about "place," and that though measuring attributes of form and function associated with place is important, those measurements are largely out of context without some sort of measures for "meaning."

However, measuring meaning is extremely difficult and hasn't been fully developed in the literature or in practice. Nonetheless, to leave meaning out can potentially result in the creation of measures that draw attention to the wrong things, and may induce actions that are actually counterproductive if not ethically questionable. He proposes 6 guidelines for practitioners:

1) *Discern the meaning of place;*
2) *Establish baseline measurement;*
3) *Distinguish between the measurement of systems, policy outcomes, and feedbacks;*
4) *Balance goal-orientation and process-orientation;*
5) *Emphasize resident-held spatial dimensions of place; and*
6) *Allow the data to inform perspectives.*

Shandas concludes by reminding us that measurement "can both enable and constrain a community's ability to control the direction of change."

What can we conclude? First, sustainability is achieved over time. It's not the product of a program, project, or initiative, though all these things are important and help. Fundamentally, to seek to be a sustainable city means that Portland, or any city, has to be in it for the long haul. The EcoDistricts Initiative has to be thought of in the context of building and stewarding long-term commitments to sustainability.

Second, the neighborhood scale offers an important opportunity for cities seeking to become more sustainable. It is a scale at which citizens can be empowered, not just to interact with city agencies and public sector bureaucracies and legislative processes, but to interact in effective ways with each other. However, you can't pursue scaling up after the fact. It's something that PoSI and the City need to care about at the outset.

Consequently, realizing the benefits of EcoDistrict formation at the scale of the city makes boundaries and definitions important. Fundamentally, a wide-ranging assortment of EcoDistricts means that some will scale up and some won't. In addition, working at the neighborhood scale is by no means a substitute for pursuing initiatives that ought to occur at the scale of the city and above.

Finally, when it comes to sustainability, people matter most. Keeping this principle firmly in view will be the best assurance that the results of city investment in neighborhood sustainability actions are likely to lead to the kinds of retooled social and cultural relationships, the software, and the new norms needed to create real sustainability. Again, sustainability is the legacy of a generation, not the outcome of an initiative or an investment.

Introduction: *Making EcoDistricts*

Try a simple thought experiment. Imagine a ***sustainable*** neighborhood. What would you see? Would it look and feel different than the neighborhood you currently live in or near? Though there are many ways to describe such a place, consider two key variables. First, we'd actually see a lot of potential choices. There would be a diversity of housing types, of transportation modes, and of public and private spaces within view. Maybe we'd see a range of energy sources, of food sources, and of ways for handling stormwater. Looking more closely, we'd also see a whole host of public institutions, private employers, and what sociologists have termed "third places," places other than home or work where people in the neighborhood can meet and interact (Oldenburg, 1989).

However, this is a view of the physical neighborhood, one without people. To bring people into view, we need to think in different terms, in this case in terms of access. Simply being in the neighborhood does not mean that everyone has access to the same choices. A distant job in a far off location most often limits the transportation choices available to you. Being a renter often means that you have no choice about where your energy comes from. Managing stormwater on-site means different things for different residents, particularly for those living adjacent to stormwater management facilities.

Simply presenting choices in the physical form of the neighborhood is a good and necessary start, but of less consequence to those lacking access to those choices because of circumstances, background, broader contextual issues, race, or class. Environments of choice need to characterize our cities, but enhancing access to those choices for all residents is equally, if not more, important.

Expanding access is not easy or straightforward. How does a neighborhood become more "equitable"? What is the scale at which access can be expanded? Who needs to step up? For how long? The growing literature on equity in American cities is pointing to the metropolitan region, if not the nation as a critical scale for policy and intervention (see Pastor et al. 2009). We can make physical choices and changes locally, but making the larger changes in systems and flows requires links to institutions able to act in the interests of households and neighborhoods, and at the scale of the systems themselves.

Simply stated, no place, truly, is an island, and pursuing sustainability in purely local terms only addresses the issues of choice and access for some. Choice and access, local and regional, are intimately related. True sustainability can't be achieved with solely a local focus.

In addition to a meshing of geographic scales, there is also an important time dimension at play. True sustainability is not about making good decisions once on behalf of the sustainability of a place, but about making good decisions over and over again. Sustainable neighborhoods and cities are always in a process of becoming, rather than the achievement of a single program, initiative or investment. Sustainability is, therefore, a product of what communities do together and how they do it over time.

This combination of geographic and temporal concerns suggests strongly that people matter most. Though it is easiest to start to envision sustainable neighborhoods and cities in terms of their physical attributes, their form and design and technology, it's the roles of and for people that ultimately determine whether the characteristics of choice and access are teaming in more sustainable ways.

Another way of saying this is that every neighborhood is sustainable, just as it is, if the residents choose to inhabit it, together, in sustainable ways. Some places are more easily inhabited in sustainable ways than others, but if the will exists to make sustainability a high priority, patterns of inhabitation can be devised to make it so.

Of course, the changes required for resource use and flows would, in many existing neighborhoods, be extreme, beyond what most households and communities might consider. Consequently, the challenge for creating sustainable neighborhoods revolves around devising strategies that help to make sustainable choices and patterns of inhabitation easier, meeting community needs more effectively, engaging everyone in the community fully, and making old ways of doing things less attractive.

> True sustainability can't be achieved with solely a local focus.

Towards this end, we believe that the Portland Sustainability Institute has made an essential and powerful observation: Sustainability in Portland won't be achieved one building or one household at a time, and conversely, the scale of the city is too big. A neighborhood or district approach offers the most likely and effective scale at which the overall goals for City sustainability can be addressed. Sustainability is ultimately socially constructed: It's the product of what people in communities do collectively much more than what individual households are likely or inclined to do.

The goal is a more sustainable city and world. However, matching the challenge of sustainability with the scale at which citizens and communities are meaningfully empowered is at the core of PoSI's observation. Ensuring that this neighborhood scale adds up, in the end, to that of the city and of real sustainability is at the heart of the challenge.

Achieving goals for sustainability can be regarded as a process of finding solutions to two kinds of problems: a "miles per gallon" problem and the "yellow bin" problem. The "miles per gallon" problem is the most familiar. It has to do with efficiency, or more to the point,

increasing efficiency—more miles per gallon. This kind of problem is easy to measure, and easy to see almost immediate gains through the application of better technology. It is at the root of green building and can help to create conditions that result in greater efficiency and less impact regardless of who is behind the wheel, or whether anyone is behind the wheel at all. It enables current behaviors to continue, but in a more efficient manner. Problems like this are useful to solve, but by themselves unlikely to result in sustainability.

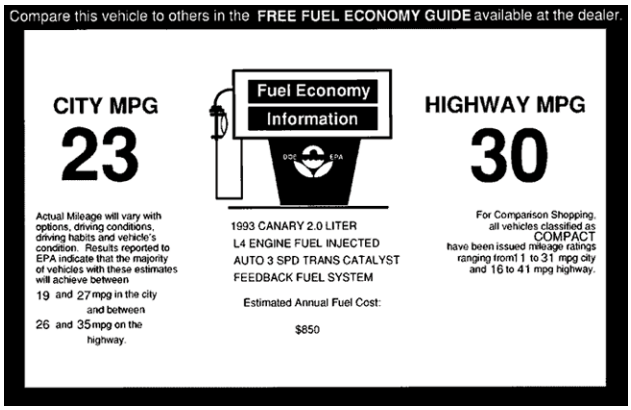


Image courtesy of the US EPA

In contrast, the "yellow bin" problem focuses directly on choices and is best defined via a short and apocryphal story. When curbside recycling was introduced in Portland, high participation was attributed to, in part, the visible evidence of neighbors choosing to participate. The presence of yellow bins at the curb became a visible representation of community norms regarding recycling. Those opting in and out could be easily identified by everyone in the community, and everyone knew it. Community norms were easily identifiable and communicated.

The "yellow bin" problem refers to the creation of, for a range of sustainability practices, community expectations and values associated with a set of resource-using behaviors. Unlike the "miles per gallon" problem, which primarily has to do with individual choices and efficiency, the "yellow bin" problem has to do with community action and the creation of new norms and relationships. (For more on the application of community-based social marketing concepts and techniques to sustainability, as in this story, see: www.cbsm.com)

To ramp up our ability to act on "yellow bin" problems associated with making Portland a more sustainable city, the Portland Sustainability Institute has proposed the creation of "EcoDistricts" at the neighborhood scale. PoSI defines an EcoDistrict as follows:

> *The EcoDistricts Initiative is a comprehensive strategy to accelerate sustainable neighborhood development by integrating building and infrastructure projects with community and individual action. An EcoDistrict is a neighborhood or district that has committed to achieving*

> *ambitious sustainability performance goals over time. EcoDistricts commit to achieving ambitious sustainability performance goals, guiding district investments and community action, and tracking the results over time...The EcoDistricts Initiative is distinct from most green development strategies that focus on brownfield or greenfield development and are led primarily by master developers or public agencies. Instead, the EcoDistricts Initiative targets existing neighborhoods—through the powerful combination of public policy, catalytic investments from local municipalities and utilities, private development, and the participation of residents who are motivated to improve the quality of life and environmental health of their own communities* (PoSI, June 2010A, p.7).

According to PoSI, EcoDistricts are characterized by values of diversity and participation, equity in decision making and investment, health and well-being of the community, positive environmental impacts, and conservation and stewardship (PoSI, June 2010A, p. 10). The "ambitious sustainability performance goals" are described under the following seven headings:

1) *Community Vitality – Healthy, equitable, and vital communities with active and diverse participation.*
2) *Air Quality and Carbon – Beyond carbon neutrality and healthy air quality.*
3) *Energy – Net-zero energy usage annually.*
4) *Access and Mobility – Healthy, clean, and affordable transportation options.*
5) *Water – Water, in all its forms, meets both natural and human needs.*
6) *Habitat and Ecosystem Function – Integrate built and natural environments for healthy urban ecosystems.*
7) *Materials Management – Zero waste and optimized materials management (PoSI, June 2010A, p. 11 and 12).*

The process for developing an EcoDistrict is described as moving through four stages:

1) *Engagement to Governance – Creating a shared vision and agreeing on a mechanism for governing the EcoDistrict, its projects and potential investments.*
2) *Assessment and Strategy Development – Developing an understanding of the challenges faced by the community to meet the ambitious performance goals, and the creation of specific strategies to meet those goals.*
3) *Feasibility and Project Implementation – The interaction of the EcoDistrict with PoSI, the City, and other key stakeholders to assess the catalytic potential of various strategies and investments, and the development of an implementation strategy.*

4) *Ongoing Monitoring – Ongoing evaluation of the impacts of and lessons learned from implementing the strategies, and the modification of or development of new strategies as a result (PoSI, June 2010A, p. 15 and 16).*

The creation of EcoDistricts can be viewed as a direct attempt to make the achievement of goals for sustainability more than an efficiency problem, more than a green building problem, but instead, a "yellow bin" problem. To PoSI's credit, they have recognized that making Portland a sustainable city means viewing the challenges of sustainability as ones attributable to processes of community development and the creation of new social/cultural norms. The scale at which this can happen and make the most sense to individual households is at the neighborhood scale.

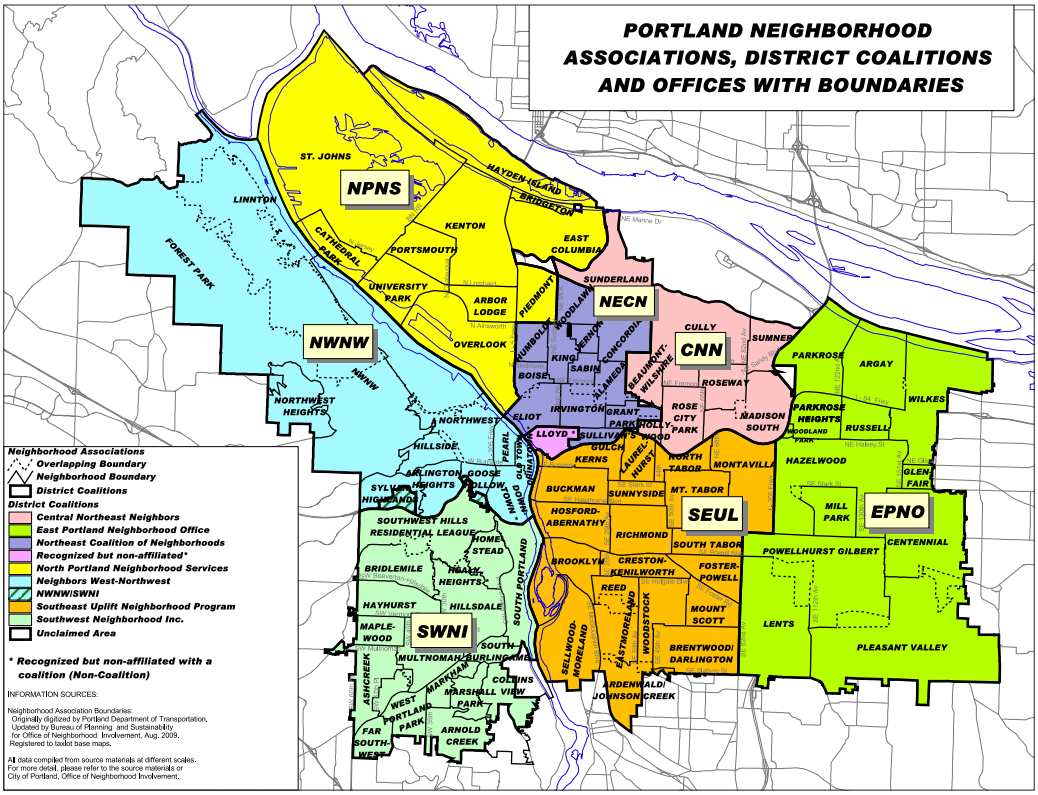
However, neighborhoods need to have a say in this as well. What do neighborhoods care about? For that matter, what is a neighborhood? In the PoSI Framework, we find the following:

> *For the purposes of the EcoDistricts initiative, the terms "district" and "neighborhood" are used interchangeably. Both refer to a particular scale that is the planning unit of modern cities with a spatially or community-defined geography. Boundaries may include neighborhood or business association boundaries, urban renewal areas, local and business improvement districts, major redevelopment sites, watersheds, or geographic demarcations, as appropriate (PoSI, June 2010A, p. 19).*

By this definition, almost anything can be a neighborhood. However, the term "neighborhood" does have real meaning in the Portland context. Since the late 1970s, the City of Portland has consciously identified neighborhood associations covering 100% of the land area of the city, has conferred on them certain legitimacy and status in the processes of and actions taken by the City, and has supported them through the creation of a citywide office, the Office of Neighborhood Involvement, and the funding of neighborhood district coalitions, service centers for individual neighborhood associations. In addition, the City has adopted procedures for mediating boundary disputes among neighborhoods, and for creating and recognizing new neighborhoods.

In Portland, neighborhoods are not business associations, urban renewal areas, major redevelopment sites, watersheds, or other geographic areas. They are, in fact, a specific kind of geography in Portland that scales up, institutionally and intentionally, to the scale of the entire City.

Consequently, the actual neighborhood geography of the City can and should be extremely valuable to both the City and PoSI as they seek new neighborhood-based models for advancing sustainability. These territories are mapped, recognized by and within the City structure, and known. The entire notion of neighborhoods in Portland is that they are vehicles for participation and engagement, key ingredients in the EcoDistrict concept. They are available equally to all neighborhoods and to all residents, landowners, and businesses within their boundaries.



From the Office of Neighborhood Involvement, City of Portland, Oregon

Finally, since the native geography of sustainability extends far beyond the boundaries of the City itself, to watersheds, national resource policy, State and Federal investments, food systems, and other realms, making neighborhoods sustainable will require City intervention in larger units on their behalf. The existing structure of neighborhoods and neighborhood associations in Portland makes this possible without creating new institutions, organizations, or relationships.

Of course, it would be easy to simply drop the term “neighborhood” from the materials describing EcoDistricts. EcoDistricts could simply be territories of any size or definition that agree to meet the values, process, and outcome expectations spelled out by PoSI. This, in fact, may be what ultimately emerges in Portland.

However, if the goal is a more sustainable ***city*** and not just sustainability projects, then the ability for these individual EcoDistricts Initiatives to scale up, and for City agencies and processes to both scale up and down, will be essential. If the Portland notion of neighborhoods is not going to be adopted, then the EcoDistricts Initiative will need to craft scalable relationships to connect the various initiatives to each other at the outset in order to make the citywide promise of this endeavor a reality.

In the course of doing the research underlying this document, we looked in depth at two neighborhoods in Portland, the Lents Neighborhood in East Portland and the Powellhurst-Gilbert Neighborhood adjacent to it. Both are considering engagement in the EcoDistricts Initiative. Both neighborhoods are populated by households with median incomes below that of the City as a whole, and both have higher proportions of residents of color than the City as a whole. Powellhurst-Gilbert, in particular, has explicitly stated its expectation that any EcoDistrict must take in the whole neighborhood because, as their Chair has noted, it makes no sense to leave any part of the neighborhood behind. They are all in need of better living conditions, a stronger community, and reduced costs.

Lents is a bit of a different story. This neighborhood is almost wholly contained within the Lents Town Center Urban Renewal Area. Some 3.75 square miles of the 4.5 square mile urban renewal area is within the Lents neighborhood, with the remaining .75 square miles shared by three other adjacent neighborhoods including Powellhurst-Gilbert.

Like Powellhurst-Gilbert, Lents has a neighborhood plan dating from the mid-1990s, developed as part of the Outer Southeast Portland Plan, and a more contemporary plan created under the auspices of the East Portland Action Plan, adopted in 2009. Whereas Powellhurst-Gilbert is engaging the EcoDistricts Initiative via the neighborhood association, an organization separate from the Lents Neighborhood Association, Green Lents, is negotiating with PoSI for recognition as part of the initiative.

In addition, Lents has a number of elements in place to make significant progress towards greater sustainability. The Lents neighborhood has been very involved in the planning and implementation associated with resource management in the Johnson Creek watershed and along Johnson Creek. It now has a light rail station in the midst of the Lents Town Center, a major investment in infrastructure that has created new options for Lents residents and businesses.

On its boundary, just inside the boundaries of the Powellhurst-Gilbert Neighborhood, is Zenger Farm, a growing urban agricultural outpost able to provide residents with new opportunities for meeting household food and nutrition needs, though recent work has revealed a real lack of connection between neighborhood residents and the farm and its proponents (Ecotone, 2010, p. 4). Again, almost the entire Lents neighborhood and, significantly, the town center itself, is inside the urban renewal area, a source for funding projects associated with advancing community renewal and development, sustainability, job creation, and other purposes associated with both the EcoDistricts initiative and other community-identified objectives.

With Powellhurst-Gilbert we have a neighborhood seeking to address issues of sustainability as a neighborhood-wide strategy for improving the lives of neighborhood residents. In Lents, there are a range of purposes and organizations that could, at varying geographies, intersect the EcoDistricts Initiative in the coming years. In both cases, done right, the EcoDistricts Initiative could provide the neighborhoods with another avenue for meeting their needs, for building community and community cohesion, for empowering the

neighborhoods in their engagement of the City, the Portland Development Commission, PoSI, and other entities, and ultimately for contributing to citywide objectives for making Portland a significantly more sustainable city.

Knowing more about what the neighborhoods want, then, will be key to better understanding, on the part of PoSI, the City, and neighborhood residents themselves, whether the EcoDistricts Initiative is a useful vehicle for accomplishing neighborhood goals. We can glean some insights about the relationship between neighborhood objectives and larger, citywide goals, through projects recently carried out by Masters students in the Toulan School of Urban Studies and Planning. To receive the Master of Urban and Regional Planning degree, all Masters candidates must complete a two-term planning workshop. In the workshop, the students form themselves into planning "firms," identify a general theme or set of issues that they want to work with, and then seek clients to shape and receive the final products.

Two of these projects completed in the past several years deal directly with sustainability issues and goals at the neighborhood level. In 2009, a group of students completed the "Neighborhood Climate Change Planning Handbook" for their client, Southeast Uplift, the district neighborhood coalition and service provider in inner-Southeast Portland. That project was developed to see if there were ways to engage neighborhoods in planning for, mitigating, and adapting to climate change. Their operating assumption was that climate change was too big an issue for any single neighborhood to work with effectively, but that neighborhoods, in this case Portland neighborhood associations, could "fill the gap between the individual and activity at higher levels" (C-Change Consultants, 2009, Forward).

What they proposed was to respond to this global crisis through community building, planning, and acting at the neighborhood scale. They found that climate change is a topic that can bring people together to talk about the future for their neighborhood and world, work on projects together that make the community stronger and a better place to live, create the context for information sharing and engagement, and ultimately result in new and better articulated neighborhood visions and goals.

The process that they described for engaging this topic revolved around three steps: 1) get organized; 2) assess needs and priorities; and 3) identify strategies for meeting needs and advancing goals. Significantly, they found that the process needed to start with articulating community needs and then, and only then, make the link to actions that had benefits for responding to climate change (C-Change Consultants, 2009, p. 50). Climate change, at the outset, was not the issue that was bringing neighborhoods together. They proposed that neighborhood associations in Portland were strategically placed to tie into city resources to move forward on meeting community needs and aspirations while acting proactively on climate change concerns.

In 2010, another group of students developed the "Gateway EcoDistrict Pilot Study" for PoSI. This project was an assessment of the application of the EcoDistricts Initiative to a PoSI-identified pilot EcoDistrict in Portland, the Gateway Urban Renewal Area. Their report begins with an assessment of site conditions and community priorities. They found that

connectivity, community/place identity, and security and appearance were key community concerns. They stated that:

> *Community members asserted that any EcoDistrict proposal must address the area's specific needs in order to be successful. While the EcoDistrict concept was well-received, environmental performance was not the highest priority (DistrictLab, 2010, p. 2).*

They went on to state that there was a very general and shared concept of sustainability, but no agreement as to what it should mean in Gateway. In particular, they reported that the community resisted using the PoSI performance areas as a framework for articulating community issues or goals (DistrictLab, 2010, p. 20). Stakeholders were, however, positive when the EcoDistrict performance areas could be shown to address community needs and concerns (DistrictLab, 2010, p. 24). They saw a key challenge for the EcoDistricts Initiative to be the organization and mobilization of willing participants (DistrictLab, 2010, p. 65).

From both of these experiences we can conclude that there is real opportunity for pursuing sustainability citywide through engaging neighborhoods and neighborhood associations in Portland. However, it is unlikely that neighborhood associations will easily or initially gravitate to the EcoDistricts Initiative as the basis for describing their needs and goals. If the EcoDistricts Initiative can demonstrate its ability to advance neighborhood aspirations as defined by the neighborhoods themselves, the potential is great for making a major impact on citywide sustainability since the effort can then be applied to every neighborhood in the City.

These conclusions are backed up by fieldwork conducted in the Lents and Powellhurst-Gilbert neighborhoods, where neighborhood needs and goals are already identified, and the EcoDistricts Initiative will need to demonstrate its value to enabling the neighborhoods to do more than they ultimately would have been able to accomplish without it. These neighborhoods want stronger communities, jobs, higher household incomes, safer communities, affordable housing, a more usable and connected urban form, parks and pedestrian infrastructure, more frequent transit service, better funding for schools, and specific initiatives to engage youth and families, among other things. Showing the value of engaging in sustainability initiatives for acting on these objectives will create an immediate and citywide constituency for making Portland more sustainable via action at the neighborhood scale.

This report then, is about how developing "EcoDistricts" in Portland can result in more sustainable neighborhoods and a more sustainable city. With generous funding from the Bullitt Foundation in Seattle, we have been able to take a deeper look into core concepts underlying the notion of pursuing citywide sustainability through neighborhood-scale action. If the EcoDistrict strategy is, in fact, a departure from past practices, it would need to be more than just green building writ large.

Framed another way, if citizens are viewed as passive recipients of sustainability, consumers of green technologies rather than producers of green results, then little would have been accomplished towards realizing the potential of a community commitment to making

sustainability real. Again, making sustainability real starts with people, not hardware. The question becomes: what needs to be done to enable communities to self-manage their resource using behavior by creating community-inspired interventions that change relationships between people, and between people and place?

To answer this question and to contribute to the emerging practice of EcoDistrict formation and development, what follows are four chapters that help to bring a "people first" EcoDistrict strategy into focus. Chapter 1, from Tim Smith, describes what he terms "Civic Ecology" as the basis for EcoDistrict practice. He writes that:

> *Civic Ecology is the integrated web of energy, nutrient, resource, financial, information, and cultural flows and interactions that are envisioned, created and managed by citizens acting for the common good within a geographically-defined community and its city-region. It is a human ecology of place, intimately integrating both natural and social/ culture systems.*

And:

> *The Civic Ecology framework provides an opportunity for such transformative change through its five core qualities: 1) a whole systems approach to community making; 2) a focus on community place; 3) a requirement for the creation of a new social contract that empowers stronger democracy and social capital in the community-making enterprise; 4) a focus through these means on identifying shared community needs and capacities as a basis for action; and 5) identifying specific strategies for maintaining the open-ended, adaptive capability critical to achieving community sustainability.*

In his chapter, Tim distinguishes between the "hardware" of sustainability—pipes, devices, buildings, etc.—and the "software"—relationships between people, meaning, flows in and through the community, etc. He views Civic Ecology as a new model for viewing and understanding acting on goals for sustainability within the community, one echoing the findings above, that is profoundly embedded in the life and aspirations of the community, the "placeways" that stem from the community's own identity, values, and desires. Importantly, he makes distinctions between community action in a local versus global context, and between expectations for consumption and resource use based on old assumptions versus those accompanying real sustainability.

Clearly, this is hard work. Sustainability is not about finding new ways to not change things, to enable old patterns to continue indefinitely. It's ultimately associated with changing behaviors, relationships, and expectations, and that raises the real and important questions of ethics and equity. Asking communities at a distance from relatively easy changes for meeting goals for sustainability to embrace those goals as heartily as communities and households faced with a relatively easier path is not realistic or, in many cases, fair.

Nonetheless, at the heart of the Civic Ecology model is the expectation that the community is in control, and in need of links to bigger institutions and systems. Needed here is not just

a local willingness to proceed, but a higher level desire to recognize and empower. The two must work together.

If a community chooses to pursue Civic Ecology as a strategy for making an EcoDistrict, Smith suggests that they will find five major benefits. First, Civic Ecology is locally controlled. This is a means for communities to speak both to themselves and to the broader city and world about what they need to do and how they'll do it, and how and when sustainability, as a goal, comes to the fore.

Second, the Civic Ecology framework creates real and enduring value. Smith identifies benefits accruing to all forms of capital—physical, monetary, environmental, and social—as a result of proceeding with the Civic Ecology model in mind.

Third, using Civic Ecology as a guide will create greater resilience for the neighborhood or district. New relationships and resources provide a broader palette of options for dealing with the inevitable challenges to community cohesion and stability, and to the well-being of households coming from dynamics much larger than the community itself or, often, even the city or state within which it is located.

Fourth, as should now be apparent, a key outcome is a stronger community, something that all communities have as a critical concern. Finally, using Civic Ecology as a framework for thinking and acting holds the promise of creating a "living culture" in the neighborhood:

> *Community-building and city-making are never done. They are intergenerational projects that result in a community DNA, the coding that describes to present and future residents of the place what it means to be a citizen of that place and what the rules and norms are that underpin the way resources are allocated. Included in this are the values and visions of the community as well as the means to measure progress and steer the boat. It enables the community to sustain itself and prosper and tells citizens what needs to be done to keep it so. In the end this may be the most important benefit of all.*

Should a community elect to use Civic Ecology as a way of thinking and acting, Smith provides a five step method for implementation. Smith writes:

> *Creating an EcoDistrict using the Civic Ecology Framework will require that neighborhood/district stakeholders collaborate in public discussions to answer five questions:*
>
> *1) Where are we now?*
>
> *2) Where do we want to be in 5, 10, 20, 50 years?*
>
> *3) How do we get to where we want to be?*
>
> *4) How do we know if we are getting there?*
>
> *5) Who wants to help find out?*

Answering these questions can be done through the five steps of the CIVIC Process: Convening, Investigating, Visioning, Implementing and Charting progress. Chapter 1 provides a description of how to apply the five steps of the CIVIC process, and concludes with a series of questions needing additional thought and action:

- Can neighborhoods be the loci for innovation, the kind of innovation needed to make the promise of EcoDistricts real?
- What kind of governance framework is needed at the neighborhood level to enable EcoDistricts to not simply be created, but to become vehicles for the day-in-day-out business of realizing goals for sustainability?
- How can we know whether the practice of Civic Ecology has yielded outcomes for sustainability that are both important locally and able to be scaled up into the outcomes needed to make Portland a more sustainable city?
- If communities utilize Civic Ecology as a means for becoming more sustainable, what might that suggest for the nature of plans and planning in a city like Portland?

These questions are addressed in the following chapters. In Chapter 2, Joe Cortright directly addresses the inter-related issues of innovation, place, and scale. In his chapter, he takes on three inter-related groups of questions:

- *Geography, Scale, and Sustainability: Is it global, national, metropolitan, neighborhood or individual? Can we save the planet one city or one neighborhood at a time? How do we achieve and measure sustainability at each of these different scales?*

In this section of the chapter, Cortright acknowledges the advantages of using small scales, like found in neighborhoods, to relatively rapidly test concepts for broader use. However, if scaling up is an important purpose, it needs to be identified and committed to at the outset. To not do so would be to engage in projects that give the illusion of great sustainability but are, in actual fact, only about the association of sustainability with certain places or groups. If we want sustainability to be more than branding, we need to seek it clearly and directly up front. Further, he identifies selection bias, an unwillingness to properly price resource use, and a general inability to properly account for externalities as critical issues when working at relatively small scales, as found in neighborhoods.

- *Technology and Culture: What is the mix of physical characteristics of community and human behavior that will be required to achieve sustainability?*

In this part of the chapter, Cortright discusses the requirement that sustainability efforts must combine a mix of physical and behavioral strategies.

- *Innovation and Place: How are new ideas brought to bear in particular places in ways that lead to more sustainable communities and living?*

Here, Cortright considers the literature about innovation, and the critical roles played by users. In the case of neighborhoods, the democratic and open "crowdsourcing" of solutions and objectives is of paramount importance for the nurturing and emergence of innovation.

Cortright concludes that EcoDistricts will need to wrestle with questions of scale and with the advantages and disadvantages of pursuing neighborhood-based and scaled innovation.

Ellen M. Bassett follows in Chapter 3 with an examination of what governance can and should mean in the effort to make neighborhood sustainability a vehicle for citywide sustainability. She provides working definitions for "governance" and "government," focusing in particular on a continuum of governance forms of relevance to the EcoDistricts Initiative. Her chapter utilizes cases studies of neighborhood governance efforts in Los Angeles, Portland, and elsewhere, and Business Improvement Districts as a means for exploring the challenges of establishing neighborhood-scale governance structures for EcoDistricts.

This chapter concludes with five insights for PoSI and others interested in moving forward with creating EcoDistricts in Portland:

> *Insight 1: Successful governance institutions have strongly shared goals; these emerge according to circumstances/felt need and influence the form governance takes.*
>
> *Insight 2: Legitimacy is paramount; leadership must be representative and accountability to residents must be clear.*
>
> *Insight 3: All governance institutions are not created equal—the need for capacity building and commitment of government resources should not be underestimated.*
>
> *Insight 4: Respective responsibilities between institutions (within hierarchy and across same levels of power) must be clear.*
>
> *Insight 5: Evaluation must be built into governance experiments.*

Finally, in Chapter 4 Vivek Shandas tackles the question of what it means to evaluate outcomes, and what the practice of measurement, ongoing monitoring, and reflection means for sustainability more generally. Shandas draws our attention to the many city measurement efforts now underway, and the exceptional amount of effort going into measuring outcomes associated with sustainability. He reminds us that neighborhood-based sustainability is about "place," and that though measuring attributes of form and function associated with place is important, those measurements are largely out of context without some sort of measures for "meaning."

However, measuring meaning is extremely difficult and hasn't been fully developed in the literature or in practice. Nonetheless, to leave meaning out can potentially result in the creation of measures that draw attention to the wrong things, and may induce actions that are actually counterproductive if not ethically questionable. To begin to

create measurement systems able to integrate form, function, and place, he proposes 6 guidelines for practitioners:

1) *Discern the meaning of place;*
2) *Establish baseline measurement;*
3) *Distinguish between the measurement of systems, policy outcomes, and feedbacks;*
4) *Balance goal-orientation and process-orientation;*
5) *Emphasize resident-held spatial dimensions of place; and*
6) *Allow the data to inform perspectives.*

Shandas concludes by reminding us that measurement "can both enable and constrain a community's ability to control the direction of change." His six guidelines are offered as a means for creating a people and community-focused strategy for pursuing sustainability outcomes. He notes that this is important for the EcoDistricts Initiative because of the challenges of merging higher level desires for sustainability with local level concerns described in terms of community needs, issues, and aspirations. Simply seeking the acceleration of the achievement of sustainability may, and probably will, run roughshod over the need to engage all citizens and their concerns in the challenges associated with making cities like Portland better places to live.

What can we conclude from the findings presented here? First, sustainability is achieved over time. It's not the product of a program, project, or initiative, though all these things are important and help. Instead, Portland will become a more sustainable city when the links between sustainability, people, place, and the myriad decisions made daily in the course of inhabiting the city get consciously related to a set of sustainable behavioral norms. To be a sustainable city means that Portland, or any city, has to be in it for the long haul. The EcoDistricts Initiative has to be thought of in the context of building and stewarding long-term commitments to sustainability.

Second, the neighborhood scale offers an important opportunity for cities seeking to become more sustainable. It is a scale at which citizens can be empowered, not just to interact with city agencies and public sector bureaucracies and legislative processes, but to interact in effective ways with each other. Sharing a neighborhood can lead meaningfully to sharing an interest in articulating and achieving goals for sustainability in ways that are simply out of reach for too many citizens at the citywide scale. The neighborhood scale overcomes the limitations of addressing sustainability goals a household or a building at a time, and because neighborhoods often have a role in city processes for governance and resource allocation, the prospect of scaling up from individual neighborhoods is real.

That said, realizing the benefits of EcoDistrict formation at the scale of the city makes boundaries and definitions important. Fundamentally, a wide ranging assortment of EcoDistricts means that some will scale up and some won't. Some will be vehicles for empowerment and some won't. A diversity of types and boundaries also means that basic power relations go unchallenged, impinging on the ability for sustainability to mean an

increase in equity conditions in society. If a neighborhood commits to bringing everyone along, that commitment should and must be rewarded by the city in ways that are materially different than the application of EcoDistrict concepts to projects or single-purpose districts.

Again, the big goal is a more sustainable city, in this case Portland. Getting there means that smaller scale initiatives, though necessary, must be conceived and implemented with this larger goal in mind, and within the larger scale of the City at the outset. However, working at the neighborhood scale is by no means a substitute for pursuing initiatives that ought to occur at the scale of the city and above. EcoDistricts cannot and must not be the only game in town, just as other initiatives at other scales need to consciously be connected to EcoDistricts and their projects.

Scales are important, each has specific roles to play, and a more sustainable city will result not from the abdication of roles, but from their interplay. This is not a small challenge. Cities seeking to remake themselves in truly sustainable ways need to care, at the outset, about boundaries and definitions in far more concrete terms than has occurred to date. There are multiple scales at play here and they depend on each other to accomplish objectives for sustainability.

The native scales for biophysical systems (water, energy, habitat, transportation, etc.) are different than the institutional systems for political decision making (nations, states, metropolitan regions, cities) are different than the scale at which households are directly empowered to make changes in consumption and norms (house, block, neighborhood). Finding links that enable decisions at one scale to leverage greater benefits at other scales is critically important for making cumulative patterns of inhabitation more sustainable in the fullest sense of the word.

Finally, when it comes to sustainability, people matter most. Keeping this principle firmly in view will be the best insurance that the results of city investment in neighborhood sustainability actions are likely to lead to the kinds of retooled social and cultural relationships, the software, the new norms, needed to create real sustainability. Again, sustainability is the legacy of a generation, not the outcome of an initiative or an investment. Every place is sustainable, but those living and working in those places may or may not be willing to take the steps necessary to realize that goal.

The legacy of EcoDistricts could and should be to make what seems difficult or unattainable both imaginable and tangible. This is about lowering barriers, and making what needs to happen easy, and what needs to stop hard to continue. We are social beings. As such, there is tremendous satisfaction to be gained from doing things differently, and better, with each other in ways that would never seem likely on our own. Like Tom Sawyer and his fence, the work to be done can, in fact, become meaningful “play.” EcoDistricts can open that door, if we expect them to, and make them that way.

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Tim Smith

Chapter
Civic Ecology: *An EcoDistrict Community Design Framework*

We are threatened today by two kinds of environmental degradation: one is pollution—a menace that we all acknowledge; the other is loss of meaning.

E.V. Walter, Placeways

Introduction

Many cities, communities, and institutions have begun to realize that attaining sustainability requires more than constructing green buildings, green streets, and parks… in other words, greener and more efficient versions of their present community "hardware." Missing from the current discussion are concerns about the underlying elements of community "software:" energy, nutrient, resource, social capital, information, economic, and cultural flows.

EcoDistricts cannot be solely concerned with environmental pollution, climate change and hard measurable parameters related to science and functional efficiency. Greener, more efficient technology, exemplified by innovations in nutrient recovery, resource transformation, storm and waste water treatment, and energy efficiency, all neatly encapsulated and hidden in "black box" utility systems must not be all that society gains from the EcoDistrict enterprise.

Loss of meaning, the soft, not so easily measured attribute that relates to values, culture, affection for place, democracy, and citizenship may be even more crucial to attaining a shared and equitable sustainable prosperity. For it is in this realm of place-making that users can be empowered to own their collective sustainability by participating in the making of both hard systems like local utility webs as well as softer systems such as local economics, food, information, community culture and capacity building.

This paper describes the Civic Ecology framework for sustainability developed by SERA Architects of Portland, Oregon. Civic Ecology arises out of a central concern for community software. By community software I mean the web of ecological, economic, social and cultural flows and interactions that animate community life. This is in contrast to what I call hardware: the pipes, wires, buildings and other elements of physical infrastructures which house many of these flows.

I propose the Civic Ecology framework as an integral part of the EcoDistrict concept and outline a design framework for envisioning, creating, and managing EcoDistricts that could constitute the basis for an urban and community design paradigm shift. This unified strategy will equip the EcoDistrict with the necessary tools to address the two fundamental aspects of sustainability: the hard impacts of environmental degradation like global climate change, loss of biodiversity, resource depletion, and pollution as well as the soft dynamics associated with loss of meaning, such as institutional alienation and the need for more

robust community democracy, stronger social capital, and a shared sense of ownership of community resources.

The first part of this paper makes the case that a sustainable community design paradigm shift, possibly exemplified by EcoDistricts, is needed now: complexity, the global-local conflict, city and community making, and the troubling relationship between technology and community values all call for a new understanding and approach. The second part of the paper describes practicing in the new paradigm by highlighting Civic Ecology principles, benefits and a process that must inform the EcoDistrict enterprise.

I would like to be clear about one thing from the outset: concern for the local flows in a place in no way suggests a call for a return to isolated villages. While for some, small-scale self-sufficiency may be the answer; I believe a more practical approach is to work with what we have: cities. Cities are the place of innovation, hubs of regional resource webs (i.e. energy, food, water, information-sheds), and the setting for shared civic work among citizens.

Cities also happen to be where most of the world's population now lives and therefore the place for the greatest impact on 21st-century problems. The Civic Ecology framework is as much about citizens owning their sustainability as it is about making cities. This paper proposes Civic Ecology as a framework for designing sustainable communities integrated within urban fabric through soft systems design and social capital building.

Community software is the web of ecological, economic, social and cultural flows and interactions that animate community life.

Can the EcoDistrict concept contribute to urban and community sustainability? Not if it becomes just a way of localizing utilities and is only concerned with efficiency, technology, pollution, and aesthetics as discrete, expert-defined problems. However, if the idea plumbs the depth of systemic change needed to truly change the trajectory of cities and urban neighborhood life, it can serve as a transformative model.

The Civic Ecology framework provides an opportunity for such transformative change through its five core qualities: 1) a whole systems approach to community making; 2) a focus on community place; 3) a requirement for the creation of a new social contract that empowers stronger democracy and social capital in the community-making enterprise; 4) a focus through these means on identifying shared community needs and capacities as a basis for action; and 5) identifying specific strategies for maintaining the open-ended, adaptive capability critical to achieving community sustainability.

I. The Case for a Sustainable Community Design Paradigm Shift

Why a New Paradigm? (…Or, What Sustainability Should Not Be)

Sustainability is an elusive goal that is not easily defined. While it is hard to argue with the intergenerational approach suggested by the Brundtland Commission: "Sustainable development is that development that meets the needs of the present without compromising the ability of future generations to meet their needs" (Development, 1987), implementation strategies usually seem to follow the hard path.

In the top-down, expert-driven approach, measurable engineered efficiency is what wins the day. Well-defined goals, that can be achieved through master plans and implementation strategies managed by public (and sometimes private) blue-ribbon committees are the method of choice in a society where democracy and social capital is waning.

I believe that a more dynamic, inclusive, and open-ended approach is needed if we as a society are to get more out of innovative concepts such as EcoDistricts than better utility systems. What we must attain are sustainable cities, neighborhoods, and regions. And we must do it with the full participation of civil society. The challenge is how to fully operationalize sustainability for citizens of 21st-century neighborhoods and city-regions.

This approach implies a certain messiness that most experts and bureaucracies would like to avoid. It also recognizes cities for what they are or at least should be: open-ended places of experimentation, shared civic endeavors, creative milieus, and, above all, problems of organized complexity (Jacobs, *The Death and Life of Great American Cities*, 1961, p. 433). The Greeks remind us that city-making left to experts has already fallen into the wrong hands. Their term for the civic messiness critical to cities is *synekism*, defined by Soja as "the economic and ecological interdependencies and the creative—as well as occasionally destructive—synergisms that arise from the purposeful clustering and collective cohabitation of people in space, in a "home" habitat (Soja, 2000, p. 12).

The Greeks had a term for those who participated in civic affairs: *citizen*. They had an equally descriptive term for those who did not: *idiot*. While there is much that could be said about the relevance of these categories to today's situation, suffice it to say that making sustainable neighborhoods and cities in the 21st century will require the talent and energy of all members of the community.

While a citizen-driven path to sustainability may not be expedient, it is crucial and suggests a more open-ended and accessible notion of sustainable development. "Sustainability is the capacity to create, test, and maintain adaptive capability. Development is the process of creating, testing and maintaining opportunity" (Gunderson L. H., 2002, p. 76).

In other words, sustainability may be about keeping your options open. The key word is "capacity." For cities this means frameworks and models that are catalytic, inventive, experimental, accessible, and resource-constrained. It also means that citizens and communities are empowered to make choices that do not forego future choices in their communities and beyond.

Paradigm Shifting from Hard to Soft

Figure 1 compares and contrasts a number of attributes at the ends of the hard and soft sustainability continuum in order to highlight the paradigm shift that a focus on community software and Civic Ecology requires. The current "hard," pollution-oriented aspects of sustainability are in the left column, and indicate a focus on greater efficiency, pollution reduction, and that which is quantifiable and measurable. This is the EcoDistrict side of the chart. The right hand column outlines the soft response to each of the hard attributes. This side is the Civic Ecology realm.

Issue	Current Sustainable Community Paradigm	Civic Ecology Paradigm Shift
core driver	technology	shared community values
underlying ethic	efficiency	sufficiency
	the measurable	the perceivable
nature of defining problem and solution	"black box: and opaque	transparent
	expert-driven	citizen-driven
	isolated systems	integrated systems
basis for design	better science	better democracy
	greener Hardware	integrated software
	form follows function	form follows flow
	passive observers consume greener "stuff"	active citizens produce and own sustainability
outcome	urbanization	sustainable cities

Figure 1: The "hard" and "soft" aspects of community sustainability

A new core driver—from technology-driven to values-driven: The current paradigm suggests that achieving sustainability is primarily a technical problem. In other words, if we do the same things we are doing now, only greener and more efficiently, we will be sustainable, not have to change too much, and can move on to the next crisis. With better technology we will engineer our way out of this mess because we have done so before.

The results of this thinking are increasingly apparent: a disconnected array of green buildings, developments, bio-swales, and green streets, the understanding and operation of which might best be left to experts. But sustainability is not primarily a technical problem (Prugh, 2000, pp. xiii-xiv). Yes, there is a role for greater efficiency, smart cities and grids, and better and greener tools.

But, better technology only helps you figure out *how* to sustain. It does not answer the more fundamental questions: *What* shall we sustain? What is *sufficient* to sustain? Who gets to decide and participate? Answers to these questions lie in deep community discussions about shared core values and visions for the future.

A new ethic, from efficiency to sufficiency: Sustainability is not solely an efficiency problem either. Yes, more efficient lighting, higher energy returns on investment and smarter transportation technology are important strategies for homes, neighborhoods, and cities. But the crux of the matter is deeper: our devotion to an economic efficiency paradigm that is actually anything but efficient. Denial of the full societal costs of resource consumption, unchecked economic expansion on a planet of limited resources, and a blind faith in the market to deliver more goods for less money are its basis.

Thomas Princen highlights the flaw in efficiency as an organizing paradigm: "The litany of issues—global warming, species extinctions, bioaccumulative toxics, water shortage—is long, well-known, and well documented. More of the same, however fine-tuned to be efficient, even "eco-efficient", will not reverse the trends. In fact, in an ecologically "full world" every incremental increase in human impact jeopardizes life-support systems. Squeezing out yet another production efficiency is of little benefit if throughput still increases" (Princen, 2005, p. 8).

Princen suggests sufficiency as an idea, a principle, and an ethic for sustainability (Princen, 2005, p. 19). A paradigm shift toward the sufficiency side of the continuum would demand public discussions among government, private sector, and civil society about limits to growth and long-term ecosystem health that would help identify shared community values as a basis for action.

It would cause us to question and redefine how we work, value public resources, develop and apply technology, and determine the true costs of what we produce and buy. This will profoundly affect how we measure and perceive community quality of life. It will require us to operationalize shared values and understand that what may be important for a community's long term health may be not be easily quantified.

Defining problems and crafting solutions: Sustainability requires us to define problems differently than in the past and to recognize the interconnections among problems and issues. Solving for one problem while assuming that all other things are equal no longer makes sense and is, in fact, the primary reason we find ourselves in our current predicament. It may be that we will never really solve complex problems with linear certainty but at best dance with them. And the dance must be open to all.

So while the EcoDistricts Initiative advances the science of place-making by defining climate change, resource scarcity and pollution as problems requiring systemic responses, the solutions tend toward greener infrastructure to manage storm water, waste management, and energy production and distribution. These utility systems, though more efficient could come at a cost: less citizen understanding in lieu of greater expert ownership or management.

If the EcoDistrict is to be truly about neighborhood and city making, accessible problem definitions and strategies will be crucial. The idea of civic science, where "The citizen is not just the recipient of policy but an actor in the science-policy nexus" (Backstrand, 2003, p. 25); becomes a way of opening up the black box to greater civic transparency and democracy.

A broader basis for design: We need a broader basis for sustainable community design. The hard end of the current paradigm asks for better science while the soft end will require better democracy. Experts can and do produce better and greener hardware and in the design and planning world form does follow function. A concern for the deeper, interconnected relationships that animate great neighborhoods and cities however will require more integrated community software. In this world, form follows flow and results in webs of energy, nutrient, and resource flows animating both community life and structure.

While we as a society have been busy farming out sustainability innovation to experts we have become passive observers and consumers of green hardware and products. Nearly every segment of consumer products offers green options now. Natural and organic food and beverage sales, one of the largest categories of green consumer products, increased 24% from 2006 to 2008, and, is expected to grow another 20% from 2010 to 2012 (Katz, 2009).

The solar industry is expected to continue growing at a 27% rate over the next five years and become a $70 billion market by 2012 (LaMonica, 2008, p. 1). Green building is experiencing a similar boom. As of 2006, 50% of builders are focusing their attention on green building issues and between 40% and 50% of the homes built in 2010 are expected to be green by some definition ((NAHB), 2006).

This suggests a future that is greener and more consumptive, but not necessarily sustainable. An emphasis on better democracy will offer citizens the opportunity to become active participants in their community's sustainability story. As producers of sustainability, citizens take on ownership of the many issues that need to be considered. They offer green experts the local knowledge crucial to achieving a synthesis of the hard and the soft in ways that can be entirely place-based.

Sustainability cannot be achieved through better aesthetic physical design. Green buildings have evolved a certain look and aesthetic that for some is cool, for others cold and unlovable. This issue is painful to even talk about for those of us trained as designers and aestheticians. We are led to believe through our design education that our work will shape the built environment, and though the public may not understand us, we are experts and we know what is best for them.

To let go of some aspects of design and planning in favor of the uncertainty of greater citizen participation is a frightening prospect for professionals. Moreover, focusing on flows and relationships when there are buildings and hardware to be built only adds to the suffering. But designing communities, neighborhoods and cities by designing their soft flow systems consistent with shared civic values is fundamental to sustainability. We as designers must recognize this as a design and planning challenge as legitimate as any iconic building project.

At the neighborhood scale, New Urbanism and Smart Growth have begun to integrate sustainability into their paradigms and LEED for Neighborhood Design holds promise for

soft systems design initiatives. However, these models still fall short by treating systems as isolated design problems, not addressing the entire array of community resource flows that when integrated in place can constitute the basis for deeper and more sustainable community design, and not including civil society as an agent in the design process.

Sustainable outcomes: Creating sustainable neighborhoods and cities is recognized as the goal of the EcoDistricts Initiative. However, by tilting toward the hard aspects of place-making we run the risk of merely creating arrays of greener infrastructure upon which greener urbanization rests. Ultimately urbanization should not be our goal; cities should be. There is a profound difference between cities and urbanization and addressing this issue must be one of the fundamental challenges of the EcoDistrict.

If sustainability is not any of these problems, it may be that it is all of them, and more. The premise of Civic Ecology is that sustainability is a political and cultural problem. Once the discussion shifts to the values, democracy and citizenship end of the continuum it enters the realm of politics.

The primary project of sustainability should be to empower citizens to "own" sustainability as definers, producers, and stewards rather than as passive consumers. Doing so will entail conflict—as all public discussion does—and politics is how we transform the society, in this case to make sustainability be about how we do things as opposed to something special that experts do for us. And ultimately this is about making the 21st-century city. There can be no cities without citizens and no citizens without empowerment, engagement and democracy.

Challenges and Opportunities for EcoDistricts (Or, What Sustainability Should Be)

As noted above, EcoDistricts cannot be just a more efficient way of delivering utilities to neighborhoods or institutions. Because of their neighborhood scale, potential for citizen empowerment, and city-basis, EcoDistricts become an opportunity to address some of the most intractable problems facing society. This section highlights five major challenges for the design of EcoDistricts. Meeting these challenges is crucial if the EcoDistricts Initiative is to be transformative.

Challenge 1. How to reduce negative impacts on communities? This seems like an obvious challenge. If the concept of an EcoDistrict cannot mitigate the local impacts to communities and cities of global climate change, loss of biodiversity, habitat loss, ecosystem degradation, pollution and other hard aspects of sustainability, why bother with it? The real challenge is to extend the problem realm to address the softer aspects of sustainability like rising economic inequality, loss of confidence in institutions, loss of control over local issues and resources, and political polarization. EcoDistricts must be a catalyst for the creation of a new social contract that empowers an invigorated civil society to participate in the making and "ownership" of strategies to address both the hard and soft aspects of sustainability.

Challenge 2. Complexity: Can EcoDistricts serve as a framework for engaging citizens in the complex work of community-making? As mentioned above, cities are problems in organized complexity. This thinking extends to the environmental, economic, and social systems of which cities are comprised. In order to effectively address such problems EcoDistrict action must be derived from complexity and facilitate self organization, resilience, and open-endedness. The EcoDistrict must embrace interrelated problems through a systems-based approach to defining and solving problems. This presents an inherent conflict for empowering civil society in that complexity would seemingly require highly-trained specialists that produce expert-driven solutions. Isn't complexity for scientists? EcoDistrict design and management must navigate complexity in ways that are accessible to citizens.

Challenge 3. Values and technology: What should be the core generator of an EcoDistrict—technology or community values and vision? This conflict is central to the community design paradigm shift described above and to the success of the EcoDistrict as an empowering strategy. Should technology drive EcoDistrict design? What if the most efficient technology available would cause harm or foster inequality to a small segment of a community served by an EcoDistrict? Should it be implemented? Should we select technologies because they work, regardless of the impacts? Or, should shared community values drive technology choices?

The first option rests on acceptance of the efficiency paradigm. It has led to the continued rise in importance of technology, the expert class, and the "black box syndrome." It has produced complex systems that are detached from citizens and for which citizens have no empathy. This current design paradigm has produced experts empowered with knowledge and technical prowess to produce design and sustainability. Citizens are relegated to passive consumers and the rift between the haves and the have-nots increases. The professionalization of sustainability has contributed to the erosion of the rights of non-experts (Shutkin, 2000, p. 39).

But consider another approach: In Whistler, British Columbia a citizen-owned decision making process enabled community vision and values to drive long-term decisions about how to employ technology to provide energy to the community. In 2005, Whistler, a resort town north of Vancouver, was faced with the need to re-think its long-term energy future. With energy demand likely to increase due to growth and preparation for the 2010 Winter Olympics, the current energy sources (propane, electricity, and diesel fuel) reaching capacity, and a vision plan that aimed for long-term sustainability, the community turned to its current supplier, Terasen, Inc. for guidance.

Because Terasen, Inc. is the parent company of Terasen Gas Companies, the principle natural gas distributor in British Columbia, natural gas seemed like a logical alternative. The community was concerned, however, that a total shift to natural gas (in other words, relying on a single, non-renewable energy source) would not be a sound strategy to meet the community's long-term sustainability objectives.

In the course of providing this feedback to the supplier, the municipality discovered that Terasen had a nascent renewable energy division. Focusing on renewable strategies, the community and the company created a plan that involved a short-term shift to natural gas with the ultimate goal of shifting to geothermal energy. In addition, ground source heating and cooling, district-based thermal energy, and other energy technologies such as solid waste gasification and landfill gas will be explored.

The resulting energy system is designed to be open and flexible, allowing for these other technologies to be brought on line when feasible (Boisvert A. L., 2009, pp. 33-34). Natural gas will be used where other alternatives are not feasible and to cover peak demand. In short, technology was put in service of the community's expressed vision and values.

Figures 2 and 3 illustrate two paradigms for the values-technology relationship. Figure 2 illustrates the current paradigm where technology drives action and the feedback from impacts goes back to the technology. Had Whistler followed this path they might have ended up with an energy technology based solely on natural gas with little flexibility for future conversion. In Figure 2, values and community vision determine how technology is employed to achieve the vision supported by community values as was done in Whistler.

Driving with values shifts the decision-making paradigm and requires community members to understand community needs and assets and to act on visions, in other words, to "own" their sustainability. It distinguishes between citizen experts and expert experts. Sense of place takes on deeper meaning as citizens discover what is unique about their communities. It also requires public discussion about shared core values, those beliefs that provide the basis for visions and action.

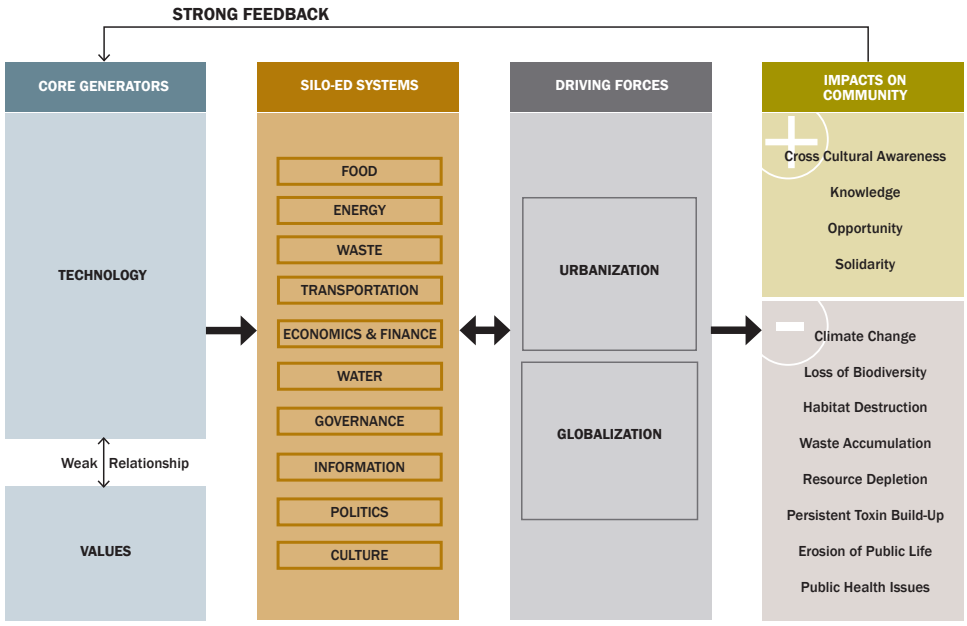

Figure 2: Diagram illustrating the current paradigm

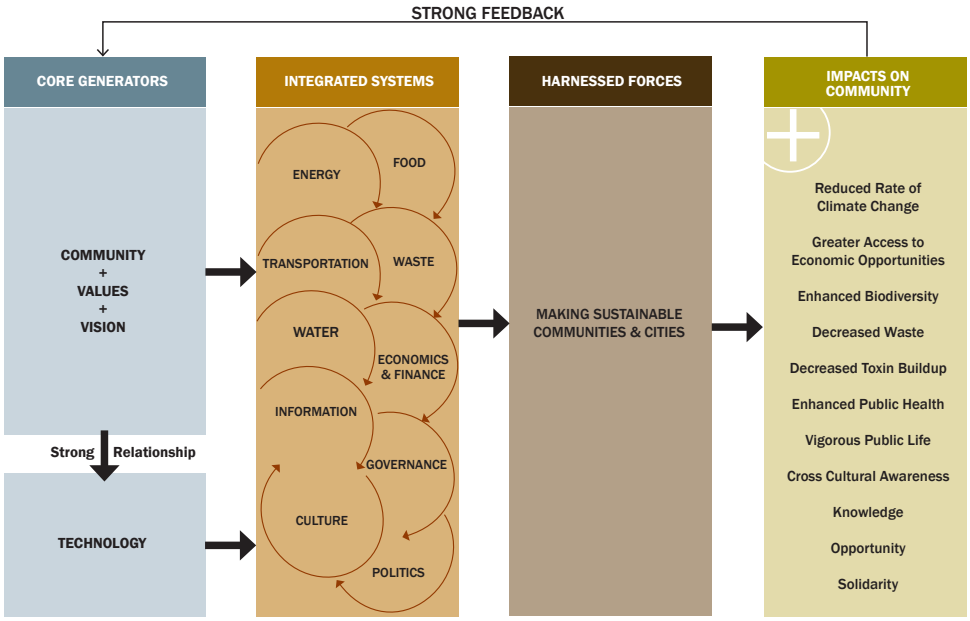

Figure 3: Diagram illustrating the Civic Ecology paradigm

There are three types of values: utilitarian values that address individual, likes and dislikes, moral values that identify shared attitudes about fairness and justice with respect to wealth, power, opportunity, and existential values that get at what gives lives meaning and purpose (Homer-Dixon, 2006, p. 301). Most public discussion never gets beyond the utilitarian level where consumerism lives. Driving technology with values requires discussions at the deeper values levels if ultimately sustainability decisions are to change culture.

When shared values and community vision drive technology, citizens can discuss the relative merits of efficiency and sufficiency. They can understand what technologies are available to meet their shared and recognized needs. The same human values-based discussions can also occur about sufficiency as an idea, principle, and ethic for sustainability as Princen suggests. These discussions can lead to criteria to guide decision-making based on long-term ecosystem health and intergenerational equity. Thus, EcoDistricts can be a vehicle to challenge the current economic paradigm (*homo economicus*) and move community members from consumers of expert-driven technology-based sustainability to citizens that produce and manage their sustainable community. This places emphasis on doing good work as opposed to making more "stuff."

EcoDistricts must also be a vehicle for introducing issues related to cultural change and scale into sustainability discussions. Gunderson and Hollings' concept of the creative and conservative properties of sustainability reminds us of the need to balance community-based rapid, small-scale, de-centralized experimentation, inventiveness, and testing against the slowness of stable community and city institutions based on accumulated

memory or culture (Gunderson L. H., 2002, p. 76). Figure 4 illustrates how creative activity like making community systems is really about changing the way a community or city allocates resources.

In this realm the experimentation and fast failure necessary to innovate systems and technologies for sustainability is balanced against the conservative and deliberate pace often associated with government and bureaucracies, what Jane Jacobs referred to as the "Guardian Syndrome" (Jacobs, 1992). These poles of activity negotiate changes to rules and norms based on community values and vision and on what works and what doesn't. For EcoDistricts, this is a way of providing for intergenerational equity and helping communities satisfy the needs of the present without compromising the ability of future generations to meet their needs.

Challenge 4. Globalization: How does a concept as profoundly local as EcoDistricts interface with the world beyond in an increasingly global world? Globalization is "The internationalization of almost everything: goods, services, markets, crime, disease, wealth, poverty, capital, drugs, weapons, and terrorism" (Barber). It is a driving force of 21st Century life and its impact on local communities has been profound.

While it is now possible to be better informed about and connected to global issues and other cultures, and to take advantage of lower overseas production costs to purchase more goods at lower prices, globalization has its costs: cultural homogenization, social disintegration, weakening of local democratic structures, spread of disease, increased poverty and alienation and externalization of social and environmental costs and local impacts to increase profits.

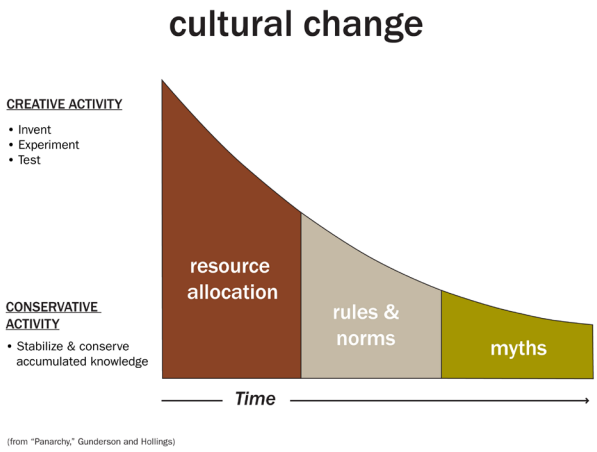

Figure 4: Cultural change (diagram created by the author, based on information presented in "Panarchy", Gunderson and Hollings

How can EcoDistricts leverage the best of what is global while strengthening the local? I believe the answer lies in four areas. First, strengthening local culture through stronger forms of democracy brings what is best about a community to the forefront. It sets the table for innovative ideas and a living culture that celebrates the uniqueness of the local.

It helps a community develop a culture of sustainability around its values and vision so that it can accept the global on terms that will benefit the community. This means investing in its local expertise rather than chasing bright shiny out of town industries. It also means setting the terms for the new bright shiny enterprises that do chose to locate in the community.

Secondly, a community can benefit from the global by availing itself of the information ecology of sustainability efforts happening in other parts of the planet. Paul Hawken estimates there are between one and two million organizations around the world working on sustainability and social justice issues (Hawken, 2007, p. 2). Much of this activity has great relevance to what communities are concerned with locally.

The fear of trying new approaches is generally followed by "where has it been tried before?" Many communities in other places have much to share and are happy and honored that you would ask for their advice. Most of this activity is available through the internet and represents a way of applying technology (the internet) in ways supportive of community values and visions.

Thirdly, communities that concentrate efforts on developing a strong local economy as part of the EcoDistrict enterprise can devise import substitution strategies to produce locally what they are currently importing. In Portland, a significant expertise has developed in green technology production and consulting. Much of this activity, nurtured in the friendly confines of Portland, is now being exported nationally and internationally, developing local clusters of expertise and supporting industries. These ecosystems enrich the community while giving it global reach and cache.

Finally, there is immeasurable delight derived from living in or visiting a city or neighborhood where the functions of everyday life pulse in full view. Lynch called this "transparency" and described it as "the degree to which one can directly perceive the operation of the various technical functions, activities, and social and natural processes that are occurring within the settlement" (Lynch, 1982, pp. 138-139).

How often do we visit an urban neighborhood or rural village, watch the local exchanges, and marvel at the complexity of the structures of everyday life as they unfold around us? In a globalized, homogenized world, it is these places that display their uniqueness that have become highly valued places to live, work, visit, and invest.

Challenge 5. Urbanization: Will EcoDistricts contribute to urbanization or making cities? They are not the same. Finally, EcoDistricts must be about making cities. Not greener forms of urbanization but sustainable cities. Cities are our future. The United Nations estimates that by 2025, over three-fifths of the world's population will live in urban areas. The question is whether they will be victims of rampant urbanization or residents of sustainable communities.

While there is much discussion about global financial and information flows and their impact on architecture and urbanization it is still in physical communities of place, culture and people that we live, work and play. If ours is an urban future then the biggest challenge is whether EcoDistricts are up to the task of making cities and not just urbanization.

While many view urbanization as just a quantitative measure of the physical transformation of rural or natural land into urban uses as a result of population immigration, it is more than that. As Bookchin explains:

> *Urbanization is engulfing not only the countryside; it is also engulfing the city. It is devouring not only town and village life based on the values, culture, and institutions nourished by agrarian relationships. It is devouring city life based on the values, culture, and institutions nourished by civic relationships. City space with its human propinquity, distinctive neighborhoods, and humanly scaled politics—like rural space, with its closeness to nature, its high sense of mutual aid, and its strong family relationships—is being absorbed by urbanization, with its smothering traits of anonymity, homogenization, and institutional gigantism (Bookchin, 1987, p. 3).*

But the best cities are locations where innovation, culture, and civic life combine to enrich the human prospect. Cities are service providers, innovative milieus, contested landscapes, bundles of flows, and home to citizens. The process of urbanization does not necessarily yield communities or even cities, just development. EcoDistricts must be that creative spark, the qualitative enterprise that contributes to "citification". If cities are our future, it is citizens that will make them. The promise of the EcoDistricts Initiative then must be to help us re-think the city as an ecological enterprise rather than just a logistical or structural phenomenon.

Mitigating pollution's impacts on communities, complexity related to making community, harnessing what is best in the global, urbanization versus citification, and the values/technology issue must be addressed through public discussions about shared core values and visions. Why are these issues/discussions important for EcoDistricts? Because EcoDistricts can be the vehicle that empowers civil society to be an active producer of sustainability rather than its passive observer.

Citizens cannot do this alone and so the geographic space of an EcoDistrict, whether an urban institution such as a university or a hospital, a neighborhood, or a corporate or government campus must become the setting for a shared sustainable city making enterprise that combines public and private sector innovation, and active citizenry into action-oriented networks, learning ecologies suitable for open-ended, dynamic problem-defining and solving crucial to achieving 21st century sustainable cities.

Taken together, these five challenges provide the context for understanding and designing EcoDistricts. We now turn to the practice of Civic Ecology as a vehicle for making EcoDistricts at the local level a meaningful contributor to real sustainability.

II. Practicing in a New Paradigm

Overview of the EcoDistrict Idea

The EcoDistrict concept has been developed as a means to create a more resource efficient and thus sustainable future for cities. What makes an EcoDistrict? According to the Portland Sustainability Institute (PoSI): "An EcoDistrict is a neighborhood or district with a broad commitment to accelerate neighborhood-scale sustainability." The following performance standards have been created by PoSI to further sharpen the definition and objectives:

- *Least impact on climate change across local, regional and global air sheds.*
- *Energy needs met while providing positive environmental benefit.*
- *Jobs, housing, goods, and services are sustainably accessed through multimodal transportation options and urban form.*
- *Water uses create a sustainable water balance between users, infrastructure and nature.*
- *Urban ecosystems optimize ecosystem services across built and natural environments.*
- *Materials are used and reused for their highest and best purpose.*
- *Active and diverse participation in creating and enjoying the benefits of the programs and places that make a healthy, vital community.*
- *These characteristics are satisfied within the boundaries of a district (PoSI, March 2010).*

These objectives suggest a limited hard systems sustainability focus. Missing are objectives for integrated food systems, local economics, culture, social capital and stronger forms of democracy. This section presents a framework that, when integrated with the EcoDistrict concept will provide a comprehensive rather than limited approach to sustainable community design.

The EcoDistrict Civic Ecology Opportunity

As a neighborhood-scaled initiative, EcoDistricts have the opportunity to have a greater impact than site-scaled frameworks such as LEED for buildings. They also have a greater potential of getting bogged down in neighborhood-scaled resistance to change, while, at the same time, avoiding the hurdles to engagement at larger, broader city, regional, and national scales.

To avoid this fate, EcoDistrict design and management will require public discussion, shared action, and long-term community capacity building rather than implementation through one-off projects or fiat. EcoDistricts, done right, empower citizens, public and private sector entrepreneurs to understand their community's needs, assets and ultimately place in the region and the world, and to envision, design and manage its future.

The promise of community sustainability will only be realized through recognition of the hard and soft aspects of sustainability and hard and soft systems implementation strategies

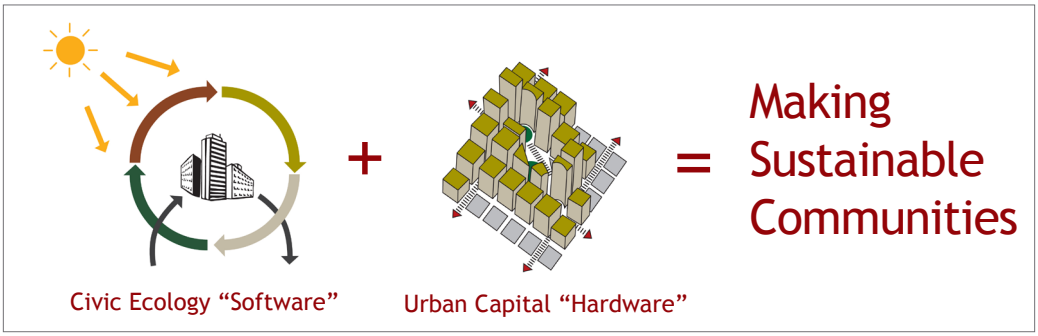

Figure 5: It takes hardware and software to make sustainable communities

forged through robust local democracy. The EcoDistrict scale, the fact that it is intended for application within a developed urban fabric and its systemic nature suggest an opportunity for open-ended and evolutionary change through shared civic work.

EcoDistrict-Civic Ecology Overview

Toward these ends I propose an urban and community design framework: Civic Ecology. Civic Ecology is the integrated web of energy, nutrient, resource, financial, information, and cultural flows and interactions that are envisioned, created and managed by citizens acting for the common good within a geographically-defined community and its city-region. It is a human ecology of place, intimately integrating both natural and social/culture systems.

This definition of Civic Ecology, when combined with the definition of an EcoDistrict provided by the Portland Sustainability Institute, results in the following: An EcoDistrict is a geographically defined area, such as a village, neighborhood, institutional campus, or employment district within which flows of energy, nutrients, resources, information, financial capital and cultural resources are localized, integrated and synergized. An EcoDistrict becomes the "what" and Civic Ecology becomes the underlying soft systems framework for the "what" as well as the "how": the social capital building process of implementation.

Why Civic? The Civic part of Civic Ecology refers to the need to understand and manage community making through civic engagement. This engagement must be viewed not just as a one-time committee volunteer effort but as an on-going civic duty practiced by citizens and passed on as part of a local culture. The concept rests on the assumption that civil society, the realm of citizens, non-profits and non-governmental players can lead city and community making activity. While it would be naïve to suggest that civil society alone can or should take this on, it is imperative that the values and visions of an active and energetic civil society take the lead.

> Why Civic?
>
> The management of place depends on civic engagement and the performance of civic duties.

Values and beliefs form the basis for action and shared values and beliefs the basis for public action. It is through public discussion, conflict, and affirmation of values that a vision for a sustainable future, what to sustain, can emerge. This is the realm of politics. For it is there that government, business, citizens and civil society must interact to make these decisions. If this does not happen, then government and business will use their tools to take action based on their vision of the future. Civic Ecology is both a framework and an agenda for citizens and civil society to lead in achieving a sustainable future. This seems only right because after all, some of us work for government, some of us work in business, but all of us are citizens of some place.

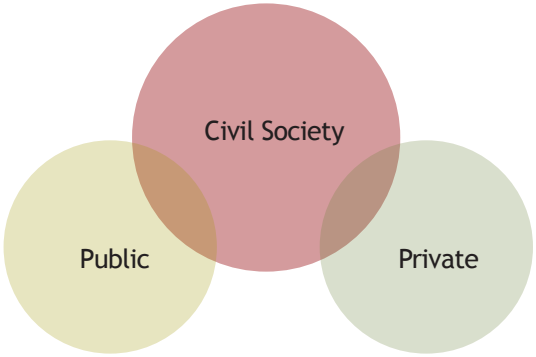

Figure 6: Living Organization

So the EcoDistrict-Civic Ecology union must become a marriage of three families: civil society, the private sector and public institutions including government. The relationship must be an action-oriented network of these three sectors focused on defining and addressing the complexity of sustainable community and city making.

Why Ecology? The ecology part of Civic Ecology refers to a framework that is systems-based, a human-nature ecosystem. Jane Jacobs suggested a similar concept when she wrote:

> *Many of the root processes at work in natural ecologies and our economies are amazingly similar, and we can learn much about success and failure in our own arrangements by noticing, for example, that the more niches that are filled in a given natural ecology, other things being equal, the more efficiently it uses the energy it has at its disposal, and the richer it is in life and means of supporting life. Just so with our own economies: the more fully their niches are filled, the richer they are in means for supporting life (Jacobs, 1985, p. 224).*

Bookchin referred to this concept as "'second nature'—a humanly made 'nature'—that existed in balance with the 'first nature' we usually call the natural environment" (Bookchin, 1987). The Civic Ecosystem is a holistic framework best able to address the complexity that cities and communities are. While this concept suggests a balance of the three legs of the sustainability stool, the act of balancing has often led to achieving economic objectives at the expense of ecological and social needs. Weaving all three legs systemically into community strategies through learning organizations and processes

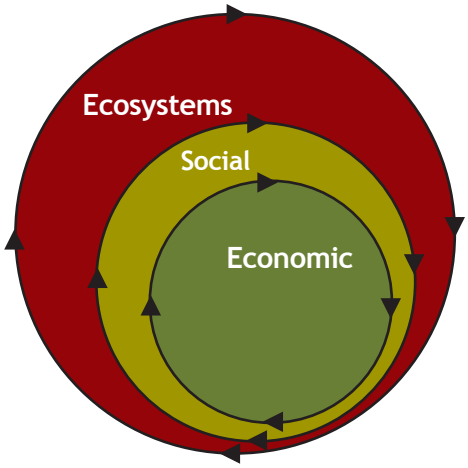

Figure 7: Why Ecology?

that include public, private and civil society is the Civic Ecology strategy that aims to integrate rather than balance.

This concept clarifies the role of the public sector as guardian, the private sector as commerce with civil society as the connecting tissue. Each of these entities has an important role to play in the collective sustainability enterprise. The conservative guardian syndrome and the entrepreneurial commercial syndrome represent the two distinct ethical systems of the public and private sector respectively according to Jane Jacobs (Jacobs, 1992). The three-way partnership is intended to energize innovation while guarding the essential cultural elements that contribute to the uniqueness and livability of the place.

Learning Ecology: The Civic Ecology framework and action network must also represent a learning ecology in order to maintain the open-endedness that an EcoDistrict will require if it is to be of long-term, intergenerational service to the community. Kevin Lynch described this idea as a fundamental part of good city form:

> *An evolving "learning ecology" might be a more appropriate concept for the human settlement, some of whose actors, at least, are conscious, and capable of modifying themselves and thus of changing the rules of the game. The dominant animal consciously restructures materials and switches the paths of energy flow. To the familiar ecosystem characteristics of diversity, interdependence, context, history, feedback, dynamic stability, and cyclic processing, we must add such features as values, culture, consciousness, progressive (or regressive) change, invention, the ability to learn, and the connection of inner experience and outer action (Lynch, 1982, pp. 115-116).*

The temporal aspect of change will be crucial to the EcoDistrict-Civic Ecology concept if the ultimate goal is truly cultural change. Figure 4 illustrates short-term and long-term change juxtaposed with creative and conservative types of activity.

The short term goal of EcoDistricts will be to change how resources are allocated. The learning network of Civic Ecology will enable creative activity of inventing, experimenting and testing new ideas for water efficiency, local economic flows, local energy creation, and food systems and so on. Because the action network incorporates the interests and expertise of public, private and civil society, innovative ideas will be tested against the accumulated knowledge of the place. The continued presence of the EcoDistrict-Civic Ecology framework within the community ensures a culture of permanent and continued innovation leading toward changing policy or the rules and the norms of the community. An intergenerational project of this sort is intended to produce the long term cultural change.

A Civic Ecology example: Chestnut Hill, a Philadelphia, Pennsylvania neighborhood on the City's northwest edge is an enduring example of the Civic Ecology idea. One Saturday each month there is a flurry of activity at one of the community's commuter rail stations. Neighborhood volunteers gather to help fellow residents collect, sort, and bundle items for transport to a local materials recycling center. The Saturday items are not accepted in the City's curbside program, but local residents found a source that would pay for the materials if they were delivered.

The money earned from this enterprise goes to the Chestnut Hill Community Association to fund various community projects, such as greening public spaces around the train stations, building a new children's playground, or planting street trees. This self-created community system emerged to help residents of this 10,000 person community address a number of neighborhood issues: reducing stress on landfills, creating a market for currently non-recyclable items, funding local improvements and enhancing community spirit.

Solid waste material sold on the recycling market creates Community capital for public environment improvements.

This cross sector approach has given birth to a parallel community system whereby weekly curbside recycling is gathered by special City trucks equipped with scales that weigh each residence's contribution. The weight is entered into a database that converts it to vouchers redeemable at local businesses. In this system, incentives to recycle accompany incentives to buy local, enhancing the community's local economic multiplier.

But Chestnut Hill's uniqueness is based on more than just its recycling program. This 300 year-old community has developed a systematic approach to building a vibrant and sustainable human ecosystem and enduring culture. Chestnut Hill's unique quasi-governance body, the Chestnut Hill Community Association, is dedicated to "encouraging a sense of community in Chestnut Hill and improving the quality of life in the community" (CHCA, Chestnut Hill Community Association By-Laws, 2007, p. 8).

Open to all residents, business people and representatives of local institutions, the Association is the nucleus of a web of local systems that have enabled the community to endure as one of the country's most desirable places to live. The Association's bylaws acknowledge the importance of minding the soft systems of a place—social capital, leadership, long-range planning, and citizen education—in the creation of a sustainable community:

"At first glance, the vibrancy of our shopping district, the charm of our stone houses, and the scope of our parkland attract many to our community, but the vitality of Chestnut Hill has much more to do with the diversity and energy of people who live, work, and visit here. The sense that they are a part of something larger than themselves enriches the day-to-day life of Chestnut Hill and preserves the community for future generations" (CHCA, "Greetings from Chestnut Hill", 2007).

What makes Chestnut Hill a great community? It is not green buildings, an integrated utility system or other hardware oriented concepts. It is the enduring neighborhood software, managed by its citizens in partnership with the City of Philadelphia and local businesses. Would Chestnut Hill qualify as an EcoDistrict? It is certainly a neighborhood with a broad commitment to accelerate neighborhood-scale sustainability as per PoSI's broad definition. By the Civic Ecology-EcoDistrict definition offered above it has begun to localize, integrate and synergize a broad array of resource flows within the community.

Where it may fall short is in such areas as energy conservation, integrated and shared utilities, and sustainable water use, identified as EcoDistrict performance standards by PoSI. It's qualification as an EcoDistrict may be less important however than its embodied potential for adaptation by virtue of its strong social capital, focus on integrated systems tied to place, long-range planning for community needs.

In other words, it has the foundation to take care of what may be missing. The promise of the EcoDistrict-Civic Ecology framework for Portland is its potential for integrating a broad and holistic array of community systems into a comprehensive web of flows that provides a foundation for neighborhoods and districts to define, achieve, and own their sustainability.

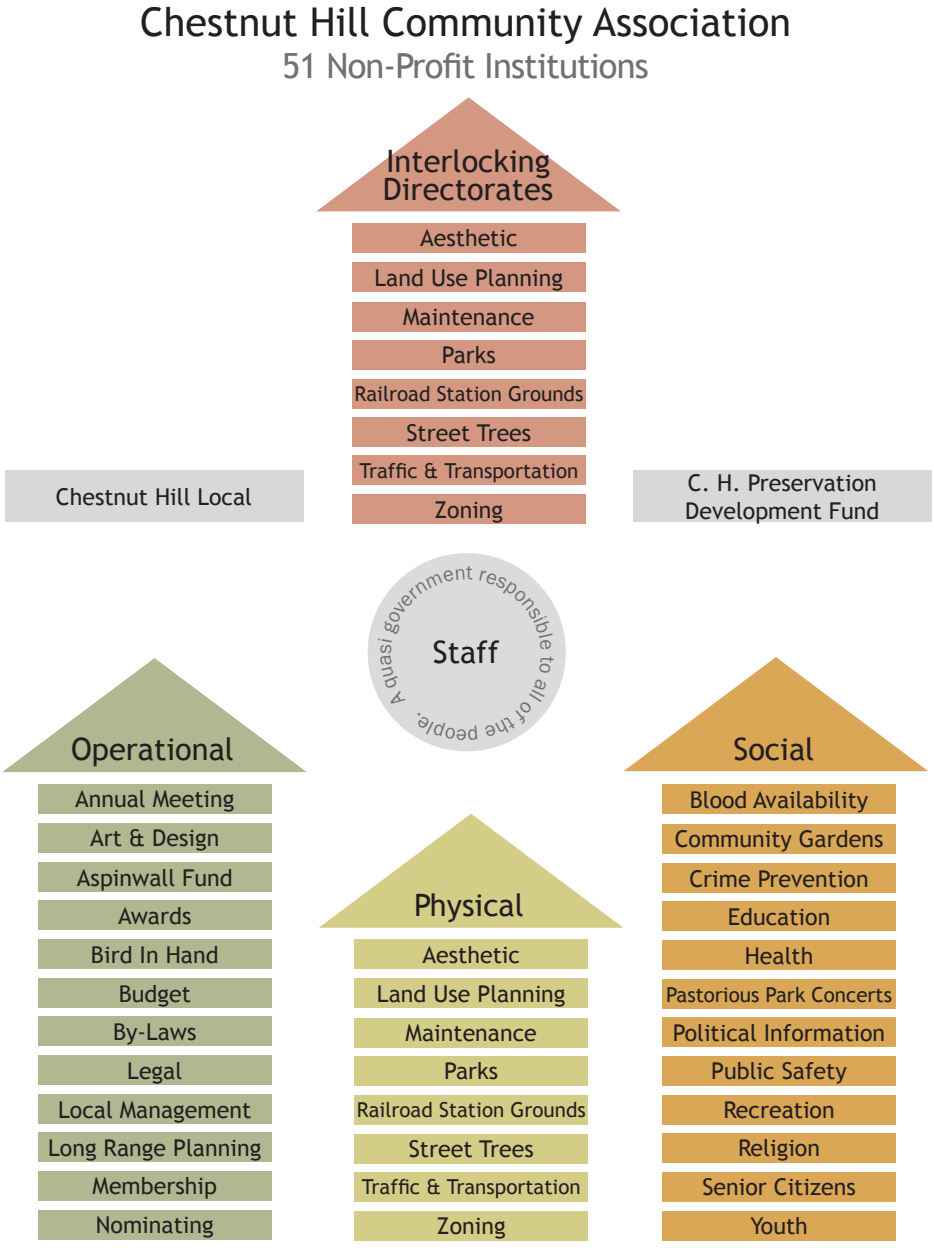

Figure 7: Chestnut Hill Community Association - Derived from organizational chart, Chestnut Hill Community Association, 1990. ERG

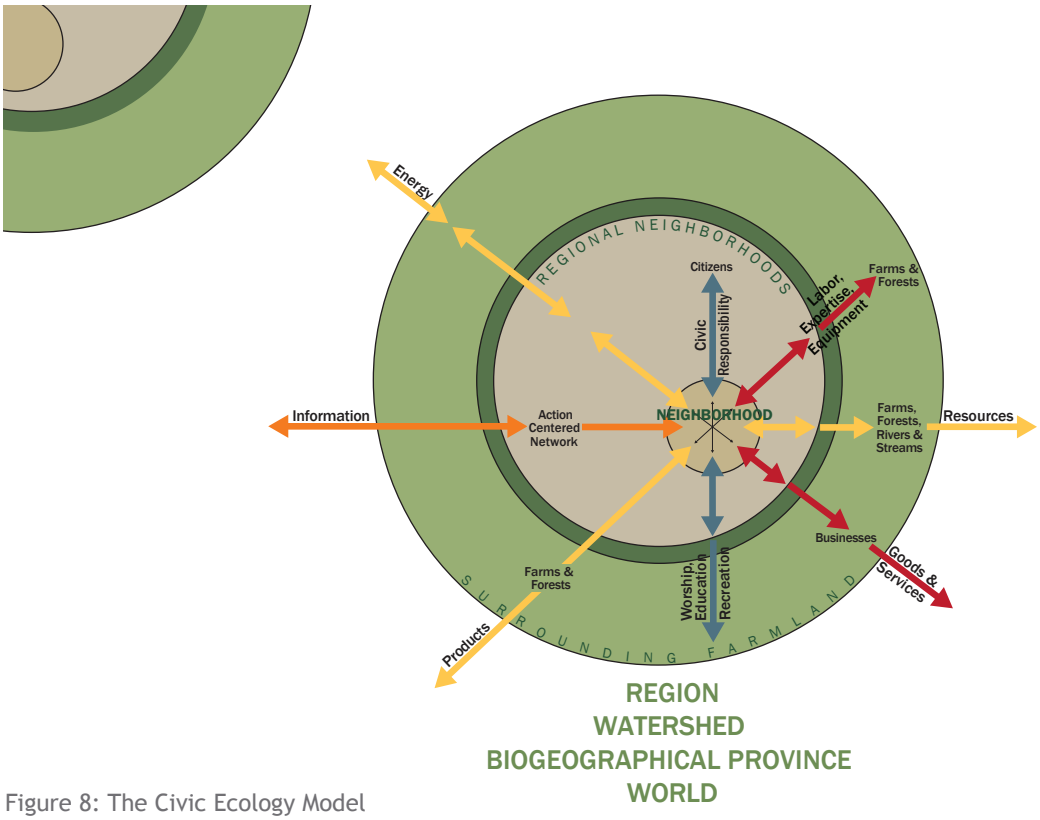

Figure 8: The Civic Ecology Model

Overarching Principles for an EcoDistrict-Based on the Civic Ecology Framework

Communities with a burgeoning Civic Ecology share several essential qualities, which translate into five principles. EcoDistricts, if they are to catalyze community sustainability must share these principles. Specifically, these communities 1) employ a whole systems approach to problem defining and solving; 2) focus their systems work on their local place; 3) coalesce a new social contract; 4) match community needs with community assets; and 5) are consciously open-ended and dynamic.

Quality 1: Employ a whole systems approach: Civic Ecology is the web of flows that animates community life. All great, enduring communities—whether rural farming villages, towns, urban neighborhoods, or institutions—have a refined array of locally-based systems that facilitate resource, economic, and social flows.

Community Systems as Software: The premise of a systems approach is that great communities have great software. Cities and communities, as problems of organized complexity, require a systems approach to defining community problems and needs and proposing strategies to meet these needs. This approach adds depth to the current hardware-focused urban and community design paradigm by going beyond aesthetics to underlying systems.

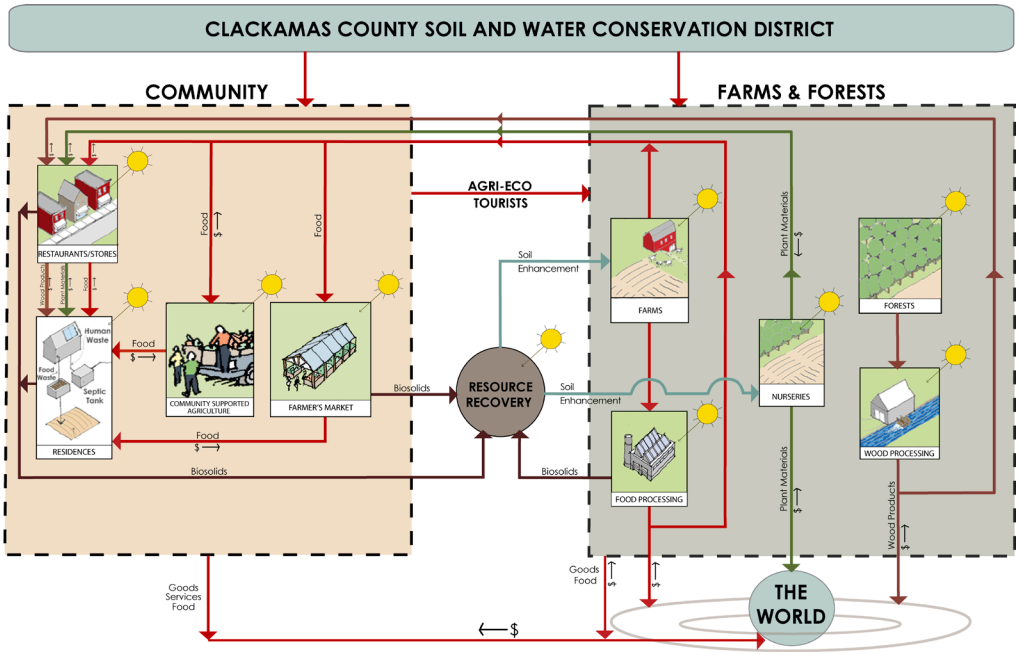

Figure 9: Community Flows and Interactions, From Clackamas County Soil & Water District Master Plan, 2008

Cross-sectoral flows: Moreover, these systems and their flows cross sectors; that is, economic, ecological, and social systems are intertwined rather than set in opposition. Chestnut Hill's recycling program integrates social capital (citizen volunteers, the Chestnut Hill Community Association), economic systems (exchange of resources for money), and ecological systems (greening the community) into one human ecosystem for the benefit of the community.

The cross-sectoral integration of resource flows and interactions underpins everyday life making systems, such as food, water and waste accessible, tangible and dynamic expressions of community values and visions. The EcoDistrict hardware that emerges will arise from community input and will thrive and grow under the community's stewardship. The synergistic and resource efficient nature of Civic Ecology is ideally suited to the EcoDistrict framework whose goal is resource efficiency at the district scale.

Quality 2: A focus on place: In a globalized world, communities with distinct, open cultures and a sense of place will be valued places to live, work, play and invest. It is not enough to create systems; they must be of the place. The EcoDistrict must support a re-inhabitation of blocks, neighborhoods, cities, and bioregions by weaving soft system flows close to home. This is about paying attention to scale.

Strengthening place by focusing flows close to home: The diagram illustrates the continuum of scales across and within which resources flow. These systems are often viewed in isolation from each other especially at the national and state level. Housing

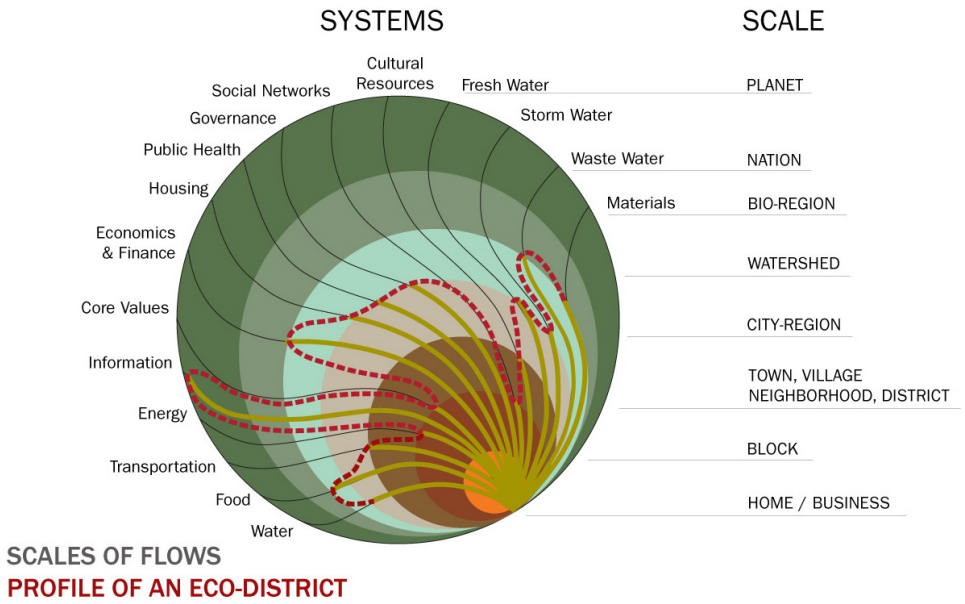

Figure 10: Scales of Flows

policy takes care of housing, transportation policy addresses that realm, and agriculture policy determines how we get our food, and so on.

The EcoDistrict, empowered by the Civic Ecology framework provides the opportunity to weave these abstractions into comprehensive systems that focus flows close to home. Thus food, housing, local economics, energy, transportation and a host of other systems become an integrated web of flows designed to evolve in response to community values and visions. Urban housing that provides for food production, waste mining, energy production, contains opportunities for locally owned businesses, and is transit friendly would be an example of such integration.

Nesting scales and cycles within cycles: Moreover, these systems operate at a variety of scales from the regional, to the city, neighborhood and even block. This nesting of scales is an important aspect of creating soft systems for communities. In Portland aspects of this are emerging when, for example, land use and transportation policies encourage compact growth to preserve farmland, while empowering neighborhoods to grow their own food, generate their own energy, and handle and treat their "wastes". None of these systems can be totally contained within a particular scale, so messiness and ambiguity become a sustainability strategy.

> The web-like pattern of relations between humans, their ecosystem and the economy in a particular place constitutes a human-nature ecosystem.

Place as an antidote to globalization: Such a systemic focus on local geography adds depth to the idea of a sense of place. This is consistent with the two forms of contemporary space described by Castells: the space of flows characterized by the circuitry of electronic webs through which global capital and information flow, and the space of places where people actually live their lives. The space of flows enables information transfer and global cultural exchange but has led to the often heard critique of cultural homogenization (Castells, 1996, pp. 376-428). It is the space of everywhere yet nowhere in particular.

The space of places are the physical communities that people inhabit and in which sustainability must be made. These of course are quite ambiguous in that most people occupy both realms at various times of the day. The point of the EcoDistrict and Civic Ecology framework is to strengthen the commitment to the physical community space of local flows as an antidote to the homogenizing tendencies of the space of global flows.

Urban community systems are nothing new: The idea of integrated systems focused close to home is not new. In 19th century Paris urban agriculture provided significant amounts of the City's fresh food, created an export market, and transformed a pollution problem--copious amounts of horse manure-- into a valuable asset: compost. The system was powered by the manure collected from the fleet of 96,000 horses that powered the City's transport system. The manure was applied to gardens and the heat of fermentation, intensified in raised beds and within cloches and greenhouses, produced fresh produce year round (Stanhill, 1977). In Portland's Linnton neighborhood, excess heat produced by the Linnton Plywood Association's milling operations along the Willamette River was collected and pumped uphill to nearby homes, providing an early example of cogeneration.

It's not about edges, it's about centers: Focusing on local places in no way implies a need for rigid boundaries and gates around neighborhoods, communities or districts. Community-scaled systems are intended to animate blocks, and neighborhood places within contiguous urban fabric. Different systems have different scales. For example an ecological storm water system might traverse a series of neighborhoods within an urban watershed, a local food shed might span from block-scaled community gardens and compost venues to the farthest reaches of the city-regions farmland, while a community energy project might link individual rooftops with a regional energy grid. How do you put a hard boundary around all of these systems? As mentioned at the outset, the EcoDistrict-Civic Ecology framework is not about creating self-sufficient villages within cities. What matters is the quality and intensity of the centers where resource exchanges may be most intense and integrated. The edges should be porous, the centers vivid.

Quality 3: A new social contract: ***The present social contract:*** For EcoDistricts this is the big one. The present social contract is dysfunctional and ineffective. This contract, arising out of liberal democracy, is based on notions of privacy, liberty, individualism, property, and rights exercised through power and law. These are all good ideas. The problem is with what is missing: mutualism, responsibilities, fellowship, fraternity, community and citizenship (Barber, 2003). In this social contract we elect others to do government for us relieving us of the burden of confronting conflict in the public realm and offering us

the comfort of shouting about bad politics from the protection of our living rooms. Lost is the opportunity to transform conflict into solutions consistent with shared community values. While this contract may have worked well at some points in our country's history and may be appropriate in certain settings for very limited purposes, it is not a pathway forward for achieving community sustainability or creating cities. As a result of the present contract, citizenship has devolved to voting and paying taxes, earning "citizens" the right to complain about high taxes, lousy service and out of touch politicians.

Stronger democracy as a basis for a new social contract: The need for stronger democracy and a new social contract has never been greater. The EcoDistricts Initiative, through Civic Ecology, must empower citizens to own their community sustainability. It requires mechanisms to enable civil society to lead in formulating community-supported responses to this fundamental question so eloquently framed by Benjamin Barber:

> *What shall we do when something has to be done that affects us all, we wish to be reasonable, yet we disagree on means and ends and are without independent grounds for making a choice? (Barber, 2003, pp. 120-121)*

The EcoDistricts Initiative and Civic Ecology is not about replacing our current system of government but as Barber suggests, thickening up our thin democracy. Better democracy will enable getter governance, an activity crucial to the shared place-making of the EcoDistrict. This principle recognizes the need to empower citizens as producers of sustainability rather than consumers of greener hardware. It seeks to value resources and their flow patterns as opposed to valuing stuff. This involves politics as a way of living, the payoff being the opportunity to "own" a neighborhood's sustainability, flows, and future.

Quality 4: Based on shared needs and capacities: The next principle flows logically from the need for stronger democracy. For an EcoDistrict, the point of having better democracy is to use it for the good of the community. All communities have problems and needs; all communities have assets and capacities to help address those problems and needs. The new social contract is the means for identifying both sides of this equation in order to identify a way forward.

Driving with values: In order to understand a community's problems and needs the community must first define its shared core values. This is difficult but necessary work. Without core values the community has no basis for determining whether EcoDistricts Initiatives or any initiative for that matter is the right thing to do. Communities that choose shared values as a basis for design action know that technology and hardware can tell them how to sustain but it is values that will determine what to sustain.

The community of Damascus, Oregon went through a citizen-led process to define its core values to be used as evaluation criteria in upcoming community planning work. This exercise gave the community the tools to answer the question "How will we know a good plan when we see it?" Since creating those shared values many planning alternatives have come and gone but the values remain as reminders of what is important.

A sustainability filter: Citizens need to understand their communities as systems of ecological, social and economic flows. Moreover, they need to have the means to define a sustainability benchmark. This is the role of the sustainability filter. Application of a rigorous sustainability lens to existing conditions and systems helps a community understand whether what it is currently doing is leading it toward sustainability. The Civic Ecology framework relies on the Natural Step framework as its sustainability filter. Examining current programs, systems and conditions through the lens of rigorous filter is a means to identify unsustainable behavior and gaps between what works and what needs to change.

The Natural Step: "The Natural Step Framework is a comprehensive model for strategic planning and decision making. It combines a rigorous, science-based understanding of sustainability with a tested planning approach to create real and transformative change" (Boisvert A. L., 2009, p. vi). The framework is based on four sustainability principles which are derived from the systems conditions for a sustainable society. These principles are stated in the following way:

> *In a sustainable society, nature is not subject to systematically increasing:*
>
> *…concentrations of substances extracted from the earth's crust,*
>
> *…concentrations of substances produced by society,*
>
> *…degradation by physical means,*
>
> *and in that society…*
>
> *…people are not subject to conditions that systematically undermine their capacity to meet their needs (Cook, 2004, p. 14).*

Meeting a community's needs is all about resolving the tension between the conditions necessary to achieve ecological sustainability as exemplified by the first three Natural Step principles and the conditions for social sustainability exemplified by the fourth Natural Step principle.

Community assets, the other side of the equation: Social capital, the "social networks, norms of reciprocity, mutual assistance, and trustworthiness" (Putnam, 2003, p. 2), is a community's most precious asset because it facilitates cooperation toward shared community goals. For the EcoDistricts Initiative this is critical if it is to contribute toward making sustainable communities and cities and not just more efficient utility systems. The Civic Ecology framework, because of its emphasis on civil society and stronger forms of democracy will result in richer and more deeply engaged social capital.

Hard infrastructure, the pipes, tracks and cables of water, energy, waste, and transportation flows age and degrade with use. Social capital, a driving aspect of a community's soft infrastructure, has the unique capability to increase in value the more it is used. That is because the networks become denser and more alive, the lines of mutual aid become richer, reciprocity more frequent and through all of this, trust builds.

Portland's social capital serves as an example of this phenomenon. Social capital has become the City's most valuable asset, developed through years of community process focused on big community issues: reclaiming the waterfront, creating neighborhoods and a downtown that are the envy of many, redirecting freeway investment toward public transportation and a host of other projects.

Of any place in America it is Portland that holds the greatest prospect for the Civic Ecology framework and for the success of the EcoDistricts Initiative as a transformative community and city building initiative. The City is one of the few to experience an increase in social capital since the 1970s. Its culture of governance is collaborative, its government is relatively un-corrupt, it has a rich web of community and sustainability-minded non-profit organizations, and its businesses love to innovative.

Portland enjoys an open culture where newcomers are welcomed and their opinions sought. Portlanders know how to collaborate as evidenced by the frequent community meetings where breakout sessions are the norm and nobody really needs to explain the rules of community engagement. Most importantly, its citizens are knowledgeable and passionate about community and sustainability issues.

Civil society here is prepared for the hard work of building sustainable communities and a city-region for the 21st century through the EcoDistrict-Civic Ecology framework.

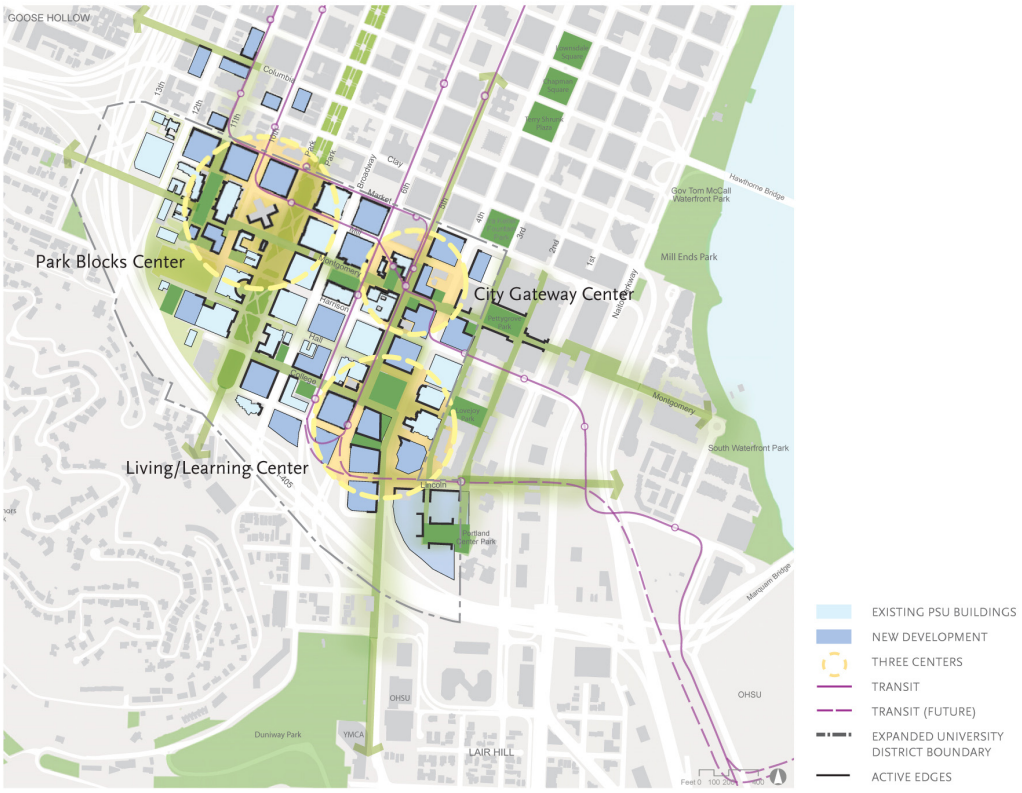

Figure 11: Portland State University District Framework Plan, used with permission of PSU

Quality 5: Maintains open-endedness—*Communities and cities are never done:* This principle recognizes and celebrates the fact that cities and communities are never done. In Chestnut Hill the civic ecosystem that self-organized to initiate the materials-exchange-for-money system became more complex when the curbside program offering credits for recycling to be used at local businesses emerged.

Someone thought of a better idea and a way to build upon the success of the first idea. Recognizing humans' desire to tinker and make things better is the essence of the learning ecology and a perfect example of what Jane Jacobs meant by cities being "the open-ended types of economies in which our open-ended capacities for economic creation are not only able to establish 'new little things' but also to inject them into everyday life" (Jacobs, 1985, pp. 224-225).

When designing communities and cities through systems design it is important to plan for change. If sustainability is about keeping your options open then maintaining a certain level of open-endedness is a good thing.

Because community and city making are incremental enterprises, EcoDistricts, with its focus on transforming existing urban fabric, must employ patient, messy forms of action. It will not be possible to create an EcoDistrict in one fell swoop by fiat in existing neighborhoods and districts so incremental rather than cataclysmic change must be the guiding principle. This runs counter to master planning with its fixed pieces and years-long implementation strategies.

An open-ended approach: A more open-ended approach would be to employ a framework plan, much like Portland State University has done for its urban campus in downtown Portland, Oregon. The PSU framework lays out broad intentions and strategic catalytic nodes for design and investment attention, allowing the details to be negotiated (see Figure 8). This method would be most effective if there were built into the framework plan feedback mechanisms to allow reassessment following each project implementation. In this way small adjustments that adhere to underlying visions and values can be made in real time, consistent with the organic way cities typically evolve. Working in this way requires effective means to measure and monitor progress. The measuring needs to address both hard and soft systems from the ecological, social and economic perspective.

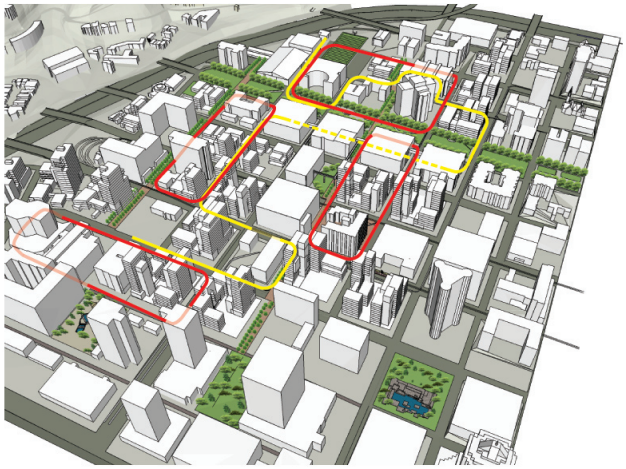

Figure 12: PSU EcoDistrict energy balancing diagram. District energy sub-loops allow trading of heat between facilities

PSU's EcoDistrict pilot project must adopt this principle of open-endedness in order

to effectively and incrementally transform the urban campus and adjacent neighborhoods in this era of limited funds.

The goal of open-endedness is to afford transformative and incremental change that adapts to emerging problems and opportunities. This principle also supports soft systems design in a strong democratic setting. The frustration about getting things done that designers, planners, public and private sector actors experience with citizen involvement is understandable but a necessary part of working with an empowered civil society. The frustration may come from the lack of tools necessary to reach consensus in such a rich milieu.

Why Bother? The Benefits of This Civic Ecology/EcoDistrict Approach

Why do an EcoDistrict? Why do it this way? The answer lies in the benefits afforded to communities and cities. The Civic Ecology approach to EcoDistricts offers the following benefits:

Benefit 1: Affords neighborhoods and districts local control: By creating a shared vision along with the adaptive framework and embedded systems necessary for implementation, citizens maintain more control of their community assets and collective future. Knowledge is power and another form of being in control of local assets. The process of creating an EcoDistrict must incorporate opportunities for the community to learn about its self, its present systems, current level of sustainability, gaps, shared values and aspirations. This activity not only provides a baseline for future action but develops social capital in the form of citizen experts that understand the needs and assets of their community and are better prepared to develop the means to allocate resources in ways consistent with community values and vision.

Benefit 2: Creates enduring wealth in the neighborhood or district—*Ecological wealth:* The Civic Ecology approach integrates flows across sectors recognizing that healthy ecosystems and strong social capital are legitimate forms of wealth on par with economic wealth. Healthy ecosystems provide valuable services to communities in the form of storm and waste water management, fresh water sources, flood control, positive urban micro-climate effects, pollution absorption, and wildlife habitat. They create immeasurable wealth by offering recreational, learning, healing and contemplation opportunities for citizens.

Social capital as a form of wealth: The benefits to a community and a city of healthy social capital are enormous. The social networks, norms of reciprocity, mutual assistance, and trustworthiness build up over time and register as a public good. The buildup occurs when citizens and other civic organizations work together on community projects and achieve some measure of success. One success leads to another the result being a healthy and active social capital. As mentioned above social capital is that rare commodity that becomes more valuable with use. The creation of citizen experts creates a lasting legacy, a community DNA that increases in value as it is passed from generation to generation. This is about long term change and empowerment that changes culture.

Another aspect of social capital does have direct bearing on community economics. The trust built up due to years of reciprocity reduces transactional costs as flows and interactions that might appear as financial purchases are instead accomplished through local barter, community money systems and other means. In other words social capital is a way of making the most of financial resources through "in-kind" contributions of people toward achieving goals. Neighborhood tool lending libraries and neighborhood technology centers offer everything from garden tools to advice on greening and sustainability. They offer citizens lower-cost alternatives to tool purchases, become neighborhood focal places for socializing, and as such, constitute a form of community wealth.

Local economic wealth: When people think of wealth it is usually financial wealth and economic advantage to which they are referring. But if economic systems are not created with an eye toward local community benefit, "leakage" occurs allowing money to leave the community for a distant place never to be seen again. The EcoDistrict/Civic Ecology approach can address leakage and create enduring community wealth in three ways.

The first is to incorporate into the community vision import substitution strategies to encourage local production of goods and services that meet community needs and are typically imported. The second is to create opportunities for locally-owned business and enterprises to become active nodes within the community systems. The third is to encourage local investment into community systems (Shuman, 2000, p. 50). These strategies will increase the local economic multiplier; the number of times a dollar spent locally is typically re-spent within the community by virtue of businesses and enterprises being interconnected in locally-based supply chains.

It is noteworthy that all of these forms of wealth are possible to achieve simultaneously. It is not a zero-sum game. Economic wealth need not be achieved at the expense of the healthy ecosystems or community vitality. Integrated systems thinking affords the benefit of integrated wealth.

Benefit 3: Enhances neighborhood/district resilience: If an EcoDistrict was to be designed as a local utility district, designed and operated by experts, its resilience might be measured by how quickly the operators could get the various utility systems to return to some pre-conceived equilibrium state following a disturbance. Throw in people, however and all bets are off. So a different view of resilience needs to be considered for an EcoDistrict—Civic Ecology framework. Defined by Gunderson and Holling as ecosystem resilience (Gunderson L. H., 2002, p. 28), this benefit suggests that while maintaining a neighborhood's equilibrium is generally important, what may be more crucial is to position the community to be persistent and to deal with variability and unpredictability by being adaptive.

Integrated systems focused on a place that are locally created and managed will result in systems that are rich and redundant, exactly what is needed for uncertain futures. The value of this is that it helps communities weather the peaks, valleys, and cataclysms of

economic cycles. These are benefits that enhance long-term community stability. A diverse economic base of locally-owned businesses and local resource inputs are more likely to be stewards of the local resource pools and less likely to up and leave the community for a better deal somewhere else because they are of the community.

Whistler built redundancy and resilience into its energy system so that it could be open to whatever future energy technology made sense. Louisiana seems not to have considered redundancy and resiliency given the severity of the ecological, social and economic impacts caused first by Hurricane Katrina and then the BP oil spill of 2010.

Benefit 4: Promotes a sense of community: Civic Ecology is intended to foster a deep sense of community from the shared experience of citizens working together in the public realm on projects of mutual benefit. A strong sense of community is both a benefit of and a requirement for making neighborhoods and cities using the EcoDistrict—Civic Ecology framework. This will require a redistribution of power in the city which will, at first seem difficult and stressful, particularly for city government which is used to being out in front of city initiatives and for the private sector which is used to getting things done expeditiously. But there are benefits to municipalities and private entrepreneurs in this approach.

In Chestnut Hill, many of the functions normally performed by city government are in fact done by the Chestnut Hill Community Association. Land use planning, zoning, development review and a host of other activities are painstakingly reviewed by citizen committees who then provide an assessment to the Community Association Board. The Board in turn relays its recommendations to the City for use in granting permits. The cost of this level of attention would be unbearable for the City and so a symbiosis has evolved: citizens look after their place and the City handles the legal matters.

The City benefits by conserving resources for use elsewhere while the community is able to mind its place and develop its own capacities for community making and managing. For the private sector, involving community members from the outset is the fastest way of gaining development success and community buy-in to projects.

This model most closely resembles the “survival community” described by Richard Sennett: “The most direct way to knit people’s social lives together is through necessity, by making men need to know about each other in order to survive. What should emerge in city life is the occurrence of social relations, and especially relations involving social conflict, through face-to-face encounters” (Sennett, 1970, pp. 138-139). While this may sound like more of a burden than a benefit, the social capital created through the hard work of public discussion and action will benefit the community immeasurably.

Benefit 5: Can result in a living culture: As a Portland City Planning Commissioner I recall participating a few years ago in discussions about sustainability, why it was important, what it was, and so on. What emerged were probably fifteen definitions of the idea (from

only seven commissioners!) But we all more or less agreed that it probably was first and foremost about culture. Toward that end consider this story:

> *The famed anthropologist Gregory Bateson liked to tell a story about New College, in Oxford, England. The main hall there was built in the mid-seventeenth century with oak beams forty feet long and two feet thick. Recently they began to suffer from dry rot, and administrators couldn't find English oaks large enough to replace them. A young faculty member said, 'Why don't we ask the college forester if some of the lands given to Oxford might have enough trees to call upon?' They brought in the forester, who said, 'We've been wondering when you would ask this question. When the present building was constructed 350 years ago, the architects specified that a grove of trees be planted and maintained to replace the beams in the ceiling when they suffered from dry rot' (Frenay, 2006, p. 207).*

Bateson concluded that is the way to run a culture.

And so it could be for sustainable neighborhoods and cities. Community-building and city-making are never done. They are intergenerational projects that result in a community DNA, the coding that describes to present and future residents of the place what it means to be a citizen of that place and what the rules and norms are that underpin the way resources are allocated. Included in this are the values and visions of the community as well as the means to measure progress and steer the boat. It enables the community to sustain itself and prosper and tells citizens what needs to be done to keep it so. In the end this may be the most important benefit of all.

EcoDistrict Process

Creating an EcoDistrict using the Civic Ecology Framework will require that neighborhood/district stakeholders collaborate in public discussions to answer five questions:

1) Where are we now?
2) Where do we want to be in 5, 10, 20, 50 years?
3) How do we get to where we want to be?
4) How do we know if we are getting there?
5) Who wants to help find out?

Answering these questions can be done through the five following steps of the **CIVIC** Process: **C**onvening, **I**nvestigating, **V**isioning, **I**mplementing and **C**harting progress. The following is a brief description of this process.

C: Convening: The first step in the EcoDistrict—Civic Ecology venture is to establish working groups that will take on the heavy lifting of community making. This group must be representative of a broad array of stakeholders/power-brokers in the neighborhood or district. The groups must represent public sector, private business and civil society. Included must be citizens, representatives of local government, local businesses, non-profit

and religious organizations, and experts in a variety of areas likely to be addressed: energy, water resources, "waste" management, ecology, food systems, culture, local economics, community indicators, social capital capacity building, community health, and so on. The group must be a learning community whose mission is to nurture the community building and systems thinking necessary for long-term intergenerational sustainable prosperity. A learning community, as defined by Senge and Scharmer is a diverse group of people working together to nurture and sustain a knowledge creating system based on valuing equally three interacting domains of activity:

- *research: a disciplined approach to discovery and understanding, with a commitment to share what's learned;*
- *capacity building: enhancing people's awareness and capabilities individually and collectively to produce results they truly care about; and*
- *practice: people working together to achieve practical outcomes (Senge & Scharmer, p. 7).*

The ecosystem of the learning community must include its home base of focus: the campus, the neighborhood, or the district as well as its urban, regional, and ecological context. For the latter scales an action-centered network will be required. This concept (Carley & Christie, 1993, pp. 184-201), described by Carley and Christie will be a series of nested networks of learning communities that integrate sustainability efforts across scales. The networks must also include public, private and civil society members with collaborative problem solving skills to be used at broader scales than the community.

These working groups will create ground rules and schedules for engaging in the project. All members will be trained in systems thinking, the use of sustainability filters such as The Natural Step model, group facilitation, and visioning through such techniques as back-casting.

Because these are learning communities, members will be expected to share knowledge, apply it to the real problems of community making, to reflect on successes and failures and to accept and embrace change. This activity must be well-documented because it is likely that new members will join the group as existing members cycle out. This will also be a teaching community in that the groups will become the ambassadors to the community for sustainability. In that capacity they will be expected to take on the role of presenting ideas to their fellow citizens, and facilitate group discussions and workshops.

I: Investigating: The purpose of this step is to empower citizenship through place-specific community learning. Citizens, partnering with experts will work to create a shared understanding of the neighborhood or district by exploring its existing metabolism. Local economic flows, culture, energy, food, water and other resource systems will be uncovered by asking simple questions like:

- Where does our energy come from?
- Where do our "wastes" go?

- Where does our water come from?
- How much money leaks out of our community?
- Where does it go?
- What hazards are present in our community?
- What is our history?
- What constitutes our culture?

All of these questions can be answered in terms of systems: water systems, "waste" management, energy systems, cultural flows, economic flows, and so on. Of particular importance is ensuring the value system of the community informs these inquiries.

The next part of the investigation is to assess whether these systems are sustainable or not. A useful tool here is a sustainability filter such as The Natural Step. Running these existing conditions through The Natural Step's four system conditions as described above will help the community answer the following questions:

- What are we doing now that is sustainable?
- What are we doing now that is not sustainable?
- Where are the gaps?
- Where are potential leverage points?

In addition, the learning community must use this step to look outward and tap the global reservoir of ideas that have been applied successfully or not in other places. These case studies can enrich the array of possibilities for communities to consider.

Finally, all of this community learning must be verified by the larger community through interactive workshops and presentations. Citizen feedback from all aspects of the investigation is crucial to getting an accurate picture of the community as well as gaining citizen buy-in and understanding of the systems approach.

V: Vision: Given the base provided by the previous step the working group now must begin the process of identifying a shared vision of a preferred future. While understanding current and likely trends is important, using these elements to forecast a future is limiting. The preferred method is to employ back-casting, a method that obliges stakeholders to identify a narrative of a desired future state and then cast backward to tomorrow to determine what needs to be done to begin the journey of achieving the vision. Team Oregon assisted the City of Taipei in identifying a series of desired future states. These included the Sustainable City (2020), the Regenerative City (2030) and the fully Ecological City (2050). These series of steps provide a long-term roadmap for decision-making. At a smaller scale, my own firm, SERA Architects, in Portland, Oregon used back-casting to identify a desired future and then cast backward to a series of "low-hanging fruit" and longer term, more aggressive initiatives designed to implement the vision.

An important aspect of this step is to ground it in practicalities. Identifying barriers to achieving the vision can be a liberating topic for a workshop especially when the barriers

are invited to participate. Likewise, identifying assets to employ in achieving the vision helps to make the vision more realizable.

I: Implementation: Led by the working group the community creates community-scaled systems to help realize its vision—and thus "back casts" from its vision of the future. Some systems may be new, others enhancements of existing systems that seem to be working. For this endeavor, SERA Architects has developed an exercise called "flow mapping." Figure 13 illustrates a flow map being developed as part of the Portland State University EcoDistrict.

In flow mapping a group of citizens works over a map of their community. Armed with a vision, the group identifies on the map existing sustainability nodes, catalytic places within the fabric of the community where resource transformations could occur. These nodes could include community gardens, locally-owned businesses, community-scaled composters, a cultural institution and so on. Citizens place icons representing these nodes where they currently exist or where they agree they should exist. The nodes are then connected with flow lines illustrative of the resources exchanges between two or more nodes.

Figure 13: Flow mapping exercise undertaken as part of Portland State University EcoDistrict Workshop

The resulting maps represent shared efforts at designing the future community that is based solely on soft flows. Citizens are empowered by this exercise when they realize they are applying their locally-grown expertise to the problem of designing a future. There is no technical knowledge or design skills needed to participate, only the desire to contribute.

The next step is for the community to prioritize actions by identifying "low hanging fruit" and longer-term transformational projects from the flow map. Assigning project "ownership," timelines, and resources for implementation concludes this step.

C: Charting progress: In this final, but never-ending task, the working group and community create a series of indicators that, when measured over time, will help the community assess progress toward realizing its vision. Periodic assessments and adjustments to systems and projects ensure that the web of Civic Ecosystems created is truly a learning ecology. The indicators devised must be accessible to the community and not be so sophisticated or numerous as to be unwieldy. An important aspect of charting progress is to make sure that the indicators devised address both hard and soft systems.

Periodic celebrations/assessments are an important way to develop a culture of sustainability in the community. My firm holds a celebration each year on or about earth day to celebrate success, and discuss new goals and adjustments to ongoing initiatives for the coming year.

Summarizing Thoughts and Questions

In this paper I have distinguished between the hard and soft aspects of sustainable community making to underscore that if the EcoDistricts Initiative aspires to transform the art and science of community and city making there must be more to the EcoDistrict enterprise than green buildings, shared utilities and other eco-efficient strategies and products. The soft aspects, as exemplified by community scaled systems tied to place, realized through stronger democracy that focuses on creating adaptive frameworks to meet shared community needs, may be more fundamental.

The ultimate goal however should not be either-or but an integration of the hard and the soft, of technology and values, better science and better democracy, greater efficiency and concern for what is sufficient, of the expert input and the local knowledge of citizens rooted to place. Doing so will help us bridge the perception that because "every act of building is inherently antiecological to the degree it induces a displacement of 'natural' relationships" (Ingersoll, 1996, p. 119), that sustainability must be about finding more efficient ways to win the zero-sum game that pits hard infrastructure against nature. In other words, building to meet human needs by definition must diminish natural capital. The promise of the Civic Ecology—EcoDistrict framework is that this is not and cannot be the case if we are to prosper on a finite planet.

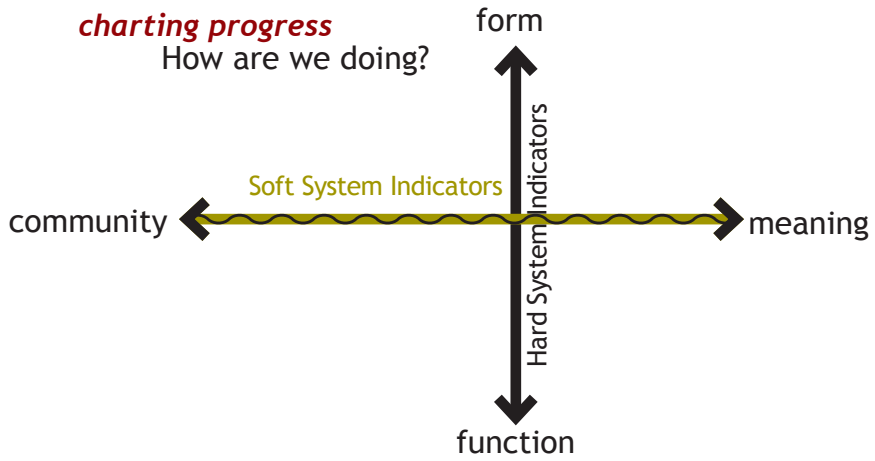

Figure 14: Charting Progress

Implementing EcoDistricts with the Civic Ecology framework is a means for empowering citizens to "own" their community sustainability. This approach holds the promise of transforming the community design paradigm into a shared adventure where citizenship, strong democracy, social capital and sustainability become generators and benefits of the

community making enterprise. This is a far messier and involved proposition than creating a shared utility district. The approach raises a number of questions for further exploration.

The first question is how to design a governance framework to implement this way of community making? The concept of the learning community and the action centered networks will require a level of citizenship participation that may not be possible in a culture where democracy and social capital are on the wane. How can citizens sustain this level of volunteerism? Could they be compensated in some way for their efforts? Are there incentives that could be offered? What, if anything, is the role for the City or other outside organizations in promoting and sustaining these activities?

Secondly, how can we know that the practice of Civic Ecology has yielded the outcomes and benefits desired? The importance of indicators is crucial and easy to envision for the hard aspects of community building. Measuring and monitoring energy demand and use, storm water diverted and treated through sustainable technologies, or even carbon sequestered will be a challenge for citizen-led learning communities but a challenge that can be met. But how do we measure improvements in the soft aspects of community making like stronger democracy, more vibrant social capital, or deeper meaning?

What do innovative governance models and monitoring concepts say about the nature of our future plans? Perhaps they suggest that the era of the static master plan with its long list of projects to be ticked off as they are implemented is over. Should we instead create frameworks comprised of a web of flows upon which we hang systems and nodes of exchange? Does this mean that every project implemented is cause to re-examine the framework? Perhaps design is a never-ending enterprise in sustainable communities and its cities.

What does all of this say about neighborhoods and communal places as loci of innovation? Could it be that the innovations in sustainable technologies and soft systems will occur within community fabric and not in laboratories in research parks? Through using the EcoDistrict—Civic Ecology framework, we may be able to determine whether it's possible to catalyze neighborhoods, communities and cities as places of innovation and experimentation on behalf of true gains for sustainability.

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Joe Cortright

Chapter
Accountability, Behavior, and Learning: *Fostering Innovation with EcoDistricts*

The theory behind EcoDistricts is that we may be able to learn about how to live more sustainably in smaller geographic areas, and that the insights from experience in neighborhoods can ultimately be scaled to the entire world. The "city" or the "nation" are regarded as scales too large to be useful.

Conversely, seeking sustainability a building at a time is regarded as both unattainable and too small. The neighborhood or "EcoDistrict" scale is proposed as a more pragmatic and useful position between those poles of big and little, and with that comes the promise of community-level interactions that themselves are needed to make sustainability a reality. The innovation needed for sustainability is to be found, so goes the thinking, at this intermediate scale of the EcoDistrict, and the sum of EcoDistrict activities across these larger units of city and nation is seen as the pathway to a sustainable world.

This essay considers EcoDistricts in this context, at the intersection of innovation, scale and sustainability. It evaluates three interrelated groups of questions:

- Geography, Scale, and Sustainability: Is it global, national, metropolitan, neighborhood or individual? Can we save the planet one city or one neighborhood at a time? How do we achieve and measure sustainability at each of these different scales?
- Technology and Culture: What is the mix of physical characteristics of community and human behavior that will be required to achieve sustainability?
- Innovation and Place: How are new ideas brought to bear in particular places in ways that lead to more sustainable communities and living?

Geography, Scale, and Sustainability

Achieving sustainability will require important and pervasive changes in economic and social systems and in individual behavior. Ultimately the success of sustainability will be judged on a global scale: either we will achieve sustainability as an entire planet, or we will fail. But that success or failure will be the product of an enormous number of choices, decisions, policies and changes made in households, communities and nations throughout the globe.

One of the biggest conceptual challenges in visualizing how we will move from where we are today—an unsustainable trajectory, with institutions and individual choices largely uninformed about the need for sustainability or shielded from the costs of current choices—

to where we will need to be in a few short decades—a better balanced, more equitable, lower carbon economy and lifestyle for the nine or so billion inhabitants of the planet—is bridging the ten orders of magnitude between the individual and the planet. How do we go from one individual living sustainably, to every one of the planet's billions of inhabitants living sustainably? At the level of the individual, this change can take place as a result of personal choice. At the level of the entire planet, sweeping social and institutional changes will be required.

Plainly, sustainability must begin somewhere. As a matter of science, it is possible and convenient to study sustainability and its implications on a global scale. Scientists of the International Panel on Climate Change routinely use the planet as their unit of analysis. Governments and nearly all other human organizations and institutions still think and act on much, much smaller scales. Getting international agreement is frustrating and slow, and national action—particularly in the United States—has often been just as slow.

It is therefore tempting to focus our efforts on the smaller scale, where consensus may be more easily achieved, and experiments undertaken more quickly and at lower cost. Individuals who recognize the challenge of sustainability logically should not, and do not wait for a global solution to begin making the kind of changes that can lead to lower environmental impacts. The growing interest in "green living" clearly reveals a population of households wanting to make a difference. Individuals can work to reduce their carbon footprints, and there is considerable popular discussion of such efforts ("No Impact Man") (Kolbert, 2009). Like dieting, individuals make their own efforts to foreswear the unhealthy and the gluttonous. But since we are essentially talking about a global waistline, these efforts inevitably bump up against the limits of what a single person can do.

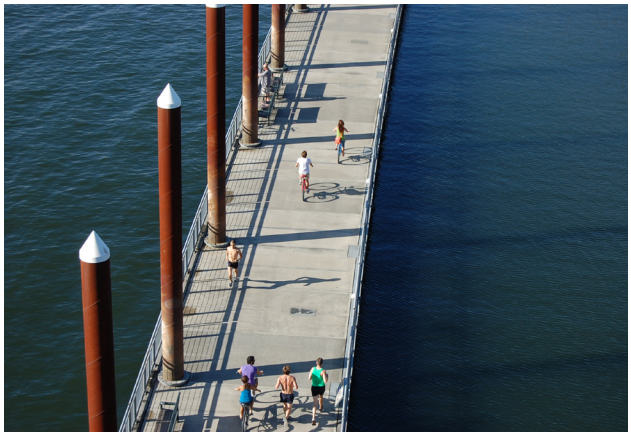
Focusing at the scale of the neighborhood seems to offer some promise. The costs of small scale experimentation are less. More ideas can be tried, and implemented more quickly at a small scale than a large one. If new ideas can be developed and refined in special areas where such experimentation is encouraged, then perhaps they can be scaled up to the level of the global.

While it makes sense to test new ideas at a small scale, ultimately their effectiveness depends on their ability to scale up. Sustainability pursued by a few may amount to naught

if it is overwhelmed by the indifference of the many. Consider transportation, a major source of greenhouse gas emissions. If some people make choices that effectively make it easier for others to put off making any choices, the result is often an increase in overall use.

This phenomenon has been documented by Anthony Downs and others with respect to measures to reduce traffic congestion: even when some people telecommute or switch to transit, others drive more, or change their route, or the time of their trip, so that congestion quickly reverts to the previous level. Consequently, the big problem with a disaggregated strategy development process is that it will fail to produce results that can be scaled up; that when added together or multiplied, the insights from a more sustainable EcoDistrict will have no impact on wider city, state, national or global conditions.

In theory, the role of EcoDistricts should be to prove the value of new green practices which can then be replicated elsewhere, locally and globally. The gains to sustainability come not from the EcoDistrict *per se*, but in its value in proving the effectiveness of green policies and practices. The critical step is to have a means for scaling up the successes observed in EcoDistricts through the proliferation of their application in other neighborhoods and districts so that they are large enough to make a difference at a global level.



Unless we are explicit from the beginning that scaling up is a key objective of EcoDistricts, then there is the danger is that EcoDistricts could amount to a kind of green Potemkin village—the prettified false-front buildings that a Russian prime minister supposedly set up to convince the Empress of the high level of development of an impoverished countryside. Attaining sustainability for show in one place at one time may create the illusion that the problem has been solved—or that there is no problem.

There is the danger that promoting EcoDistricts may divert economic resources, political energy and public attention to more effective, larger scale efforts to promote sustainability. EcoDistricts may simply be token efforts that generate the perception that something is

being done to address sustainability, but may simply be too small or scale up too slowly to make a significant difference. Focusing on small scale demonstrations of eco-efficiency may absorb the limited political and economic capital that could otherwise have been directed at larger, needed institutional changes or even other neighborhood scale ventures directed at achieving goals for sustainability.

Implicit, therefore, in assessing the impacts of activities within any one EcoDistrict on sustainability more generally has to be a consideration of whether any tactic, strategy, behavior or institution is capable of being scaled to the global level in a way which would actually produce meaningful change. Some things may be possible at the level of a neighborhood that are simply impossible to afford, arrange or agree upon at larger scales. Further, some thing that may be possible at the neighborhood scale may not be important at larger scales.

When appraising and implementing sustainability efforts, then, scale matters. It may not be necessary (or even possible) for every constituent geographic element of a system to be individually sustainable in order for the overall system itself to be sustainable.

Consider a biological analogy. The human body consists of many of thousands of different kinds of cells, each of them, by itself, is not "sustainable." But together, each separately performing its own unique and separate function, they are sustainable (at least for a period of nearly four decades, on average). In contrast, single celled animals, like amoeba, are perfectly sustainable individually—they are self-contained entities. At the cellular level, the amoeba is far more "sustainable" than any single human cell. But at the scale of the human body - in orders of magnitude, tens of trillions of cells—it would hardly be a sustainable strategy for each cell to be designed to be separately sustainable.

In the urban context, this implies that different neighborhoods within a city or metropolitan area are likely to have different functions, and different levels of sustainability (if that is separately measured for each neighborhood). But collectively, with specialization and

differentiation, the whole system may be more sustainable than it would be if each component part were separately optimized for sustainability.

Three final points about scale. First, there may be some tactics that are simply impossible to test at a small scale. Consider that nothing in the description of EcoDistricts contemplates changing the prices paid for energy or environmental degradation. This is important because economists would argue that many sustainability problems—for example, the negative environmental consequences associated with carbon dioxide emissions—are the result of incorrect prices.

The cost of most sources of energy does not include paying for the damage done through the development and use of those resources. Absent a change in the price of energy that internalized the cost of the damages associated with non-sustainable behavior, there may be little scope to realize the kinds of changes that would lead to scalable improvements in sustainability. It may simply be impossible to charge higher prices for "dirty" energy in an EcoDistrict, and at such a small scale, these price changes would create neither the sufficient disincentives (less revenue from "dirty" energy) or incentives (relatively lower prices for "clean" energy) to spur large scale investment.

Second, selection bias is a frequent problem in interpreting small scale experiments. Part or all of the success of an EcoDistrict may be the result of the special characteristics, behaviors or beliefs of the residents of the EcoDistrict. Selection bias means that the people who chose to live in an EcoDistrict may have a set of traits that differ from the overall population. If the residents of an EcoDistrict self-select that neighborhood because of their affinity for or openness to sustainability policies—either initially or over time—the results simply may not apply in instances where residents are not so selected.

One would get a very unusual sense of what was possible studying consumption patterns of a group of Buddhist or Benedictine monks. To be sure, there is nothing inherently wrong with a concentration of like-minded individuals in a particular place—they may in fact generate useful new ideas—but it may be impossible to generalize the experience of such places to other areas where the underlying affinity group and belief system is not present.

Finally, externalities are an additional problem familiar to economists. Externalities are costs or benefits of an activity that do not accrue to the residents of the district. (Climate change is a classic externality in itself). More subtly, some of the apparent environmental benefits observed at the neighborhood scale in some neighborhoods may simply be the result of having externalized or shifted the negative environmental effects to some other location.

For example, California is widely lauded for reducing its carbon footprint, in part because the state doesn't have any in-state coal-fired power plants. But it is a large importer of electricity from other states where coal is the principal source of energy for electric generation. The California "EcoDistrict" looks good, in part, because it has externalized its carbon footprint to other states.

Or consider the availability of tax credits to homeowners who have the financial resources to invest in solar energy systems for their homes. Their carbon footprint goes down while the overall costs of that investment in solar are borne by all households, including those least able to pay. In this case, without a clear demonstration that all households benefit from the use of tax benefits to purchase solar, what is touted as an investment in sustainability may have environmental benefits while creating new inequities, by definition a blow to sustainability.

Technology and Culture

An influential school of thought treats sustainability as if it were a physical characteristic of the built environment. Green building implies that changing the materials, design, and features of buildings can make them more sustainable. EcoDistricts applies this model to a larger geography.

In this sense, sustainability is seen as largely structural and physical, the result of engineering and architectural decisions made about buildings and infrastructure. The innovation required to accomplish sustainability in this view is purely technical.

There is, however, another point of view, and that is that sustainability is importantly a function of choices, of behavior. People can choose to live differently in the same built environment. Our focus on averages, on the representative consumer, obscures the fact that in a given neighborhood or city, two otherwise identical individuals or households might have very different patterns of energy use, carbon footprints, and sustainability, based on the personal decisions they make about where to work, how to commute, how high to set the thermostat, and whether they leave on lights. With essentially the same technologies as are available in the United States, the average consumer in Germany (with essentially equivalent incomes) produces 50 percent less carbon per capita.

Sustainability can be as much a matter of what people do not do, as what they chose to do. It may involve using what we have differently, and more efficiently, rather than changing the physical layout of the place, for example, changing our behaviors to live more greenly within our existing neighborhoods rather than changing neighborhoods physically to make them greener (Cortright, 2007). In this case, all neighborhoods are already potentially more "sustainable." It's just that some do a better job of realizing that potential than others.

Of course, both of these positions are archetypes. In reality, a combination of physical and behavioral factors determine the sustainability of urban environments. The characteristics of physical environments shape personal behavior (providing different options and incentives for different behaviors), just as the behaviors of individuals also influence the design and layout of cities and buildings.

Consider the experience with LEED certification. Much of the thinking behind EcoDistricts is parallel to the notion of green buildings. Can we change the physical characteristics and related features of buildings so that they can become more sustainable, i.e. consume less energy, produce less pollution, than would otherwise be the case? Rating systems like LEED (Leadership in Energy and Environmental Design), establish criteria for specifying the features or characteristics of a building that cause it to be more energy efficient or sustainable. The experience with green buildings provides some lessons for implementing EcoDistricts.

The LEED system is based on a scoring rubric that assigns certain numbers of points for certain building characteristics. Points are awarded for a series of factors including location, energy use, water efficiency and indoor environmental quality. Buildings can acquire successively higher levels of rating (Silver, Gold, or Platinum) depending on the number of points they receive in each category.

LEED buildings are designed to have lower energy use and environmental impact than conventional buildings. But are these benefits realized in practice? The effectiveness of green buildings depends on many factors besides their physical design. How a green building is operated—and how an EcoDistrict is inhabited—by its residents can either complement or counteract the green features provided for in the design.

The experience with green buildings has been that most of the emphasis is on achieving initial certification, rather than demonstrating (or maintaining) energy savings or greenhouse gas reductions or other benefits in practice over time. For example, the energy use associated with building occupants has proved much more difficult to predict and control than energy use associated with lighting and heating. The behavior of occupants often produces much higher energy use than forecast (Rivera, 2009).

Green buildings often are not green in practice, because behavior trumps potential: If people don't operate a building in a green fashion it doesn't matter how it was built. Standards like LEED give buildings points for including on-site energy like wind turbines and solar panels, which are often so poorly positioned as to be useless or grossly uneconomical (Alter, 2009). User behavior is also a huge determinant of key variables, like energy use. Even within identically sized and designed apartments in a modern, energy efficient building, energy use per occupant has been observed to vary widely (McNamara, 2010).

Buildings are designed with features that are expected to produce energy savings, but until this year, the U.S. Green Building Council didn't even gather data systematically on post-construction performance. Some buildings with LEED certification didn't perform well enough to qualify for the U.S. government's Energy Star guidelines (Navarro, 2009).

The energy use and environmental impacts associated with transportation are often larger than those directly related to buildings. As a result, whether a neighborhood is actually green depends on whether its residents have to travel frequently, travel great distances, and travel primarily or exclusively by automobile for their daily needs (journeys to work, school, shopping and recreation). In the typical U.S. metropolitan area the average journey to work is estimated to be three and seven times longer than would be needed if households were allocated to housing with the optimal proximity to the jobs they hold (Anas, Arnott, & Small, 1998).

The experience with green buildings suggests some real challenges for EcoDistricts. Even though EcoDistricts may be designed so that residents and workers can achieve a smaller footprint, will the districts actually result in the changes in behavior needed to achieve these improvements? A key insight about sustainability, one reinforced by the experience with green buildings, is that EcoDistricts will need to pay at least as much attention to behavior as to the physical characteristics of place.

Innovation and Place

EcoDistricts hinge on the notion that there is something to be learned about how we can live more sustainably, and that some ideas can only or best be discovered, developed and refined at a relatively small, i.e. neighborhood scale.

There are good reasons to believe that this may be a promising avenue of inquiry. It is easier to deploy, test and adjust practices at a small geographic scale, and to solicit citizen and consumer participation. In addition, a growing body of research suggests that user-led innovation, in addition to conventional scientific research-led innovations, can be a major source of technological advance.

Where do new urban innovations come from? Are they technological breakthroughs deduced by scientists, or are they the product of insights gained from practical experience?

The dominant metaphor in most discussions of innovation is the so called "linear model" of innovation, in which fundamental scientific research, undertaken most commonly at a university, produces ideas that in turn lead to new products and processes. But in reality innovation is not one-directional—ideas don't simply move from scientific breakthroughs in a laboratory to practical applications.

Many important ideas emerge from practical experience, and we learn the underlying principles from careful observation of the way the world works. Scientific insights frequently stem from the need to solve practical problems or explain the observations gained from applying a particular technology in practice. As Economist Paul Romer has pointed out, the science of thermodynamics emerged from the learning associated with the tinkering inventors did to steam engines in the 18th and 19th centuries. If you believe in the linear

model, it should have happened the other way around: scientists discovering the principles of thermodynamics and then inventors using this knowledge to build steam engines (Romer 1998).

There is a growing body of evidence suggesting that user-generated ideas can be a key source of economically important innovation. Distinctive local demand can be an important trigger for the development of new industries, and the creation of an enduring competitive advantage. The specialized tastes of demanding local customers plays a key role in the formation of many industry clusters (Porter, 1990). In Portland's case, "weird" behaviors have played a key role in the formation of clusters such as microbrewing and sports apparel (Cortright, 2010).

In addition, any technology (whether to support sustainability, distribute IP packets or channel sewage) requires an appropriate set of institutions (laws, organizations) to enable it to function. Different legal and institutional environments, as well as different consumer attitudes give rise to different kinds of products and technologies. Consumers, businesses and institutions have to co-evolve to facilitate the creation, selection and successful implementation of new ideas. Technology and rules interact to determine how productive and sustainable our societies are. Paul Romer has suggested the novel idea of "charter cities" to try out new regimes of rules that would promote innovative solutions to sustainability and economic development in the third world (Romer, 2010).

Sustainability, and innovations in sustainability have to be viewed as the product of innovation on at least three levels: physical, behavioral and institutional. To some extent, the built environment must be different, to some extent, people (as consumers, workers, citizens, and entrepreneurs) have to make different choices. And finally, the institutional environment—the rules of the game that set prices and regulate activities—also have to be different. All three have to change for effective sustainability.

One of the opportunities of an EcoDistrict in a place like Portland, is the receptiveness of local institutions and local populations to new ideas and practices in the area of sustainability. Local governments that are willing to consider new institutional arrangements and local citizens who are willing to live under these arrangements are essential to success. In this case, there is an important role for citizen engagement and influence over the form of EcoDistrict innovation.

The notion of user-based innovation implies that many good ideas for achieving sustainability will arise from practical insights of EcoDistrict residents. And with effective democracy in local government, the consent of the local populace is required to implement new policies. Consequently, an important component of EcoDistrict implementation should be strong efforts to engage citizens as designers and users of EcoDistrict practices, rather than as passive recipients of EcoDistrict services.

The natural variation within a city—and among the households within a city—may also be a path for better understanding neighborhood sustainability. Already, some households and some neighborhoods use less energy, emit less carbon and are more sustainable than

others. Evaluating the extent and causes of these variations may provide some fruitful insights into the characteristics that contribute to greater sustainability. The upshot of this notion of user-based learning for EcoDistricts is that the districts should not simply be treated as laboratories for testing ideas designed elsewhere; they ought to be thought of, by design, as places where new ideas can be generated by users, the citizen-residents of EcoDistricts.

Conclusions

EcoDistricts have to wrestle specifically with the question of scale and its connection to achieving sustainability goals. Some ideas can be tested and proven at the neighborhood level, but others cannot. Absent the ability to charge different prices, and to internalize the cost of environmental externalities, the effectiveness of an EcoDistrict in creating a fundamentally different set of incentives to guide investment and behavior will be limited.

Small scale offers some benefits to devising and testing sustainability innovations. There are substantial pitfalls in translating improved sustainability at the local level to measurable progress at larger geographies. Selection effects and externalities can muddy the meaning of gains observed at the local level. Whether neighborhood level policies can be scaled, and whether it would be cost effective to do so, should be early and prominent features of any EcoDistrict analysis.

EcoDistricts have to confront the reality that sustainability is the product of both the physical environment and human behavior. Physical design alone is insufficient to assure that meaningful progress is made toward sustainability. Policy, economics and behavior have to co-evolve with technology and design to achieve higher levels of sustainability.

Ultimately, EcoDistricts ought to be viewed through the lens of innovation: how can we use neighborhoods as places to develop and try out new ideas for sustainability? And we should recognize that many good ideas will come from the bottom up, from user-based innovation. EcoDistricts should aim to encourage and foment innovations by their resident citizen-users, as well as providing a venue for trying out top-down ideas.

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Chapter
The Governance of Portland's EcoDistricts: *Central Considerations for PoSI*

I. Introduction

n its conceptualization of the EcoDistrict concept, the Portland Sustainability Institute (PoSI) stresses the importance of community participation in the strategic planning and governance of EcoDistricts. Its June 2010 overview document The EcoDistricts Initiative describes two of the central values of an EcoDistrict as "diversity and participation" and "equity in decision-making and investment" (PoSI, 2010a, p.10). Appropriate governance institutions are central to the achievement of these values.

Accordingly, one of the central phases in the pilot implementation of the EcoDistrict concept is to "engagement to governance" in which the PoSI team works with district level stakeholders to create a shared vision and organizational structure for local governance (PoSI, 2010a, p. 15). The current conceptualization of the required organizational structure has been dubbed a "sustainability management associations (SMA)" in which the local governing structure has:

> *the explicit charge to meet ambitious performance goals, guide and help finance investments, and monitor and report results over time (PoSI, 2010a, p. 15).*

PoSI notes that an SMA may arise from an existing organization (neighborhood or business association) or it may represent an entirely new group. The organization will emerge through a consultative process; PoSI has, among other outputs, created an "Engagement to Governance Toolkit" (PoSI 2010b) to facilitate this.

While the objectives of robust community participation and the formation and empowerment of a local level implementation body appear fairly straightforward on paper, three critical challenges face PoSI and the City of Portland as it goes forward. The first challenge is *heterogeneity*. In speaking of heterogeneity, I refer to both our classic conception of demographic heterogeneity (such as race, ethnicity, class, and gender) but also social heterogeneity as it relates to values, political beliefs, and levels of civic engagement. (These aspects of heterogeneity are admittedly inter-related, but that is beyond the scope of this analysis.)

Although the City of Portland may appear to outsiders (like certain reporters from *The New York Times*) as a quaintly homogeneous, unquestioningly progressive place, people who live here know that there are distinct differences between city residents and across neighborhoods in terms of the values they embrace, the lifestyles they embody, and the level of receptivity they have toward city initiatives such as EcoDistricts. The five existing pilot districts exemplify this well: Gateway, Lents, Lloyd, PSU, and South Waterfront

have little in common beyond being urban renewal areas. Property ownership patterns, demographic characteristics, and relationships with city agencies vary greatly between the five pilot areas.

The second distinct challenge for governance is ***scale***. EcoDistricts are conceived as a way of scaling up geographically in order to achieve environmental benefits and energy savings impacts. Scaling up, however, makes broad, inclusive, and participatory governance even more challenging and perhaps unattainable. The optimal geographic size of a district (as yet an undefined aspect of the EcoDistricts Initiative) needs to be determined not only according to environmental criteria and metrics—governance criteria must be kept in mind.

The final challenge is the ***pre-existing institutional landscape***. The City of Portland is characterized by myriad groups and associations, not least amongst them the city's existing neighborhood associations which have a strong relationship with the city's Office of Neighborhood Involvement and an explicit role in planning matters and land use decision-making. Institutions formed for the purposes of EcoDistricts might complement or even improve upon existing neighborhood associations; they could also be seen as a threat to the legitimacy and power of these organizations.

Purpose of the Paper

This paper is intended to explore the concept of governance in relation to the EcoDistrict concept. Overarching, the paper aims to assist PoSI with thinning through its options relative to governance as it moves forward with the EcoDistrict pilots. This is done within the framework of the three critical challenges (heterogeneity, scale, pre-existing institutions) laid out above. The paper seeks to provide PoSI with an analytical perspective to inform its deliberations relative to (1) the type of governance approach(es) it might utilize in the EcoDistricts Initiative and (2) the issues it might encounter during the facilitation of the formation of governance institutions.

Institutions formed for the purposes of EcoDistricts might complement or even improve upon existing neighborhood associations...

The paper is organized in the following manner. Section II briefly examines governance as it has been conceptualized and evaluated in the public administration and planning literatures. This section provides a typology of local level institutions drawn from studies of existing institutions. Section III presents and evaluates two local level governance institutions (neighborhood councils and business improvement districts) in which a general

purpose local government unit has encouraged, mandated, or otherwise facilitated the formation of local level governing institutions.

The final section, Section IV derives "lessons learned" from the governance experiments reviewed in Section III and identifies key insights that should inform the facilitation of governance institutions for EcoDistricts. The essential message of the paper is simple: Strongly shared goals are critical to the emergence of effective governance institutions. Governance institutions need to be crafted in a way that is appropriate for the setting and for the district level goals. Accordingly, institutions associated with the EcoDistricts Initiative may (and probably will) vary. One size does not—and will not—fit all.

II. "Governance"

The term "governance" achieved prominence in the public administration and planning literatures in the 1990s as part of a larger discussion of the "new" regionalism, inter-governmental cooperation, and collaborative networks.[1] While most academics and policy-makers easily agree that certain problems (e.g. water and air pollution) transcend local boundaries and thus necessitate regional solutions, there is little agreement on the form that regionalism or inter-governmental cooperation should take. In the literature, regional cooperation is generally characterized in two categories or approaches: cooperation through "government" and cooperation through "governance" (Savitch and Vogel, 2000).

Government refers to cooperative approaches in which new institutions are created to effect joint actions. These institutions are formally created or legally constituted with representation determined usually via elections. The directionality of power is top-down —decisions are made at the top that affect individuals and households at the bottom. Government approaches utilize established legally-defined decision-making processes and spawn supporting administrative agencies or structures.

The leading example of a "government" approach to cooperative decision-making and regionalism is Portland's own Metro, which is the only elected regional government in the United States. Councils of Government (COGs) or Metropolitan Planning Organizations (MPOs), which are widely found elsewhere, have ex-officio members drawn from member local governments and far weaker powers and more limited responsibilities.

In contrast, governance approaches to regional cooperation rely upon the voluntary participation and cooperation of informal groups or preexisting institutions. Governance approaches require no formal realignment of existing institutions or hierarchies—all that is needed is an agreement that working together could be productive to achieve defined goals. Power relations are seen as very different from government; rather than being top-down, governance institutions have been argued to be "self-empowering" (Kearns and Paddison, 2000). Power is considered horizontal and shared across groups (Swyngedouw, 2005).

1. The literature on this subject is very large and this review has been truncated to look for papers and cases most pertinent to the EcoDistricts initiative. That said, readers with further interest can start with the set of special issues in public administration journals. The following are special issues devoted to "new regionalism," collaborative governance, participatory governance, network governance, or some other variant on the term: *Policy Studies Review*, Spring 1999; *State and Local Government*, Autumn 2000; *Public Administration*, March 2003; *Public Administration Review*, December 2006.

Not surprisingly, there is a wide variety of examples of governance institutions—ranging from informal networks to organizations with formalized characteristics and structure. Table 1 provides a "continuum" of governance institutions differentiated by the linkages between actors. At one extreme, governance institutions can be characterized by loose or informal linkages (e.g. Networking Partnerships); at the other linkages are tight and formal (e.g. Collaborative Partnerships). Notably, the actions they are created to take are wide ranging and do include actions (such as infrastructure provision, policing) that one would normally consider a public service to be offered by government. Organizations can and frequently do evolve from left to right, moving from a more loose, informal organization to a tighter, more complex and formal organization over time (Cigler, 1999).

Name	Networking Partnerships	Cooperative Partnerships	Coordinating Partnerships	Collaborative Partnerships
Nature of linkages	loose/informal ←	———	———	→ tight/formal
Goals/ Actions	information exchange only	cooperative on one or more activities	actions on specific, shared, common goals	specific goals, often long-term and complex to accomplish
Membership	fluid (join or disconnect with ease), no consequences for leaving or opting out	membership, often involvement of staff members from constituent organization (mid- or lower- level personnel)	stable membership, attention given to who joins, consequences for leaving	formal process and structures for membership recruitment; membership is stable
Leadership	self-appointed organizer	varies	varies	formal, often board of directors; paid executive staff
Procedures/ Structures	unwritten	unwritten	more formal, some loss of autonomy for constituent units	delegated, considerable autonomy granted to the collaboration
Resource Sharing	ideas alone	few shared resources (time, labor)	time, organizational funds, personnel and facilities	significant resource sharing (dues, facilities, co-funded personnel); resources dependency is recognized by members
Legal Dimension	none	none, letter committing resources possible	could be memorandum of understanding; contractual agreement	formal incorporation; some legal status

Table 1: A continuum of Governance Institutions (derived from Cigler, 1999)

Cigler (1999) argues that there are some recognizable patterns in the emergence of multi-community collaborative organizations. In the cases she studied, a triggering event was necessary—this led constituent governments, the private sector, and other organizations to recognize resource dependency and inspired them to act together. Triggering events

vary. They include literal disasters (e.g. foreclosure crisis, chemical spill) or fiscal stress or perceived fiscal stress (e.g. recession, job losses, population decline). Such circumstances are not sufficient for cooperation, certain pre-cursors for cooperation must exist.

Cigler (1999) identifies three with significance for PoSI: (1) a "push" toward collaboration from supportive political leadership, local official support, or some type of policy entrepreneur, (2) the "pull" of supportive capacity building from the outside with technical and financial assistance needed to develop skills and capture necessary resources; and (3) early visible advantages for those cooperating (or in Cigler's case, for the governmental units acting regionally.)

In recent decades cooperative institutions based on a governance model have flourished in the United States. Advocates of this type of cooperation argue that this is the case because—compared to government—governance institutions are flexible (can be crafted to meet special needs or address particular problems) and easily effected or operationalized (through easy to create contracts or inter-governmental Memoranda of Understanding.) They are also argued to be more efficient (not relying upon the machinery of state to get things done) and effective (being devoted to one action or problem). Inter-governmental cooperation based on governance models have also flourished because they sidestep the political opposition which may come from leaders or residents of local government units that lose power in a "government" realignment.

Governance institutions, however, are not without drawbacks. Because of their private or semi-private nature, governance institutions have been seen as lacking accountability and being essentially anti-democratic (Morcol and Zimmerman, 2006). Without elections or open procedures, insider elites can (and do) dominate governance institutions and use them to promote their own self-interest; vulnerable and unempowered populations remain marginalized (Taylor, 2007).

Leadership, moreover, is critical. Cooperative governance institutions often emerge due to and depend upon a strong or charismatic leader who can keep differences under control—loss of the leader can be fatal to the organization. Finally, because such institutions are voluntary in nature they are vulnerable to dissolution as interests fade or commitment wanes.

III. Local Level Experiments with Governance

While many of the experiences with governance have been at the international (e.g. ICLEI) or metropolitan scale via intergovernmental boundary agreements (respectively, Betsill and Bulkeley, 2004; Taylor and Bassett, 2004), governance institutions have emerged at the sub-municipal or neighborhood level. In this section, two notable neighborhood-level governance "experiments" are reviewed. They have been selected due to their applicability to the EcoDistrict concept as well as the overarching objective of sustainability.

The first case looks at the establishment of neighborhood councils, with a focus on recent efforts to do so in the city of Los Angeles. The LA experience represents a governance initiative that was expressly set up to deal with issues of power and equity in the governing of that expansive municipal area. The second case examines governance institutions focused on economic outcomes—namely, the self-formation of Business Improvement Districts (BIDs).

This "BID" type of governance institution is being examined because it is the closest parallel to the Lloyd Transportation Management Association (LTMA), which is highlighted as a potential model in the "EcoDistrict Toolkit" on governance created by PoSI (PoSI, 2010b). While the LTMA is focused on transportation management, funding for its work is augmented with private sector revenues from the Lloyd Business Improvement District established in 2000 (Williams, 2006). To provide an overview and evaluation of this type of governance institution I draw on a broad literature, and include examples from four cities, namely Los Angeles, CA; New York City; Philadelphia, PA; and Washington, DC.

Case Study 1: Creating Neighborhood Governance Institutions

One of the earliest governance institutions studied in the public administration literature is the neighborhood council. In a ground-breaking and very influential work entitled The Rebirth of Urban Democracy, Berry, Portney, and Thomas (1993) looked at the role of neighborhood councils as a mechanism for participatory democracy. Of the fifteen cities studied, five "core cities" had neighborhood level governance institutions while ten (matched for scale and demography) did not. The City of Portland's neighborhood association system was evaluated as were the neighborhood councils in St. Paul, Minnesota; Dayton, Ohio; Birmingham, Alabama; and San Antonio, Texas.

Amongst their myriad conclusions, they found that while neighborhood structures did not increase overall participation, they did improve the quality of the participation. Likewise, they found that the enhanced communication channels provided by neighborhood organizations helped to reduce destructive conflict between residents, businesses and government. The research indicated that there were greater levels of trust in government in cities with governance institutions as well as higher levels of responsiveness to neighborhood needs by city leaders and agencies.

In general, the research provided strong support for the creation of city-wide neighborhood councils as official participants in local governance. But the authors did warn that neighborhood governance systems should be citywide with each community having a single association with clearly recognized, defined boundaries and official recognition. Such

associations should not be created for one special area—in particular they warned that neighborhood councils created to address issues just in low income areas do not work well.

The work of Berry, Portney, and Thomson (1993) played an influential role in the establishment of the neighborhood council system in the City Los Angeles since the governance experiment in that city was expressly about enhancing participatory democracy, finding better methods for civic engagement, and enhancing communication and trust between the city leaders and agencies and its residents. Specifically, the City of Los Angeles began to form neighborhood councils for governance purposes following voter adoption of a reform of the city's charter in 1999.

The impulse for the charter reform and the subsequent governance experiment was the very real threat by residents of the San Fernando Valley (and to a lesser extent Hollywood and West Los Angeles) to secede from the city (Box and Musso, 2004). Although Valley residents had a number of complaints with the city, one of the primary impulses for succession was responsiveness. City government was seen as too large, too bureaucratic, and inefficient. Secession, its advocates argued, would streamline the bureaucracy, shift the base of power and bring government closer to the people—making it more responsive and more efficient.

The charter provision that established the neighborhood council system requires that the councils represent *all* stakeholders within the neighborhood and defines stakeholders as anyone who lives, works, or owns property within the neighborhood. Although the neighborhood councils were granted no formal powers, there were several provisions in the charter intended to improve neighborhood participation in the city's policy-making process. Among the provisions was the creation of an "early warning system" to supply information to and garner feedback from neighborhood councils. This early warning system was intended to be consultative and serve to notify neighborhood councils "as soon as practical" of pending city decisions and provide them with a "reasonable opportunity to provide input" (Los Angeles City Charter, Article IX, Section 907).

Setting up the neighborhood system in Los Angeles was effected through a process of self-organizing that brought community members together to create jurisdictional boundaries, derive a mission for the organization, perform outreach to bring diverse stakeholders into the process, and seek certification by the city.[2] Musso, Weare, Oztas and Loges (2006), report that approximately 88% of the city's population resides within the boundaries of

2. Box and Musso (2004: 272) notes that "the city initially contemplated drawing boundaries based on service or planning districts, in response to community pressure, it ultimately decided to permit councils to self-organize and draw boundaries in what appears to be almost a Tieboutian process of self-sorting...During the neighborhood council planning process, the city spent a great deal of time debating the appropriate size of neighborhood councils. Although research in other cities has suggested that neighborhood councils representing around 2,000 people will enhance participation, in the interests of manageability, the City of Los Angeles settles on a minimum size of 20,000."

one of the 86 neighborhood councils approved by the city.[3] The areas encompassed by neighborhood councils average 38,411 in residential population and vary in size from 7,300 (Elysian Valley Riverside Neighborhood Council) to around 103,300 (Wilshire Center-Koreatown Neighborhood Council).

Notably, the formation of neighborhood councils did not supersede pre-existing neighborhood groups.[4] These continue to operate independently of the new councils. Voting was used to select most of the governing boards of the new councils. Participation in the election process has varied greatly with Box and Musso (2004) reporting that as of February 2004, voting participation has varied from 25 votes cast in West Adams to a high of 1,787 votes cast in the election for the Downtown Los Angeles Neighborhood Council.

The new city charter gave neighborhood residents great latitude in designing the governance structure for their neighborhood council. As a result, the structure of the neighborhood council governing boards varies greatly. Box and Musso (2004) examined the by-laws of 56 neighborhood councils and found that the size of neighborhood council governing boards ranged from 7 to 50, with the average council having 21 seats. Specific seats for particular stakeholder groups were designated by 2/3 of the councils examined; itemized stakeholders included residents, representatives of businesses or community organizations, or other interest groups. A number of councils established town hall governing structures reminiscent of the New England tradition in which voting rights relate to presence and participation in meetings.

How have Los Angeles' neighborhood councils performed, both as a way of enhancing communication with the city (and resultant responsiveness) and as a method for representing and empowering the diverse population of the nation's second largest city? The data on performance is mixed—largely depending upon what you consider a proper metric for measurement of performance. Anecdotally, councils have enabled residents to have their voices heard—and express their displeasure—to the city council.

The most well-publicized example of this (and an indicator that the early warning system was having birthing pains) occurred in 2004, when the city's Police Commission decided to limit the number of calls the police would make in response to home burglar alarms (having determined that many were false alarms set off by homeowners.) By the time the decision reached city council, the Los Angeles Citywide Alliance of Neighborhood Councils had spread the news to their members who inundated city councilors with irate e-mails.

3. Contestation over geography — specifically what places belonged in which council's boundaries — was encountered on this process. A paper by Michelle Simpson (PSU) graduate, 2009) analyzes three contested areas in the city using the concepts of "space, place and identity (Simpson, 2008)

4. The University of Southern California (namely its School of Policy, Planning and Development) played a fundamental role in facilitating council formation and evaluating the neighborhood council experiment. For instance, it undertook baseline research by developing a database of existing neighborhood organizations. This included: neighborhood watch programs, homeowners' associations, block clubs, neighborhood beautification and clean-up projects, church-based voluntary activities, and voluntary youth programs to name some major catagories. It also conducted a 5-year evaluation, contained in Musso, Weare, Elliot, Kituse, and Shiau, 2007. The latter study was funded by local foundations as well as NSF.

This incident reflected the first "flexing of muscle" by the councils and forced a reworking of procedures for keeping neighborhoods in the loop on planning and policy decisions.

More scientifically, Musso, Weare, Oztas and Loges (2006) evaluated neighborhood council performance relative to representation and empowerment by looking at relational ties (or networks) within and across councils and between the councils and city administration. They argue that:

> *community empowerment requires the development of connections between the network core, inhabited by governmental actors with decision-making authority, the inner circle populated typically by elite interests and advisors, and the periphery constituted by less powerful claimants such as ethnic and neighborhood groups (Musso, Weare, Oztas and Loges, 2006, p. 82).*

Their analysis revealed both good new and not-so good news. Looking at "internal" communication contacts between the elected neighborhood leaders, they found that leaders "do not appear to have fractured into cliques" (Musso, Weare, Oztas and Loges, 2006, p. 87). In particular, the fear that board members who are home-owners would dominate councils and collaborate and communicate only with each other was not borne out. Communication across board members is diverse and not determined by homeownership status.

In terms of "external" communications—that is, communication by board members to stakeholders—the pattern is different. Board members who identify as homeowners are much more likely to communicate with homeowner stakeholders; this pattern holds for leaders who identify as business owners and tenants. Despite this, they conclude:

> *a source of optimism is that internal board communications do not appear marked by class biases, holding out the hope that if representational diversity can be achieved, councils have the potential to be forums for debate and discussion among different community stakeholders (Musso, Weare, Oztas and Loges, 2006, p. 87).*

In addition to evaluating the directionality of communication patterns, Musso, Weare, Oztas and Loges (2006) examined the extent to which the council system had created stronger ties both within groups and across groups, which we can refer to by Putnam's shorthand of bridging and bonding social capital (Putnam, 2000). Stronger ties, they note, have been shown to have direct and positive impacts upon organizational capacity. Bonding between board members on the same council (as measured by the density of communication contact) varied greatly with their data suggesting "that higher density is related to increased reliance on Internet communications and homogeneity of stakeholders but not other social or political factors" (Musso, Weare, Oztas and Loges, 2006, p. 88).

Bridging social capital—the type of social contact/tie that puts you in touch with individuals outside your (ethnic, class, professional, etc.) group—was better. The average board member reported contact with approximately three stakeholders in his/her community

and with more than two city officials. Horizontal links between board members on different councils were also being forged as evidenced in city-wide meeting of activists and the establishment of electronic discussion fora for information sharing.

Their most recent study, however, raises more cause for concern. In a 2007 evaluation of the LA neighborhood council reform, Musso, et al., (2007) conclude that the reform has not been effective at representing the diverse population of the city. Specifically, they lament:

> *The most obvious—and regrettable—shortcoming is that neighborhood councils do not adequately incorporate the cultural diversity of Los Angeles. Homeowners with long tenure in the community are most heavily represented, which is not surprising considering that the councils are geographically defined advisory boards. The ramification of this stakeholder orientation is that Latinos are underrepresented, and boards are disproportionately wealthy, white, and highly educated (Musso, et al., 2007, p. 1).*

This failure, they assert, undercuts the legitimacy of the councils. Additionally, they found that relationships between the neighborhoods and city officials were slow to develop and that the failure to forge a more collaborative partnership with the city was a great source of frustration for neighborhood leaders. (Relationships across councils, in contrast, were fairly well developed.)

They also argued that city needs to provide much greater assistance to councils for leadership development, observing that the capacity of neighborhood councils varies greatly across the city. Among other recommendations for improvement were assistance from the city to neighborhood councils in targeted community organizing (to reach under-represented groups), the use of "projects" instead of meetings as methods of engagement, and the development of more structured opportunities for councils to engage in policy-making and service delivery. Enhanced communication, not surprisingly, was identified as critical to future success.

Case Study 2: Business Improvement Districts (BIDS)

The second governance institution reviewed here is very widespread: the Business Improvement District. Found in both central cities and suburbs, these organizations represent a relatively new way to address sub-municipal issues and are formed in order to address the special needs of retail and commercial centers.[5] While they originated in Toronto in the 1960s, BIDs have spread all over Canada and the United States and are now found internationally including in New Zealand, South Africa, and the United Kingdom (Tait and Jenson 2007; Ward, 2006, Morcol and Zimmerman, 2006, Hoyt, 2005a). Tait and Jenson

5. BIDs are usually held up on contrast to state-centered or sponsored attempts at urban revitalization such as urban renewal and various iterations of empowerment or renaissance zones. In economic development terms, BIDs are seen as quite revolutionary since the strategy is essentially "tax augmentation" rather than the much more heavily relied upon, traditional approach of tax abatement. BIDs have been dubbed "self-help service organizations" for retail and commercial owners (Hoyt, 2003, summarized in Gross, 2006: 175).

(2007, p. 120) report that there are "now over 1500 examples, the highest concentration being in New York {City}."

So what is a BID? While there are differences in the missions and structure of these organizations, the basic approach is simple: a geographically-defined group of property owners and/or merchants agree to work together to provide an extra level of public service in a specific area (Mitchell, 2001). The decision to form a BID is normally done through a petition process submitted to local government in which a threshold number of the affected property owners have to agree to support the BID. (The needed percentage for approval of a BID varies by state as well, but a majority is generally always required. In some cases is it just the majority of the total taxable value of the land which gives large property owners disproportionate power.)

Once formed, the constituent member businesses must formulate a business plan for the district. Funding for BID activities is generated by an added tax or fee on all of the properties and/or businesses in the area; the fee is generally in the range of 1-3% and is added to the property tax (Mitchell, 2001). Sometimes, however, BIDs can get additional public funds for their activities; in California, BIDs can even issue bonds to finance public works (Meek and Hubler, 2006).

BID Functions and Services
1. Consumer marketing (festivals, events, self-promotions, maps, newsletters)
2. Economic development (tax abatement and loans to new businesses)
3. Policy advocacy (promoting public policies, lobbying)
4. Maintenance (trash collection, little removal, washing sidewalks, tree trimming, snow shoveling)
5. Parking and transportation (public parking systems, maintaining transit shelters)
6. Security (social guards, electronic security systems, cooperating with police)
7. Social services (aiding homeless, providing job training, youth services)

Box 1: BID Functions and Services

As is shown in Box 1, a wide variety of activities and services are undertaken by BIDs including providing for supplementary security for the commercial area, paying for additional street cleaning, and spearheading the marketing of events. But not all BIDs do the full ranges of activities because they vary greatly in their capacity.

In her research on BIDs in NYC, Gross (2005) constructed a typology of the city's BIDs according to their annual budget, geographic scope, type of properties covered by the BID, and dominant property owners (among several characteristics used to create a typology.) Her research showed that BID activities varied by the size of the BID, with small "community-type" BIDs mainly focusing on maintenance and security and the retail-dominated "Main Street" BIDs doing the same but adding in promotional activities. The "corporate" BIDs—

those dominated by corporate and commercial property owners—not surprisingly, did the most, including engaging more frequently in capital improvement projects (Gross, 2005).

The impetus for BID formation, in most cases, is a perceived failure or inability of local government to provide the type of tailored services a business area needs.[6] Because BIDs provide public services, they are criticized for blurring the line between the public and the private so much so that they have been called "quasi-governmental entities" (Ross and Levine, 2001), the "parallel state" (Mallett, 1993), and "private governments" (Lavery, 1995). Local governments play an important role in BID formation. Local governments enable BIDs—they must legally establish the district as well as collect the special tax assessments or fees, and transfer the funds to the BID organization. State governments, of course, must give local governments the legal power to create BIDs.

Because there is myriad enabling legislation, BID organizations vary from state to state and locality to locality. In some states, BID organizations are established as not-for-profits with a board of directors that oversees the organization, as well as an executive director with some staff. In other states, BIDs are actually public authorities or constitutionally sanctioned governmental entities (Morcol and Zimmerman, 2006). In California, BIDs must register as public-private partnerships (Meek and Hubler, 2006). The life of the BID also varies from as short as 5 years in Pennsylvania (where they are public corporations) to as long as 25 years in the District of Columbia.

Despite their rapid proliferation, BIDs are not without their critics. Hoyt (2005a) identifies three main legal and ethical criticisms of BIDs from her literature review. The first is familiar: BIDs are a threat to democratic accountability. They provide public services, tap public money, and in some cases even are legally formed as public corporations, yet leadership of BIDs is not open to all comers through a transparent democratic process. BID leaders are only accountable to a few persons on a select board, and BIDs themselves operate with inadequate oversight from the public sector.

The second critique is that BIDs create wealth-based inequities in the delivery of services—that is, if you are rich enough to tax yourself you will get better services. If you are poor, you must make do with what your fiscally-constrained government can deliver. The third critique is that BIDs negatively impact adjacent residential neighborhoods. The contention here is that problems like crime and graffiti are not solved, they are just displaced by the BID—put into the adjacent neighborhood where the less resourced residential land users are left to deal with the impacts.[7]

6. There is a deep history, of course, as to why local governments have found themselves in constrained fiscal straits that precluded effective service delivery. For central cities, the story starts with wartime disinvestment and post-war suburbanization. BID formation, however, really accelerated in the 1980s; this was influenced by the Federal policy environment particularly the "small government," pro-privatization, and anti-urban policies of the Reagan Administration.

7. A recent study by Hoyt (2005) did not find evidence for the spillover or displacement of crime allegations in the commercial areas of Philadelphia.

How have BIDs performed as governance institutions for economic revitalization?[8] Have the impacts been positive? Have they been equitable? Are the concerns outline above justified? The answers to these questions it turns out are not so easy to find. While there is a proliferation of descriptive studies of BIDs, much of what passes for evaluation is anecdotal or even coming from biased sources (such as the BIDs themselves.) In the words of one set of scholars, BID evaluation is based on "provocative conjecture and rich case studies" (Caruso and Weber, 2006, p. 189). Doing more rigorous analyses is difficult, these same authors note, because:

> *unfortunately, few BIDs systematically collect information on their organizations' performance, and those that do may not be collecting the appropriate data. The lack of appropriate data prevents local property owners from making informed decisions about renewing their BIDs and prevents municipalities from making policy choices about whether to allow public funds to be used for these purposes. (Caruso and Weber, 2006, p. 188).*

With those limitations in mind, the following observations about BIDs and their performance can be made based on the literature:

- BIDs are flexible and often effective governance institutions. An acknowledged strength of BIDs is the malleability or craftability of the institution and its consequent ability to be used as an approach to meet different—and often multiple—goals. While BIDs have been generally created to meet needs around marketing, maintenance and security, there are examples of BIDs taking on social service responsibilities (e.g. addressing homelessness and substance abuse in Los Angeles) as well as capital improvements and planning responsibilities. What is clear is that the greatest successes have been associated with the most limited mission: making a business district a safe, secure and attractive destination for customers and other visitors (e.g. Hoyt, 2005b). A clear element of this success is the fact that the constituent members of the BID have an unquestioned unitary goal: to promote their businesses. They often also share a similar analysis of what the problem is (e.g. disinvestment in streetscapes, lack of an identity for the shopping area, an upswing in petty crime) and how to address it (e.g. invest in streetlighting, branding campaigns, and security officers).[9]
- Boundary definitions matter. The BID cases examined also provide some insights into the issues that can surround district designation.

8. Hoyt and Gopal-Agge (2007) have a very short (13-page) summary of the major controversies regarding BIDs which delineates the two sides to each controversy. See citation in References.

9. Ironically, BID members and their employees can also be the victims of their own success since BIDs can cause rising rents and property taxes that could displace original business owners and tenants. Meek and Hubler (2006: 42) report that the Fashion District BID in Los Angeles, for instance, saw a 20-50% increase in property values in the years 2000-2005. It actively strives to replcae lower wage jobs in garment manufacturing with higher wage jobs in creative fashion design.

While often BIDs are geographically-oriented, the drawing of boundaries of BIDs is can be challenging—yet proper boundaries have an effect on both performance (that is, task accomplishment) and governance. Notably, because BIDs rely upon their merchant and/or property value base as the way to raise revenues for actions, there is the temptation to draw district boundaries that are too large. This was the case in for the Frankford Special Services District in Philadelphia, PA. (Under Pennsylvania law, BIDs are called special services districts.) A severely challenged retail and residential area, with a significant percentage of vacant property, low median income, and problems with blight, the FSSD "drew a service boundary that was far too large to affect a targeted revitalization plan" (Stokes, 2006, p. 181). Multiple variables beyond financial resources—including strength/coherence of community identity, shared purpose or common goal, and communication channels—should be taken into account when designating districts.

- BIDs face inherent equity challenges. Overall, BIDs have emerged and functioned most effectively in circumstances in which owners and business are willing to agree to pay self-imposed fees or increased property taxes—that is the essence of the model. A tension arises here as such areas are often not those in most need of revitalization, enhanced services, or marketing. In the case of Los Angeles, for instance, the most disadvantaged area of the city, which lies largely to the east and south of the downtown area, does not contain a single BID (Lloyd, et al. 2003). In her work on New York, Gross (2005) also discusses the problems of equity across BIDs and the consequences relative to governance and efficacy of the organizations. BIDs formed in low income areas are resource poor—they have less fiscal and human capacity to do their duties and suffer more frequently from financial management problems and lower participation by board members. Gross (2005) advises economic development professionals working with BIDs in their formative stages to follow four pieces of advice:

1. Know your stakeholders,
2. Ensure adequate representation of those stakeholders on the board of directors,
3. Identify and prioritize needs according to local context, and
4. Target resources appropriately. For example, in the case of low-income communities, advocacy and social capital enhancement may be essential tools for BID success" (Gross 2005, p. 187).

Finally, the relative affluence or poverty of the BID district has clear ramifications on the success of BIDs over time. Again, not surprisingly, better situated, better off districts perform better than more challenged or resource-constrained districts. In the Frankford study, Stokes (2006, p. 182) concluded that:

> *the use of local private resources to facilitate economic growth in local areas is limited by the relative health of the district. Clearly, many poorer districts identified in this study struggle to fund a level of service that can make a difference in tipping negative perceptions of their locality.*

He notes that additional financial and managerial assistance from the public sector could help overcome this, but since that is unlikely to occur in most settings the best strategy is for less resourced BIDs to keep their services simple.

- Accountability and monitoring and evaluation matter and are problematic. The literature is fairly unanimous that by and large BIDs—even though they are publicly formed and often use or leverage public funds—tend to operate without a great deal of public oversight. The general public may not know that the BID exists (Lloyd District has a BID—who knew?); city residents are often incapable of differentiating between its services and those of the local government. But as Meek and Hubler (2006) point out BIDs and BID leaders are certainly known at city hall—at least in the city halls they studied in California. Part of this is organizational—often city representatives sit as appointees on BID boards and part of it is simply due to the importance of the business community locally and its level of political activity more generally.

A cozy relationship with city hall, of course, could be problematic if it were to undercut or weaken monitoring and evaluation by the public sector of BID activities. Right now there is little concrete evidence of malfeasance as oversight by governmental bodies is so varied and, frankly, spotty. As is noted by Morcol and Zimmerman (2006), local governments are given some authority over BIDs by the enabling legislation passed by state government, including the right to audit, provide oversight or even dissolve BIDs. In empirical studies they conducted with colleagues in Georgia, Pennsylvania, California and the District of Columbia, however, they found that local governments "rarely, if ever, attempt to use their authority over BIDs" (Morcol and Zimmerman, 2006, p. 18).

Accountability by BIDs to governments, moreover, varies greatly across states and cities. In Georgia, for instance, no reports are due to government until a BID wants approval for renewal, while in Washington D.C., BIDs must submit a review every five years that self-reports how they have met their objectives and how they will do so in the future. California appears to have some of the most stringent requirements since as a non-profit corporation a BID must submit an annual report to the city that identifies revenues, expenditures and budgets for the upcoming years.

In his wide-ranging legal analysis of BIDs, Briffault (1999, p. 5) notes that "although most state laws provide ample opportunities for oversight by elected municipal officials, it is unclear how effectively cities monitor the BIDs within their jurisdiction." Moreover, it may not be possible to effectively conduct oversight since the "proliferation of BIDs and their wide range of activities may strain the capacity of city administrators and elected officials to check the possibilities of corruption" (Briffault, 999, p. 18).

Problems of accountability, however, are not only found on the public side of BIDs—there are accountability concerns for the private sector partners involved as well. One particularly notable accountability problem relates to businesses that are tenants and their voice within BIDs. Most BIDs are formed by property owners, yet the persons actually living with the outcomes of BID activities are often tenants (Symes and Steel, 2003). Tenants are excluded from decision-making processes, yet they tend to pay the costs of the BID as it is passed on through rents.

Problems arising included a feeling of alienation from the BID (as it amounts to "taxation without representation"), disruption of intra-BID communication (e.g. tenants not forwarding mail to landlord), and conflicts between landlords (often absentee or large corporations) and locally-based tenant businesses. Syme and Steel (2003) note that problems of infighting and poorly thought-out procedures for voting and decision-making across affected groups had severely hampered the implementation of BID programs in some parts of New York City.

Additionally, BIDs have been observed as having troubles with neighborhood relations (Lloyd et al., 2003). BIDs, of course, also affect residential areas (homeowners and tenants alike) but few BIDs have regular or formal mechanisms for gaining their input (although some reportedly use surveys in order to inform their activities).

- Long-term viability takes effort. A final observation from Lloyd, et al. (2003) relates to the importance of communication (and its relationship to accountability). As they note, BIDs are voluntary organizations. In order to maintain them over the long term, it is necessary to maintain the enthusiasm and commitment of constituent members. They identify a number of elements necessary to long term viability including the need for consistent and clear communication (e.g. newsletters, annual meetings, advisory group meetings, face-to-face time between security staff and business owners.) They identify effective monitoring of the impacts of the BID as important as well and recommend a comprehensive baseline assessment of conditions in the BID at the outset, establishment of clear benchmarks for success, and clear financial and reporting procedures.

IV: Lessons Learned: Insights from Governance Literature and Experiments for the Portland Context

So what are the implications of both the governance literature in general and these two case studies for the EcoDistricts Initiative in Portland? Are there major issues to watch out for and perhaps "best practices" that might be adhered to in order to facilitate the successful formation of governance institutions and the subsequent effective achievement of EcoDistrict goals?

Drawing from the literature review and discussion above, I have identified five insights or considerations for PoSI. These are:

Insight 1: Successful governance institutions have strongly shared goals; these emerge according to circumstances/felt need, and influence the form governance takes. A clear insight from the literature and from the cases is that successful governance institutions reflect the needs of those coming together to form the institutions. Individuals forming institutions like a BID perceive a common problem and they share a common goal. Constituent members of the organization as a result have a deep level of buy-in to the mission and values of the resultant organization. A second insight is interdependence between actors is also necessary. Actors need to work together and commit to shared action and resources in order to get the results that benefit all. An isolated household or individual cannot effect the change alone.

A significant challenge for the EcoDistricts Initiative is the fact that it has not emerged from an organic process of problem analysis and goal definition at the district or neighborhood level. The initiative's problem analysis, definition of goals, and metrics for success appear to be top down and PoSI appears to be trawling for places in which it resonates. While this is not to say that the initiative does not respond to real problems or have an important rationale and potential, the top-down introduction and branding of the initiative creates significant challenges. In the last several months, for example, PoSI has had to devote staff time toward publicizing and explaining the EcoDistrict concept to various stakeholder groups.[10]

In thinking about how to address this conundrum, PoSI appears to have two options. The first option is to work with communities that are the most open to the ideas and the favored projects embodied in the current EcoDistrict concept. For instance, certain neighborhoods of inner southeast Portland that have a history of collaborative community-based projects and an explicit interest in collective environmental action (such as neighborhoods involved

10. The Urban Studies and Planning student group District Lab worked on an EcoDistrict concept for the Gateway Pilot Area in the Winter-Spring 2010. A major challenge for the students was how to deal with the concept in its work/deliberations with the community. Ultimately, the students decided to downplay the concept and instead look at community needs and find area of resonance/fit with the EcoDistricts initiative.

in climate action planning, Tabor to the River, or tree planting campaigns with Friends of Trees) would be a receptive setting for an EcoDistricts Initiative.

The main drawback of this approach is that the neighborhoods that might come forward with this community mobilization process may not be the ones with the greatest need from an environmental perspective. Such an approach also has shortcomings from a social equity perspective since they are relatively affluent and primarily middle to upper income, white areas that have already benefited from city investment.[11]

A second option is to open up the EcoDistrict concept to modification by local community members to reflect their felt needs and priorities as part of the "Engagement to Governance" process. This does not necessarily mean that core ideas of the EcoDistrict concept would be sacrificed—but they may be identified or prioritized in a different manner. (Two paths to the same destination.) To give an example, the EcoDistricts project completed by the District Lab group at PSU in spring of 2010 utilized an approach in which community members identified their needs and priorities (DistrictLab, 2010). Their priorities included enhancing the identity of the Gateway shopping area in a way that would make it a branded destination, improving streetscapes and street crossings for pedestrians and shoppers to enhance connectivity and security, and mitigating the environmental problems of flooding and air pollution.

While they envisioned their sustainability initiative primarily through an economic lens—since that was the goal that resonated most strongly with them—the pilot projects identified (e.g. Halsey Weidler Stormwater Mitigation Corridor, Adventist Medical Center Recycling Reuse Facility) also had clear environmental benefits and moved the district toward the performance goals of the EcoDistrict framework. It is important to remember that sustainability does have three elements—equity, economy and environment—which are interconnected. The presentation of the EcoDistrict concept as a solely environmental initiative may diminish its attractiveness to certain groups and neighborhoods.

A question remains, however, as to whether the EcoDistrict concept fulfills the second insight for the emergence of a collaborative partnership, that is, the characteristic of interdependence. Although there is a compelling rationale for moving sustainability initiatives to a district scale, it is not clear whether such scaling up necessitates collective action or could be as well achieved through the aggregation of individual actions.

Right now, for instance, there are a number of incentive-based projects aimed at getting homeowners to weatherize, solarize, replace leaky windows, and upgrade heating and cooling systems. Such projects done to scale—although implemented on a household by household approach—might have the same impact as a district level project around district energy.

11. One challenge that may face the EcoDistricts initiative, but is not explicitly dealt with here due to limitations on space, is the problem of perceived inequity in service delivery. Specifically, the EcoDistricts Initiative may include infrastructure investments—like green streets—that are underway elsewhere in the city, but paid for by different mechanisms. The use of special assessments could lead to allegations that the city is acting unfairly and favoring certain areas/neighborhoods over others.

In its governance outreach, PoSI needs to think carefully about what the value-added is of the cooperative approach. (It may be net savings; it may be ease of implementation.) As it stands now, interdependence and the need for collective action do not seem self-evident or compelling—at least to this analyst.

Insight 2: Legitimacy is paramount; leadership must be representative and accountability to residents must be clear. A very concrete challenge is how to formulate governance institutions that have legitimacy. Legitimacy is affected by the manner in which neighborhood organizations are connected to residents, the arrangements for participation embodied in those organizations, and the extent to which residents perceive neighborhood organizations as really representing their interests or pursuing their goals. Legitimacy also relates to accountability—what the organization does must be discernible to the community and the organization itself must be answerable to the community though clearly identified processes.

There is complete agreement in the literature that an effective and legitimate governance institution must represent the diversity of the stakeholders in the community. That is, these institutions should be able to bring to the table many perspectives, and effectively represent all those who may be affected by plans created or decisions made. The literature also makes it clear that governance institutions face significant challenges reflecting diversity, enhancing participation, and achieving social equity goals. Good intentions are not enough. As discussed above, LA was explicitly focused on ensuring representation of its diverse community—and has failed to do so as its neighborhood organizations remain dominated by the city's white, well-educated elite.

Unfortunately, we have no reason to expect that Portland will fare better than Los Angeles in this endeavor. The city is increasingly heterogeneous, but local level leadership (both elected and at the neighborhood level) does not reflect this diversity as yet. One approach that might be proposed or even mandated by PoSI in the establishment of EcoDistrict governance bodies would be the requirement to set aside or reserve certain leadership seats (e.g. on a board of directors) for key interest groups.

Relative to the literature and experiences reviewed above, it would seem imperative to require representation for tenants (both business and residential) and critical minority groups or vulnerable populations (e.g. elderly on fixed incomes, refugee community, people of color). Likewise, procedures or provisions for decision-making should be closely assessed to ensure they are accessible (e.g. web-based voting, meetings in the evenings), and facilitate representation. Without question these organizations should meet all requirements for accountability, such as open meetings, circulated minutes, annual reports and financial audits.

Insight 3: All governance institutions are not created equal—the need for capacity building and commitment of government resources should not be underestimated. As is illustrated in both the Los Angeles and the NYC BID research, neighborhood level governance institutions reflect the strengths and weaknesses of their setting. BIDs in poorer areas, for instance, had fewer human resources and lower fiscal capacity and were more likely to face leadership and financial problems. In Los Angeles the fact that the neighborhood councils were formed "on a shoestring," that is, without sufficient technical assistance and staff resources at city hall, contributed to the poor initial outcomes there (Musso, et al., 2002).

Given the heterogeneity of the city of Portland and the geographic concentration of poverty and affluence in parts of the city, we should be realistic in our expectations for district-level governance institutions. They will have different priorities and different capabilities. Some will be resource rich and others resource poor. We must recognize that and be willing to financially assist or cross-subsidize the less affluent districts.

In terms of an immediate action, capacity building for neighborhood organizations will certainly be important for the EcoDistricts initiative. Judging from the various toolkits availed on their website, PoSI's expectations for these organizations are quite high. Not only do they need the capacity for planning and evaluating sophisticated projects like the iconic district energy system example, they need to understand the nuances and comparative advantages/ disadvantages of financing options like tax-increment financing, system development charges, and bonding (PoSI, 2010c).

In other sectors where residents have been expected to organize the self-financing of infrastructure projects (such as local improvement districts for unimproved roads), community members have been reluctant to participate in these projects perceiving them as too expensive and too complex to pull off.[12] Capacity building, moreover, will need to be properly targeted (according to neighborhood characteristics and need) and on-going. Sufficient financial support and staff resources for this must be set aside by PoSI and its partners.

Insight 4: Respective responsibilities between institutions (within hierarchy and across same levels of power) must be clear. As noted in the introduction, Portland has a pre-existing institutional landscape that includes neighborhood associations with a long

12. See findings from PSU Urban Studies and Planning Workshop Project "Roadway Not Improved" at: http://www.roadwaynotimproved.com/

history of collaboration with the city (as well as in some cases conflict). By and large these organizations are perceived as having legitimacy both with their residents as well as with city hall—but they are as Chaskin (2003, p. 171) points out "only one facet of a broader, complex system of relationships."

In introducing or facilitating the formation of new organizations for its purposes, PoSI needs to take care to understand the existing institutional landscape and evaluate the advantages/disadvantages of new versus the retrofitting or evolution of old organizations to take on new tasks. If a new organization is formed, there needs to be an analysis of its relationship with pre-existing organizations such as the neighborhood associations.

The literature is clear: problems associated with defining power and domains plague governance organizations. The organizations studied by Chaskin and Garg (1997), for instance, faced problems of defining membership and representation; they also struggled with accountability across diverse stakeholder groups (e.g. residents, government, funders). Organizations that failed to figure out how to deal with membership, representation, and accountability experienced a resultant loss of perceived legitimacy.

Additionally, there needs to be clarity on the roles to be played by community members and professionals at the city and at PoSI (Chaskin and Garg, 1997). While community participants will bring a variety of skills and knowledge to the table, this does not mean there will be no need for professional or technical support from outside. PoSI and the city, thus, must be prepared for an on-going technical assistance and even implementation role.

Insight 5: Evaluation must be built into governance experiments. Finally, a major shortcoming of many governance initiatives is the lack of appropriate methods for monitoring and evaluation. The lack of rigorous studies is problematic as we attribute positive outcomes to organizations such as BIDs, but have little substantive data to really justify such conclusions. To PoSI's credit, metrics for evaluating success are central to the EcoDistricts Initiative, as are baseline evaluations of existing conditions in the proposed pilot districts.

These metrics, however, can be improved upon. In its current discussion of the Community Vitality performance area (which includes governance) and its metrics, PoSI offers the disclaimer that "where appropriate, disparity by income, race/ethnicity, geography, age, ability, or gender will be considered for specific metrics" (PoSI, 2010d, p. 6). Given the poor performance of governance institutions in representing vulnerable and marginalized communities, it is imperative that we routinely disaggregate measures (like the ubiquitous "resident satisfaction" metric) by said groups and establish specific metrics meaningful for those populations (e.g. cost burdened households—the measure of housing costs exceeding 30% percent of area median income is not meaningful for populations that are far below the area median income).

Likewise, individual EcoDistricts should be encouraged to establish their own specific, culturally-appropriate metrics. Some metrics embodied in the Community Vitality

performance areas—community kitchens and the emphasis on walking to everything within your "20 minute neighborhood"—represent one set of values that is dominant in the city but we must recognize they may not be appropriate for all places or people.

Finally, from a research design perspective, the validity of the assessment would be stronger if the evaluation of EcoDistricts included a control neighborhood. That is, for every EcoDistrict that emerges there should be a matched non-intervention district that is subject to the same baseline and follow up evaluation. In this way we could see if a district approach actually yields more than an aggregation of individual household actions. Is district heating a better method for carbon reduction than individual home-owners weatherizing their structures? We don't know and we can only prove the superiority of district energy with a control in place.

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Chapter
Measuring with Meaning:
Grounding Data in Place, Perspective, and Practice

As anyone who has ever marked a growing child's height on a doorjamb well knows, taking measurements to chart one's progress is time-honored tradition. Measuring the 'performance' of *cities*, however, is a more recent phenomenon. Yet this relatively new practice is becoming an increasingly common tool for managing urban areas. Many current approaches or so-called 'best practices' entail expansive attempts to characterize places with numeric values and quantifiable descriptions.

The past five years have also seen a proliferation of indicator projects that quantitatively describe, often displaying data in maps, different conditions *within* a given city or region. Similarly, a cottage industry has emerged to rank cities based on "sustainability" (see www.sustainlane.com; www.greenbiz.com; www.popularscience.com); most employ some combination of economic, environmental, and societal indicators.

However, measurement systems are powerful, and can have far-reaching impacts on communities far beyond the initial effort to quantify conditions in the place. As discussed below, the findings of performance audits can have a profound impact on local and regional policy, as well as the everyday lives of people. Yet little has been written about how measurement systems interact with the pressing concerns of local communities.

This chapter offers an integrated approach for developing measurement systems that are grounded in the places people inhabit, people's perspectives on these places, and scientific understandings about relationships between collective behaviors and ecology. Specifically, we offer guidelines for building long-term measurements of urban places that draw on three inter-related dimensions:

1. form – physical space including infrastructure, land use, and other structural attributes;
2. function – intended uses of place and flows of resources in and out of them; and
3. meaning –the social construction of place, including historical and contemporary conditions.

We apply this framework to a case study: the EcoDistricts Initiative of Portland (OR). By examining empirical data about places, perspectives, and practices, in an EcoDistrict, we highlight the challenges of measuring place by comparing quantifiable measurements and qualitative descriptions of a place. The conceptual framework and its application to the case study are the basis for a set of guidelines for the development of new measurement systems for urban areas.

These guidelines emphasize longer-term, integrated, and locally relevant measures that capture the 'lived experience' of places as key components of measuring urban sustainability. The guidelines will improve the processes and products of measurement systems by grounding measurements in the experiences of people who inhabit a place, and fostering opportunities to engage those most affected by sustainable planning and development efforts. While an existing literature addresses the purposes of developing measurement systems (Innes and Booher, 2000; Semken and Freeman, 2009), this chapter focuses on the need to align the development of indicators with the needs, perspectives, and experiences of those living in areas that are potentially affected by actions taken as a result of these indicators.

Existing Measurement Systems

Our call to incorporate local perspectives is offered in the context of a boom of urban measurement projects. Notable initiatives have been undertaken in various U.S. cities and regions: the Boston Indicators Project (www.bostonindicators.org), Minnesota Compass (www.mncompass.org/), the Joint Venture Silicon Valley Index (www.jointventure.org/index.php), and the Sightline Institute's Cascadia Scorecard for the Pacific Northwest (scorecard.sightline.org/summary.html). While projects vary in focus, all these assessment efforts share the aim of providing numeric descriptions for the conditions in a place.

There are four major purposes for developing quantitative descriptions of urban places. First, with the increased demand for evidence-based practices in governance, many urban measurement projects are seen as tools for *decision-making and management*. Research on the relationship between science and policy suggests a need to more tightly integrate both the process and outcomes of scientific investigations with policy decisions about conservation, development, and other programmatic or policy matters (Cash and Clark, 2002; Francis et al., 2003; Shandas et al., 2008). For example, recent efforts to reduce greenhouse gas emissions in order to address climate change include attempts to build quantifiable measures for assisting in decision-making (Bassett and Shandas, in press).

Second is *advocacy*. Organizations that aim to influence public policy and resource allocation decisions are using quantifiable measures to make the case for the importance of their cause. A case in point is the *Regional Equity Atlas* (http://www.equityatlas.org), produced by the Portland Oregon non-profit organization Coalition for a Livable Future

(CLF). The Coalition tells compelling stories about gentrification and access to services and opportunities by cross-referencing measures of poverty, race, and other social characteristics with the spatial distribution of amenities throughout the metropolitan area. The findings of this measurement project have been used to advocate for actions like increasing transportation access to underserved populations and expanding urban green spaces. While the *Equity Atlas*' findings mirror stories echoed time and again in qualitative vignettes (e.g. public hearing testimony, newspaper articles, local arts venues, etc.), the quantitative and cartographic depictions have arguably had a greater impact on public policy discussions about social justice challenges in the region.

A third reason for quantifying and measuring the condition of urban places is for expanding and/or deepening *participation and consensus building activity*. Involving citizens in public decision making continues to be a daunting and increasingly challenging charge for public officials, who are required by local, state and Federal laws to ensure opportunities exist for citizens to comment on proposed plans, policies or programs. At the same time, the growing diversity of interests (Day, 1997; Irvin and Stansbury, 2004) threatens to paralyze public decision-making by making consensus difficult, if not impossible. Although this purpose of measurement systems is not as institutionalized as the previous two, the field of Public Participation Geographic Information Systems (PPGIS) is forging new ground in the creation of measurement systems by and for citizen engagement (Talen, 2000; Palmer et al. 2007). PPGIS holds special promise if locally relevant measurements ("bottom-up") can be combined with institutional data ("top-down") to create a comprehensive picture of the conditions in a region, city, or neighborhood.

Finally, quantitative measurement systems also offer opportunities for comparative *research and analysis* of urban areas. For example, concerns about to low-density, auto-dependent urban development ("urban sprawl") emerged most recently in the 1970s, yet there were few measurements of how these development patterns affected social, economic, and environmental conditions. Then, starting in the late 1990s and continuing to the present, scholars have developed sprawl indices that compare urban regions across the United States (see for example, Cruthers and Ulfarrson, 2004; Ewing, 2004; Pendall, 2004), and evaluated their association with on-the-ground conditions and policy responses.

Other analytical approaches focus on the environmental impact of urban development. Examples include the Ecological Footprint (Wackernagel and Rees, 1996), Natural Step, Environmental Sustainability Index, and the Environmental Performance Index. An outstanding question, however, is whether, when and how, these comparative analyses can actually inform policies or programs to address local, regional, or global social and environmental challenges.

Despite this abundance of measurement systems and purposes, major aspects of urban sustainability—and indeed urban life—are not included in these indicator systems. While laudable, and akin to other quantitative characterizations of outer space, molecular space, or digital space, efforts to measure the sustainability of urban places are hobbled by four distinct challenges.

First, since current ranking systems use different measures for what constitutes "sustainable," they might value some metrics while dismissing others and incorporate different understandings of the relationship between sustainable practices and meaningful outcomes. Indeed, scholars have pointed out that conceptualizations of sustainability are often vague and contain limited specificity about what is to be measured, by whom, and to what end (Kates and Parris, 2003; Leiserowitz et al, 2006).

As a result, proponents of sustainable development differ in their emphases on what is to be sustained, what is to be developed, how to link environment and development, and for how long a time. If we follow Seltzer's conceptualization of sustainability (see introduction) as both a process and a condition in which the people involved ultimately determine whether the characteristics of choice and access are changing, then establishing uniform measurement systems for all urban places might be a poor goal. Instead, fostering diverse perspectives and providing opportunities for ongoing assessment of the sustainability agenda might be a better marker of a sustainable urban place.

A second and related challenge is the huge number of potential indicators. As with other planning processes, measurement initiatives can suffer from downplaying definitional differences in favor of reaching a common set of indicators, resulting in a broad "laundry list" of options for quantification. In terms of urban sustainability, the Bruntland Report's commonly accepted definition calls for an approach to urban development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.

Use of this definition in measurement projects, however, creates confusion by attempting to align intergenerational needs without articulating the complexities of resource use across spatial and temporal scales or the feedbacks between environmental conditions and human behavior. As a result, the indicators can reflect the interests of the groups involved in their development, rather than opportunities for charting progress toward a common goal, much less sustainability.

In addition, these extensive lists of indicators can almost always create a lack of clarity about:

- prioritization of the indicators (*which ones are important and to whom?*),
- level of disaggregation (*how many metrics is sufficient to gauge performance?*), and
- connection between a measured place and the "lived experience" (*how do the measures capture the day-to-day life of inhabitants and what matters to them?*).

While drawing on existing and general definitions of sustainability offers advantages, developing meaningful measurement systems of urban places may require tailored definitions of sustainability that reflect the values and lived experiences of each given place being measured.

A third challenge is the temporal frame of indicators. Despite the Bruntland Report's emphasis on intergenerational equity, many measurement projects focus on a short time frame (1-3 years) or completely lack an explicit identification of when the desired outcomes are expected – with the exception of a few sustainable development indicator initiatives (e.g. U.N. Commission on Sustainable Development; Global Scenario Group; Ecological Footprint), In fact, several commonly cited guidelines for indicator development (e.g. Innes and Booher, 2000) have no criterion for including time as a component of the indicator—yet timing is far from trivial. In addition to impending crises such as massive climate disruptions, biodiversity loss, and epidemics, a temporal dimension underlies the foundation of sustainability: without explicit definitions of "endpoints" and targets, charting progress (often the self-identified aim of indicator development) is untenable.

Finally, while they are not unique to urban sustainability projects, the challenges associated with the practice and quality of measurement itself—selecting who is involved, scaling the metrics, determining the accuracy and precision of outcome measures, and addressing the limitations of measurement instruments and the availability of data, among others—are central to the development of urban measurement systems. Although numerous efforts have addressed criteria and methodology for constructing indicators and measurement systems (such as work by the Scientific Committee on Problems of the Environment (Moldan et al., 1997), the Balaton Group (Meadows, 1998; Bossel H. 1999), and others: Farrell and Hart, 1998; Bell and Morse, 1999) empirical evidence about the relationship between the quality of measurement systems and their role in advancing sustainability remains limited.

As a result, we have a limited understanding about the role that data can play in connecting goals, definitions, values, and sustainability development practices. Currently, most projects adopt one of two approaches to developing their measurement systems: (1) focusing exclusively on the creation of data, while compromising outcomes (e.g. normative effects, desired outcomes); or (2) creating sustainability goals and frameworks without attention to empirical measurement systems.

We enumerate these challenges not to suggest that robust measurement is a lost cause, but rather to show that careful attention to the objectives and plausible outcomes of measurement is necessary to make measurement useful and ethical. There is clearly great interest in applying these metrics: the Compendium of Sustainable Development Indicator Initiatives, for example, lists over 500 sustainability indicator efforts, varying in their scale, process, and geographic scale (IISD, 2000). Of these, 67 are global in scope, 103 national in scope, 72 are state or provincial in scope, and 289 are local or metropolitan in scope. The proliferation of indicators and measurement systems could suggest one of two things: the maturation and general acceptance of sustainable development concepts, or a general confusion about the goals, definitions, practices, and outcomes of sustainable development.

Grounding Measurement in Place

The concepts of "sense of place" and "place attachment" help describe the complex connections people have with the environments they encounter (Cantrill 1998; Williams and Stewart 1998). While these relationships are timeless and enduring, only recently have local, state, and national organizations turned their attention to place as an organizing and integrating principle for research and education with direct relevance to pressing global problems. For example, the National Science Foundation's Advisory Committee for Environmental Research and Education claims that "place-based science" is at the heart of understanding "complex environmental systems, particularly in the 21st century" (Pfirman, 2003, p.63).

The inherent aims of place-based research and education is to address locally-based environmental challenges by framing them in the context of globally relevant questions such as:

- How are long-term trends in environment and development reshaping nature–society interactions in ways relevant to sustainability?
- What determines the vulnerability or resilience of nature–society systems in particular kinds of places and for particular types of ecosystems and human livelihoods?
- How can today's relatively independent activities of research planning, observation, assessment, and decision support be better integrated into systems for adaptive management and societal learning?

Implied in these phrases and questions are the rich and often powerfully emotional sentiments that influence how people perceive, experience, and value their environments —both their immediate surroundings and faraway landscapes. As such, people-place connections are difficult to uniformly define and measure since they vary across places and over time.

Place attachment further illustrates that places are not merely the physical backdrops for human action: places, along with social interactions, help people find order and meaning in the world. Incorporating this people-place connection into conceptualizing and measuring sustainability, however, is virtually unheard of. But making the connection is critical given both the emotional power of place and the new focus on place-based approaches to natural resource issues by academics, policymakers, and citizens.

Despite the emergence of place as an integrative concept for research and education and the concentration of human activities in urban environments, expertise on the topic has primarily developed in rural or wildland settings, generally in the context of recreation research (Mitchell et al. 1993; Schroeder 1996; Williams et al. 1992). Additionally, the literatures on place and those on indicator systems are currently disparate, with little overlap in their language, objectives, or participants.

Consequently, building urban indicator systems that are grounded in place and the meanings derived from these places is a largely unexplored area of research, theory, and practice. Characterization of people-place interactions in *urban* areas is unique because unlike cultivated or forested landscapes, urban places are highly diverse combinations of built, natural, economic, and cultural characteristics. As a result, urban places face conditions of social and ecological change that will be at once uneven, continuous, and unprecedented.

Further, management and decision making efforts affecting local ecology and quality of life for urban residents are deeply political and influenced by the activities of numerous groups and individuals with different priorities and varying levels of input into the planning process (Swyngedouw, 2004). Though engaging the public in stewarding urban natural resources through innovative institutional designs and the creation of "civic infrastructure" may improve planning of new and existing urban developments (Shandas & Messer, 2008), knowledge about the coupling of social and biophysical systems, particularly in urban places, is just emerging (Alberti, 2008; Grimm et al., 2008). We are only beginning to understand, for example, how differences in local and state levels of governance and policy affect people's capacity to respond to changes in their environment, let alone how to measure changes that result from feedback between the constituent parts of complex urban systems.

Place-Based Measurement Systems - Conceptual Framework

To integrate these place meanings into our understanding and measurement of urban processes, we propose a conceptual model that expresses the relationship between form, function, and meaning as concentric circles (Figure 1). These three elements are essential to describing a place and, consequently, developing quantitative and qualitative measures of its operation. At the center of the figure is the ***form*** of place, the tangible physical structures that constitute and are contained within a place. For the purposes of this paper we focus on those elements that are above ground (not geologic), built, and can generally be described using land cover characterizations.

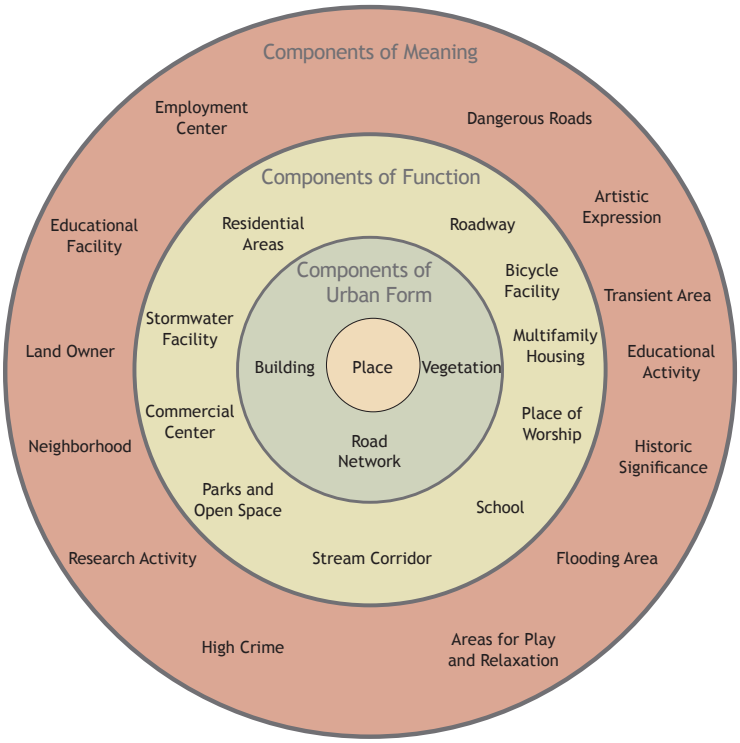

Figure 1: Conceptual model containing examples of components in each of the three dimensions

The second dimension of the diagram describes the ***functions*** of a place. We define function as the intended use, in either legal or administrative terms. The functions of urban places are often highly regulated, most commonly by the zoning or other land use ordinances. Due to the complex interaction between transportation, housing, employment, and other uses, most (if not all) urban areas will contain an administratively or legally prescribed function. Urban form is also governed by a variety of formal and informal ***pro***scriptions – that is, prohibitions or exclusions.

Finally, both form and function are encapsulated by the *meaning* attributed to each place. We offer this third dimension of place as a mechanism for incorporating the emotional sentiments that influence how people perceive, experience, and value the local environment as the broader context for their actions as well as the technical and bureaucratic descriptions of urban form and function. The meaning attributable to each place emerges from a set of stories, understandings, and belief structures that individuals, groups, and society confer. Characterizing the meaning(s) of a place, as we will describe later, is an essential component that can help to link data to context-specific actions. In the conceptual diagram, the meaning circle encompasses the function and form circles, suggesting that these dimensions are to be viewed as components of the meaning we ascribe to them instead of being viewed in isolation.

Measuring EcoDistricts: The Case of Downtown Portland's University District

If form, function, and meaning can be used to provide a people-centered description of places, then how do we begin to develop measurements for the meaning of places? Regardless of the forms and functions visible in a place, we propose that every place will have multiple meanings, some consistent across generations. Our case study provides an example of a place that has a diverse forms, functions, and meanings: downtown Portland. As the site of a new pilot EcoDistrict, Downtown

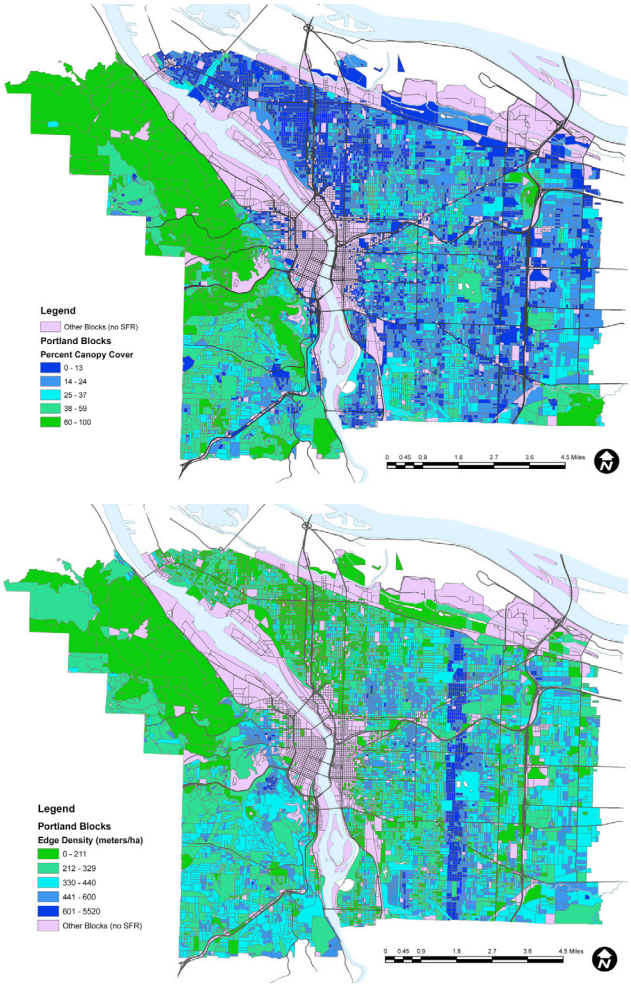

Figure 2: Maps describing the canopy conditions within U.S. Census blocks in Portland, OR. Map on top illustrates total amount of canopy, and the map below illustrates the Edge Density (one measure of canopy fragmentation)

Portland's University District provides a timely and fruitful opportunity to apply the conceptual model and explore how measurement and meaning can coalesce. We begin by describing the EcoDistrict's form and function, and then follow with an extended exploration of meaning and how it integrates with the two prior domains.

Form and Function

While the form of urban places can be described from a variety of perspectives (see for example, Clifton et al, 2007), for illustrative purposes, we focus here on available measurements of land cover and land use within the Portland region. Thanks to spatial analysis technologies like remote sensing and geographic information systems (GIS), we can now describe in extraordinary detail the amount of vegetation, rooftop, roads, and other physical attributes within a place. As an example measuring vegetation cover in a place can tell us about the total amount (Figure 2, top) or the distribution of vegetation (Figure 2, below) within a place. Given the importance of vegetation to human health (Jackson, 2003), economic (Donovan and Butry, 2010; Netusil, et al., 2010), environmental (Nowak et al., 2006; Shandas and Alberti, 2007), and social (Kuo and Sullivan, 2001) conditions, this one dimension of form offers several clues about the conditions in a place.

Although citywide vegetation patterns may not be easily discernible by an individual or groups, examining neighborhood-level vegetation data can begin to show how the form and function differs within one place and from place to place (Figure 3). Spatially explicit descriptions of neighborhoods such as Downtown Portland, for example, allow us to measure the amount and distribution of vegetation within a relatively small geographic area. Functional elements are also quantifiable, through the analysis of land use designations. The key point here is that data on physical form and function are relative easy to obtain and characterize, provided sufficient

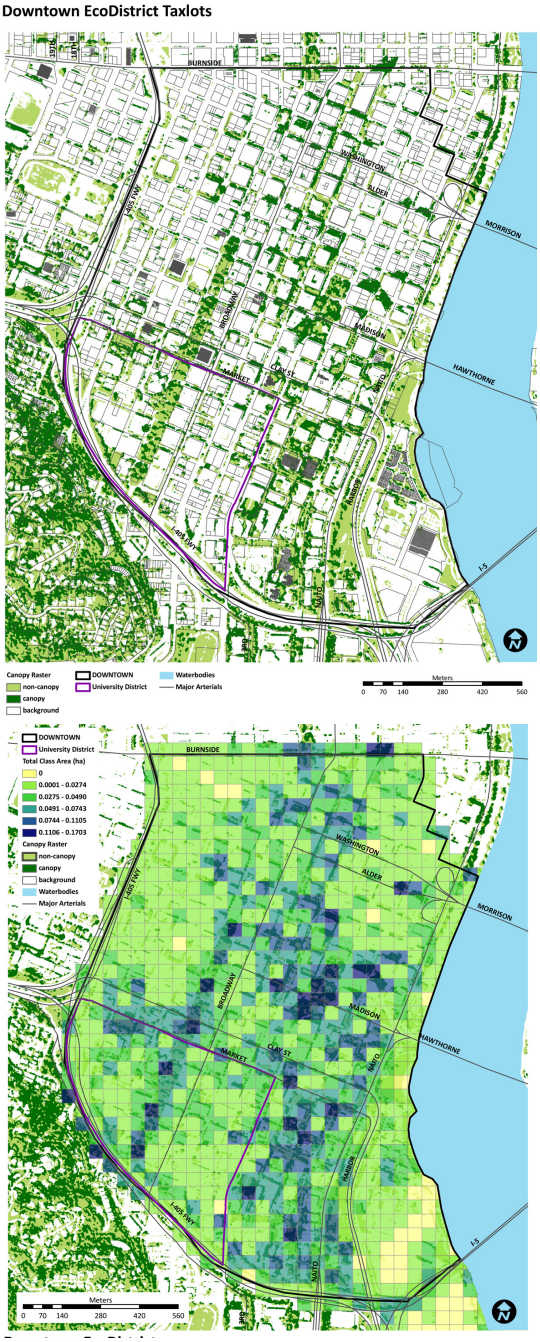

Figure 3: Maps describing canopy conditions within downtown Portland, OR. Map on top illustrates different land cover conditions, and the map below illustrates the Edge Density (one measure of canopy fragmentation) within 50M grid cells

technical expertise. In fact, though datasets to describe the form may vary from region to region, most urban governments are developing increasingly robust data resources for describing urban form and function.

Meaning

The diverse meanings of place discussed above constitute the central challenge of measuring place meaning. We prefer to consider this, however, a key opportunity for measurement, evaluation, and engagement. For example, the case of Downtown Portland provides a clear example of how one place with discernible forms and functions can contain multiple meanings. While some may use the downtown area as a place for employment, others may see it as a high crime area, an entertainment district, and/or a residence. The description that follows builds on the case of Downtown Portland by drawing on empirical data from surveys, focus groups, and interviews conducted with Downtown residents and faculty and students of Portland State University, which is located in Downtown Portland.

The University District is home to Portland State University (PSU) and is characterized by mixed-use zoning that puts residential and commercial land uses in most buildings. As part of an effort to establish a baseline understanding of perspectives of the University District and Downtown Portland more generally, we conducted a survey, which was administered online and through intercepts with Downtown pedestrians. We aimed to identify and survey the three groups of people we consider Downtown users: residents, PSU-affiliated non-residents, and non-resident/non-PSU affiliated users. By surveying these three groups we were able to quantify and evaluate the perspectives of Downtown by different 'user-groups,' while exploring the meaning that these groups ascribe to the area.

Specifically, participants were asked to select Likert scale responses to several statements about safety, automobile traffic, public transit, diversity and other social, environmental, and economic conditions of the area (Table 1).

Perspective	Downtown Resident	PSU-Affiliated	Non-Resident, Non-PSU Affiliated
Safety	4.3**	3.4**	5.4**
Auto Traffic	3.2**	4.1**	4.3*
Public Transit	3.1**	5.0**	4.7**
Diversity of People	4.7*	4.2*	3.7*

****P,0.001; *,0.01 (n=983)**

Table 1: Statistical (t-test) Analysis of Likert Scale Responses of Perceptions of Downtown Portland (numbers represent means for each category)

The results suggest that different groups indeed have different perspectives about conditions Downtown. Of the four topics presented in Table 1, all contain statistically significant differences between how the three groups evaluated the neighborhood, although some of the other themes (e.g. bicycling safety, waste management, access to drinking water) did not have statistically significant differences. The results also suggest that Downtown

residents ranked public transit lower than PSU-affiliated respondents or visitors, and that safety and automobile traffic were perceived as least problematic by those who neither live Downtown nor are affiliated with PSU. Consequently, different groups have different experiences of Downtown, and each of these groups may and probably do confer different meanings on the area.

To explore further some of these differences, we conducted three focus groups examining the relationship between place and perspective. The focus group participants provided a rich description of their lived experience of Downtown, beginning with their perspective of the University. Both residents and PSU-affiliated focus group members described limited interaction between the University and other aspects of Downtown. For example, PSU was noted as one of the most important resources to the Portland community in general, but residents found it difficult to understand how to take advantage of this resource. Explained one resident:

> *There's no way that us out here can work with you in there unless there's a bridge…where's the bridge? (Downtown resident)*

The residents wanted the "bridge" to be a two-way flow of knowledge and resources between the neighborhood and the University. Residents who have been active in the local community group expressed limited opportunities for interaction with the university:

> *What I'm saying is, don't come out and just do a survey, start digging deeper. What gets me is that groups will come out and [hold a focus group] and then you don't go any further; research and retreat, research and retreat. Knock it off! (Downtown resident)*

University faculty members echoed these sentiments when they emphasized that "engagement" described a level of connection to the community, in the words of one faculty member, "where both parties are willing to be changed." Faculty also expressed a disconnect between the university and the community priorities for the space they share:

> *What does the community want to know? What do the people that live around us want to know? We tend to think we know what it is they should care about and we are not really asking too many questions. (PSU faculty member)*

Faculty members discussed several ways in which they would like to be more connected to the community. One discussed the senior citizens who audit her classes, and how she would like to reach further into the community to connect with other elderly residents:

> *I have been intrigued (with) the idea of connecting with some of the new and large residences, the big condo spots and having colloquia there about the kinds of research going on, on campus, just sort of life-long learning stuff…there's a strong connection with elders in this place and I [think]*

> *that there should be more connection between them and students. (PSU faculty member)*

Other faculty members recognized that community members were an essential resource for the University Studies general education curriculum:

> *…really the community is our classroom, but I'm not sure they know that. (PSU faculty member)*

The PSU case is particularly illuminating in terms of our conceptual model because these stories contain shared meanings of the value of a research university alongside challenges to realizing the potential of this resource. Our survey and focus group results offer a richer description of meanings associated with Downtown than the form and function analysis alone could offer. If we focused only on the form and function of the area, we could (erroneously) assume that the experience of being Downtown simply reflects the EcoDistrict's physical structures and their expected functions. Yet because those affiliated with PSU have different perspectives of the area than those non-affiliated, both perspectives and understandings vary based on their respective experiences.

The results of this survey corroborate other surveys conducted in different parts of the city (Shandas et al., 2010), and suggest that without meaningful engagement of multiple user groups, opportunities for improving urban places could fall flat. These results also pose a question that quantitative measurement systems often try to avoid: how do we move from multiple experiences, perspectives, and meanings to actions that can help to build better urban places?

Better Measures: Incorporating Place, Perspective, and Practice

The case study above, of form, function, and meaning, illustrate the complexities inherent in measuring the characteristics of places. While the range of descriptions associated with the physical form and function of a place may be limited, meanings attributed to a place such as Downtown Portland are many – the diverse sentiments expressed by faculty, students, and residents show just a few of the many different stories one place can have.

Better understanding place attachment can bring meaning into a measurement system and enable local communities to guide the changes occurring in and to that place. ***Place attachment***, in this view, refers to an affective bond formed through direct experience in, or vicarious engagement with, a place. Such bonds vary in intensity and duration.

Numerous researchers have developed measures of attachment of place, many of which have been repeatedly validated over the past two decades. Shamai (1991) proposed a 7-point ordinal scale of place attachment extending from obliviousness (no sense of place), through knowledge of being in a place, belonging to a place, attachment to a place, identifying with goals of the place, involvement in a place, to willingness to make sacrifices for a place. This and other studies (Brown, 1987; Kaltenborn, 1998; Williams, et al., 1992; Williams & Vaske, 2003) demonstrate that place attachment can be quantitatively measured and compared among different groups of people.

Yet, to capture the wide variety of ways that individuals and groups can be attached to place, the characterization has to be generalizable across diverse places and populations. Here we offer a set of guidelines that draws on our existing understanding of place attachment and focuses on the pragmatic demands of integrating meaning into the characterization of places. We describe six principles grounded in the perspectives and practices of the communities that inhabit a place.

In providing these principles, we make several assumptions about the intention for and expectations of a measurement exercise:

- First, the aim of these efforts is to reveal opportunities for understanding a place, not to define it in specific terms. As such, the process of measurement is a means for creating dialogs and expanding understanding of what matters to a community.
- Second, size matters. These guidelines are not designed for application across large populations; rather, our intention is to focus on intermediate-scales of time and space. Considering that these guidelines are aimed at neighborhood scale (EcoDistrict) approaches, the focus is not on entire city populations, nor city scales, nor measurement over the course of decades.
- Third, several other principles of measurement systems are described elsewhere (Innes and Booher, 2000; Phillips and Berman, 2003) and our aim here is not to replace earlier descriptions, but to complement them by developing the concept of ***meaning*** in the context of measurement systems.
- Finally, the impact of measurements cannot be overlooked and we approach these guidelines recognizing that true impacts of actions can often take a long time to occur and even longer to conclusively measure.

As a result, these guidelines are intentionally aimed at refining the specific system of measurements as information becomes available throughout the duration of sustainability projects:

1. Discern the Meaning of Place

Measuring the meanings that individuals and groups attribute to place is not an easy process, although value systems have been developed and successfully applied. Place attachment theories are subdivided into two dimensions: ***place dependence*** and ***place identity*** (Brown, 1987; Williams and Stewart, 1998). Place dependence is a functional attachment associated with the capacity or potential of a place to support the needs, goals, or intended activities of a person or group (Stokols & Shumaker, 1981; Williams & Vaske, 2003).

Place identity is an emotional attachment to place (Williams & Vaske, 2003), comprising the "memories, ideas, feelings, attitudes, values, preferences, meanings, and conceptions" (Proshansky et al., 1983, p. 59) of and toward places that are part of a person's or group's

self-identity. These concepts are essential because they help to reveal the value systems underlying the creation of measures.

Measuring these concepts of place attachment lets us begin to discern the meaning of place associated to different groups, and track how changes in a place affect notions of dependence and identity. Both these dimensions can help to articulate mechanisms for developing measurement systems that describe a place over time. For example, statements made by several faculty members and students refer to Downtown Portland as a place where they receive education, or will meet their goals of building a career, with few statements associated to emotional attachments to Downtown.

However, sentiments expressed by residents of Downtown suggest feelings, attitudes, and values that describe the identity of an individual or group. The description of Downtown by faculty members and students as a functional attachment suggests strong elements of place dependence, while those of residents suggest place identity. With sustained study we can begin to evaluate the extent to which dependence and identity changes over time. While not mutually exclusive, these sentiments are indications of the meaning attributed to Downtown, which also suggest that measurements systems need to be sensitive to the fact that different groups value places differently.

2. Establish Baseline Measurement

If we recognize that each community contains specific strengths and that these strengths are a function of the community of people involved, then charting progress requires a measurement of baseline conditions. By baseline conditions, we mean a description of the current form, function, and meaning attributable to a place. Ongoing or continuous monitoring is not an approach commonly used in planning of neighborhoods, and one result is the limited availability of long-term datasets in planning systems.

We know through the U.S. Census and other surveys the extent of population change in neighborhoods, but we have less systematic understanding about how lived experience changes over time. A baseline assessment of the lived experience offers a first step to creating a long-term approach to evaluating the perceptions and practices of a place, and how physical changes to a place can manifest in meaningful descriptions of a place.

The establishment of baseline measurements creates within the indicator system a requirement to continue monitoring over time. As a result, baseline indicators illustrate trends in conditions, but they are not meant to provide direction for action. Trends over time describe a starting point for discussion and exploration of ***potential actions***. Development of the baseline measurements, accordingly, can help to create longer-term systems of feedback, evaluation, and assessment.

3. Distinguish Between the Measurement of Systems, Policy Outcomes, and Feedbacks

When considering measurement systems for urban places, many reports warn about conflating different types of approaches. Three main approaches are system measurements, policy measurements, and feedback measurements. System measurements describe multiple characteristics of a specific system—an ecosystem, for example, or a social system— and communicate the most relevant information to decision makers (Hardi et al., 1997). Policy outcome measurements are similar to system indicators in that both are descriptive. However, these measurements are also prescriptive because they include a reference value or policy target that allows comparisons with local, national, or international goals, targets, and objectives. Thus performance measurements are particularly useful in the policy evaluation phase of the decision making process (Hardi et al., 1997).

Finally, the area of feedback measurements is an emerging area of research and practice that responds to the need to make decisions with 'real-time information' in hand. Only a few examples of feedback measurements exist, with some of the best being in the field of traffic engineering. For example, the monitoring systems placed across major thoroughfares in metropolitan areas allow users to make route-choice decisions based on 'real-time' detailed information about the location and severity of accidents.

As described above, measurement systems can address several purposes, including decision-making and management, advocacy, participation and consensus building, and research and analysis. Analysts must select a measurement system that corresponds with their purpose. If, for example, our aim is to evaluate the effectiveness of an EcoDistrict program and its impacts on a particular place, this requires a measurement system where a preliminary or baseline condition is tracked over time.

Our conceptual framework of form, function, and meaning can both inform decision-making and increase participation of residents by having them describe the lived experience of place. As a result, our measurement approach may focus on policy performance, but our outcomes can help to achieve multiple purposes. Such approaches to measuring places are becoming increasingly recognized, particularly measurement systems where 'local' and 'expert' knowledge are integrated for understanding how changes in neighborhood conditions affect the wellbeing of individuals and communities (see for example, Corburn, 2009).

4. Balance Goal-Orientation and Process-Orientation

The consistent focus on targets seems to be an overriding reality of measurement projects. While laudable, the single focus on goals to reduce crime, congestion, or poverty rates, or to increase sustainability, can detract from opportunities to engage whole communities in participatory processes. The reported aim of many of the current indicator projects is to inform public decision-making and improve the conditions of residents; however, the current approaches often focus largely on specific statistics related to physical systems without regard to indicators that describe processes.

A focus on the process makes necessary the consideration of the people who are involved in the development of neighborhood measurement systems. The process of designing a measurement system can be invaluable to a community. By participating in the development of a project, residents can envision their community's future, establish specific goals, and select measurement systems for gauging progress, all of which can foster residents' sense of belonging to their community and encourage both the selection of more meaningful outcomes and stronger interest in the results of the measurement initiative.

A consistent challenge of this process orientation is an expectation that community members will participate and that their involvement will provide reliable and accurate measurements of urban places. While reports on the reliability and validity of resident monitoring of urban places are limited, studies evaluating volunteer involvement in collecting environmental data suggest reliability and accuracy equivalent to that achieved by professionals (Fore et al., 2001).

The critical distinction, however, is that the quality of data will depend largely on the process of involving the participants—that is, the quality of the process will determine the quality of the product. If residents are able to identify and design measurement systems for their neighborhoods, they will be more invested in the reliability and accuracy of the data collected. Moreover, consensus-based measurement systems can also serve to diffuse conflicts within a community: If citizens can agree on which dimensions that are important to measure, then a basis of mutual understanding can be established, utilized, and sustained.

5. Emphasize Resident-Held Spatial Dimensions of Place

The effects of space, place and locality are important in determining who is interested in a decision problem and why. Geographic measurements of place can play a unique role in eliciting input about the types of measurements that are meaningful to a community. People local to a particular problem or issue will, by the very virtue of their geographical position, be (in the main) interested enough to get involved or at least express a considered point of view.

When spatial analyses have been used to analyze varying conditions within cities, they have tended to be presented as color-coded maps. These assign a color range to a map so that each geographical area, such as a suburb or postal code, is shaded a particular color based on the number of responses or quality of responses found within its bounds. These sorts of maps are useful for displaying broad trends across a city or region but, if they are based on simple counts or other such official sources, they are bound to miss a significant proportion of the meaning attributable to specific places. These mapping practices notoriously omit informal sector activities, disagreement, and experiences of undocumented individuals or groups.

Participatory GIS (PGIS) can help to minimize conflict and arrive at decisions that are acceptable to the majority of stakeholders through consensus building approaches based on awareness of the spatial implications of a decision problem. The recent blossoming of interest in public use of GIS in recent year comes about from a merging of the re-evaluation

of the social implications of spatial analysis GIS, and existing lines of research into public participation and decision-making, principally from the planning field. The recent Varenius initiative on "Empowerment, Marginalization and Public Participation GIS" clearly focuses the issues discussed here and identifies a broad range of issues of relevance to community representations and PGIS, and if these challenges are properly addressed. As a result, PGIS is well placed as a technology to explore neighborhood-scale challenges and offer opportunities for consensus building.

6. Allow the Data to Inform Perspectives

As described earlier, the varied perceptions of a neighborhood often reflect different lived experiences. A fundamental question that follows from this is whether to accept all meanings as is, or to develop approaches that build shared meanings based in alternative viewpoints? The challenges of varied meaning can cloud discussions about planning and policy decisions in neighborhoods. Here we suggest joint fact-finding as a system for creating meaningful and consistent descriptions of place.

In joint-fact finding (Ozawa, 1991; Karl et al, 2007) a team works together to agree on relevant facts, which are generally scientific, technical or historical claims associated with a place. While joint fact-finding is not always a viable or appropriate option, a strong case can be made for it being the preferred method for developing shared meanings associated with a place. The goal here is not to disregard the varied meanings that an individual or group may present, but rather to consider the prospects for simply understanding the conditions resulting in multiple notions of sense of place.

In the case of measuring neighborhood conditions, joint-fact finding can be a tool for linking meanings to facts. For example, students in the EcoDistrict focus groups expressed concerns about crime, stating that Downtown Portland was more dangerous than most other parts of the city. Others, such as the resident group, described the area as being safe. Perspectives on the issue of crime are divergent and might, from the student perspective, limit their willingness to engage the downtown community. Joint fact-finding would address the divergence in the facts associated with these perceptions. The group, through joint fact-finding, could gather and examine data associated with a shared goal (e.g. safety), in the process becoming more familiar with each other and building trust through a fact-finding exercise.

Conclusion: The Potential For and Necessity of Measuring Place Meaning

Measurement, then, can both enable and constrain a community's ability to control the direction of change. Measurement systems are constructed to tell stories, but the purposes, use, and control of those stories can have profound effects on local communities and their prospects. In this chapter, we suggest that failure to understand the meaning associated with the process of measurement can lead to significant errors in the planning of cities. Even worse, misguided measurement may alienate the very communities intended to engage in neighborhood initiatives.

The six guidelines offer a starting point for creating a long-term integrated urban measurement process that aims to create a people-focused strategy for sustainability. A primary difference in this approach, as opposed to the many that currently exist, is an emphasis on the meanings attributed to a place. Understanding meaning, alongside form and function, is a critical step towards ensuring that measurement stays focused on what matters and in the hands of those most directly affected.

This is particularly relevant to the EcoDistricts Initiative because the current construction of meaning is based on a specific purpose, which is concisely described in the existing framework document:

> T*he EcoDistricts Initiative is a comprehensive strategy to accelerate sustainable neighborhood development by integrating building and infrastructure projects with community and individual action*"(p. 7).

Quite apart from resident perceptions of their place, and their needs and challenges, the central purpose here is to accelerate the advancement of neighborhood-scale sustainability. Making neighborhoods better places from the perspective of residents and accelerating sustainability from the perspective of PoSI and its EcoDistricts Initiative, do not need and are not intended to be mutually exclusive.

However, several questions remain: What is the "neighborhood?" How will neighborhood and EcoDistricts Initiative aims be reconciled into a consistent and mutually supportive story? Who participates in creating the measurement system and its purposes? How will the measurement be conducted and used?

A sole focus on accelerating development— sustainable or otherwise—creates a dangerous focus on a single story. The danger of a single story that focuses on rates is that it is incomplete. For example, a highly cited story about the city of Portland is one that focuses on sustainability and "greenness," often present in the popular and peer-reviewed literature about the City; however, if social equity is part of sustainability, then Portland contains numerous challenges to live up to its reputation (Shandas et al., under review). The single story sets up a vision of a city that does not honor or address other aspects of the city, or EcoDistricts, that do not 'fit'. This 'incompleteness' can result in decisions about how to guide measurement, and growth of the region at odds with broader and necessary goals.

What is needed now for the current EcoDistricts Initiative is recognition that neighborhoods, like cities, are complex systems. Inherent in a characterization of neighborhoods as complex systems is a need to move away from a focus solely on form and function and to one that incorporates an understanding of them as human constructs laced with meaning. The Latin term "quantify" is "*quantus*" which translates to "how much" or "how great." When we quantify places we often reduce their complexity to a single number, which describes how much of something is occurring. By bringing in meaning associated with place, we enrich the stories, thereby making possibilities emerge and opportunities unfold.

To the extent that the EcoDistricts Initiative aims to build better urban places, then the challenge will be to develop measurement systems that maintain the richness of stories associated with places, and ensuring that processes and perspectives provide for long-term engagement. We offer this perspective as a means for grounding urban measurement systems in place, perspective, and practice.

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