CRAFTING NEW URBAN ASSEMBLAGES AND STEERING NEIGHBOURHOOD TRANSITION: ACTORS AND ROLES IN ECOURBAN NEIGHBOURHOOD DEVELOPMENT

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Abstract: *New sustainable neighbourhood developments are multiplying worldwide. Embedded in these model neighbourhoods are not only particular ideas about better urban form, but also particular ideas about better organization of urban life and social development. Frameworks, certifications, and labels to organize the practice of sustainable neighbourhood development are proliferating almost as rapidly as the developments themselves, and each holds a different mix of such ideas. Beginning from a typology of seven extreme types of ecourbanism, we consider the implications of pursuing each extreme for the key actors who assume different roles in planning, building, and living in these new neighbourhoods. We then consider two different ecourban neighbourhood frameworks, the Living Community Challenge and EcoDistricts Protocol. We examine these frameworks in terms of our seven extreme types of ecourbanism, as technologies of ecourbanism that have emerged in order to facilitate the mainstreaming and generalization of experimental ecourban development practices.*

Building upon a conceptual framework of transition theory and urban assemblages, we see the emergence of such new frameworks as mobilizing different assemblages of actors, via the crucial work of intermediary institutions, in order to move ecourban neighbourhood development from a niche practice to the mainstream. Better understanding the mixtures of actors' roles and responsibilities, and expectations and practices promoted in different frameworks, will help us better understand the prospects of ecourban developments under different frameworks, in different urban contexts, at different stages of development, and different scales of experimentation and standardization.

Keywords: eco-urbanism; green building; sustainable neighbourhood development

1. Introduction

Ecodistricts, écoquartiers, eco-cities, zero, low-carbon and carbon-positive cities, ecourbanismo, ecopolises (Downton, 2009), ecobarrios, ecovillages, One Planet Communities and solar cities, are on the rise worldwide. More than 100 municipal governments in China are proposing to build eco-cities, many of them on greenfield sites on the urban fringe (Baeumler et al. 2009); 32 projects in France have achieved the French government's écoquartiers label, with an additional 78 projects working towards this label at the end of 2014 (MLETR, 2015). As of 2015, 79 LEED-ND, 4 BREEAM Communities, 3 CASBEE Urban Development and 2 One-Planet Communities, amongst many other neighbourhoods following different local frameworks, demonstrate the rise of neighbourhood and city-scale ecourbanism around the world. Our own ongoing research has revealed 420 ecourban neighbourhood projects which fit our selection criteria (74 in the US; 27 in Canada; 195 in the EU; 95 in Asia and the Middle East; 8 in Australia and New Zealand; and 15 in South America). Roughly 10% of these projects are completed, with the other 90% at various stages of planning or construction. Currently, we estimate that we have located perhaps 80% of these initiatives around the world.

Manuel Ruano claims to have coined the term ecourbanismo or ecourbanism in 1999, defined as "the development of multi-dimensional sustainable human communities within harmonious and balanced

built environments" (1999). The term 'écoquartier' was first defined in a policy context in 2008 by the French Environment Round Table, as "a sustainable neighbourhood which responds to considerations relating to transport, urban density and layout, green building, social diversity, mixed-use development and the involvement of the local population" (MEDDE, 2014). Research by Criterion Planners documented 54 different tools being used in a total of 22 countries to assess the sustainability of sustainable built environment projects (Criterion Planners, 2014). The first such tool appeared in 2004 (e.g. CEEQUAL, China's EcoCity) and the latest one (AARP Livability Index) was launched in April 2015.

As a set of planning, design, and technological arrangements for living in particular newly-developed and revitalized neighbourhoods, and as a new ideal for urbane, green and healthy living, ecourban developments are at present demonstrating rapid growth in popularity. Their development has also launched a veritable race to establish development frameworks that will successfully guide the experiments into the mainstream. At this time of flux, it is a useful moment to examine what goals are being pursued, in different ecourban experiments and different frameworks, and what the implications are for the roles played by the different actors involved. In so doing, we will be able to better assess the prospects for the standardization as well as fragmentation of new ecourban development practices and approaches.

2. Research Questions and Methods

Within the rapidly expanding area of ecourban neighbourhood development, this paper aims to establish a classification typology for the principles that drive them, and to assess the intentions of ecourban frameworks based on these criteria. We do this using an original seven-part typology of extreme types of ecourban neighbourhood development. Recognizing that an integrative urge underlies ecourbanism, we created a framework that identifies the extremes to which any expressed ecourban principle can lead, and that recognizes the need for an integrative approach that combines principles. This approach is used to identify the mix of roles entailed for different actors under different principled priorities. While there are many different ways to categorize and sub-categorize actor types within a model sustainable neighbourhood development project, and there will often be overlap between the groups, we will use three simplified actor categories as follows:

> Public: those employed by or working in partnership with the government, to envision, design, craft policy and governance for, and plan the neighbourhood.
>
> Private: the builders and financiers of the development and implementers of plans.
>
> Civic: the local non-expert populace that makes use of the neighbourhood's built form because they live in, work in, or visit the neighbourhood.

Following this, using the same typology, we consider the implications of applying one of two new sustainable neighbourhood development frameworks, the EcoDistricts Protocol and the Living Community Challenge, for the relative emphasis likely placed on each extreme type, and for the mix of roles and responsibilities likely in bringing ecourban neighbourhood developments from experimentation toward the mainstream.

To create our typology, we engaged in an abductive process of theoretical engagement with literatures of urban sustainable development, community planning, and neighbourhood development dynamics, alongside consideration of published materials about cases of ecourban neighbourhoods. As a set, the seven principles in our typology constitute an integrative framing of ecourban neighbourhoods, including their built form, transportation and other engineered systems, land uses, public spaces, local

institutions, social make-up and governance. Individually, these extreme types are expressed in different combinations in ecourban neighbourhood development practices. In practice, each principle is tempered by reference to others; and numerous principles are related to one another. Each of our extreme types, by nature of being an extreme criterion within a multi-criteria framework, delineates a boundary of practice in one dimension that can help clarify the limits of ecourbanism globally. Considering each principle in the extreme case in which it would be implemented to the exclusion of other principles permits a clear delineation of the conceptual space within which integrated ecourban neighbourhood development is bounded. Our typology appears in Table 1 and can be expressed graphically in Figure 1 (Holden et al., in revisions).

Table 1. Seven Extreme Types of Ecourban Neighbourhood Developments, with Key Principles

Extreme Type	Key Principle
Econ-urban	Shifts economic growth in cities toward greener products and forms; pursuit of green capitalism.
Ecol-urban	Lighter footprint living with energy and materials efficiency built into design and technology, as well as the ability to directly experience wild nature.
Living-urban	Complete community development with a view toward wellbeing, liveability, and resilience to shocks from outside the neighbourhood.
Local-urban	Offers a sense of self-determination and active participation in all aspects of local life within the circumscribed neighbourhood; orients daily life toward proximity.
Democ-urban	Reformulates citizenship at the local scale, and offers deliberative, community-based decision-making, with a suggestion about how this will assist in changing values and behaviours.
Diverse-urban	Accentuates and generates value from the mixing of diverse social, economic, and cultural offerings of urban life.
Equi-urban	Prioritizes redressing inequalities and injustices via attention to targeted needs.

3. Literature Review

Ecourban neighbourhood projects represent a growing diversity of practices, underlain by different motivations, understandings, expertise, and relationships. Ecourban plans and results are often presented as "packaged examples that are ready for export" without considering the politics of urban transformation, and the range of agendas that these projects serve (Bradley et al, 2013 p.190). A growing number of case studies point to the existence of competing agendas, and in particular to the existence of an underlying capitalist development agenda, which stands in contrast to certain ecourban goals. Masdar Eco-City in Abu Dhabi and Tianjin Eco-City in China are examples of a larger trend that has eco-cities reproducing "often neoliberal and potentially inequitable visions of socio-technical transition" (Caprotti, 2014 p.1290). Indeed, a primary battle line emerges in ecourban practice between the modernist urge within the econ-urban camp and the ecological preservationist urge among the ecol-urbanists. These battle lines can sometimes be seen as conflicts between different actors on the same project. Writ large, few policy and planning efforts toward realizing urban sustainable development explicitly question the need for continued economic growth (Hajer, 1995). Also rarely addressed are the continuing community development demands within neighbourhoods where people live, work and play. However, ecourbanism is a political movement, and it has potentially exclusionary, inequitable, over-consuming, stultifying, and unsustainable outcomes. On the more optimistic side, a small number of case studies in cities such as Civano, Arizona (Nichols & Laros, 2010), Orestad, Denmark (Book et al. 2010) and Stockholm (Metzger & Olsson, 2013), Freiburg and Graz (Rohracher & Spath, 2014), suggest the conflict between the econ- and ecol-urban models may

not be insurmountable. These cases are not immune to the forces of ecological modernization, by which efforts to create ecourban districts in the name of environmental and social goals become merged with attempts to use a sustainability edge to attract new growth capital. At the same time, they evidence deeper institutional change, an ecological restructuring of cities to a political agenda that seeks to move 'beyond growth' along the way (Daly, 1997).

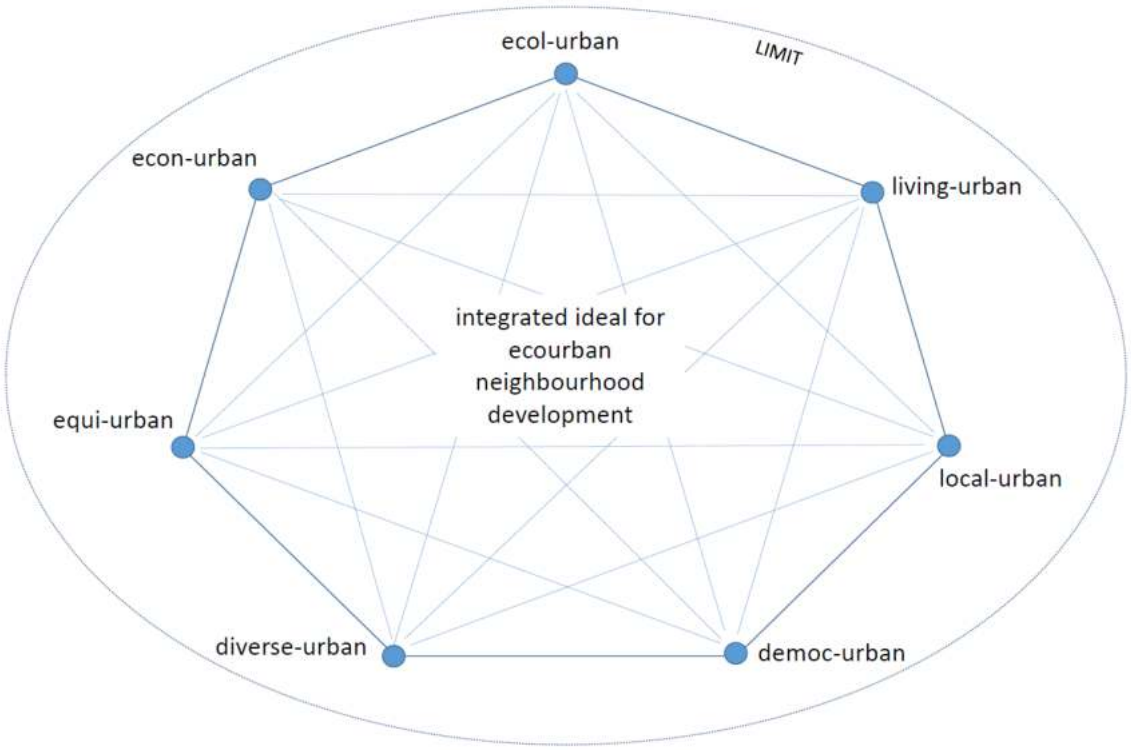

Figure 1: Ecourban neighbourhood development within integrated conceptual space, as circumscribed by seven extreme types.

From a social and political perspective, the prospect for change within ecourbanism comes from an idea about this new form and lifestyle context making space for a sustainability transition in society and governance. The field of research and policy known as transition management has emerged from this idea. Beginning from a socio-technical understanding of past societal transitions, the transition management approach aims to translate ecourbanism into the active management of a widescale transition toward sustainability (Smith & Kern, 2009). Smith et al. (2005) articulate the preconditions for such a transition in terms of societal pressure for change and adaptive capacity. Transitions can be generated from within or from external structures and resources, although they will happen in a different way and at a different rate depending upon their motivation. Hodson and Marvin (2009, p.477) in their research in some of the world's most powerful cities, found "strong evidence of expectations, aspirations and plans to undertake purposive socio-technical transitions," in line with sustainability and climate change adaptation and mitigation goals.

Transition theorists identify a number of factors that increase the potential for a system of governance to undergo an effective transition, in line with their adaptive capacity (Smith et al., 2005). Importantly for our purposes, they identify the volume and actions of 'intermediaries,' actors who are not formal

members of government but who work in partnership with others to bridge the gap between policies and practices, as a crucial leverage point. It is these intermediaries, equipped with a wide range of necessary knowledge types, effective presence in local networks, and communication skills and credibility, that do the key work of developing and coordinating capacities for regime change at the urban level.

In a separate but related literature on enabling social innovation in the non-profit sector, Kania and Kramer refer to "collective impact" as "the commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem" (2011, p36). Collective impact is understood to be a more effective means to achieve large-scale systemic changes than uncoordinated action by organizations across different sectors, with similar goals, competing for the same pool of available financial, political or talent resources. Kania and Kramer highlight the importance of 'backbone organizations' in collective impact actions. These organizations are responsible for providing support to create a shared vision, coordinating initiatives, establishing shared assessment practices as well as advancing policy (Turner et al., 2012).

By examining the frameworks being created to guide ecourban neighbourhood development across cities, we are assessing the degree to which these frameworks, and the nonprofit organizations that create and promote them, are playing or could play such an intermediary or 'backbone' role, in building towards collective impact in the realm of ecourbanism. The forces of standardization, codification, and regularization apply to the practices of ecourbanism and part of the race to develop these neighbourhoods is a race to establish new standard processes and outcomes. Within a process of sociotechnical transition toward sustainable development, we can expect these forces to apply when niche-level experiments deliver on some of their expected values and demonstrate potential for scaling up. In the context of furthering and mainstreaming practices of ecourban neighbourhood development, the technological innovation that has emerged is the neighbourhood development framework. Over 50 such frameworks currently exist around the world. In this paper, we will examine two such frameworks – the EcoDistricts Protocol and the Living Community Challenge.

Our focus here on the mix of actors and intermediaries involved in a range of different roles within ecourban practice also is conceptualized by our understanding of assemblage theory in urban studies. Assemblage urbanism, as presented by McFarlane (2010) and adapted into the urban studies literature by Blok (2014), entails careful thinking about the range of actors engaged in particular experiments in given local contexts. It is these particular urban spaces, inhabited at given political moments by particular constellations of actors, that define the meaningful aspects of efforts to intervene in existing urban dynamics and achieve change. Blok (2014, p.260) explains: "I understand world-conjuring projects as situated experiments of engagement with 'the global', whereby a range of urban actors – policymakers, professionals, activists and others – take the problem … as a site for exploring new questions, initiatives and critical procedures." Collective experimentation, social learning, and the testing and forging of new relationships between people, organizations, the built environment, technologies, and natures, are activities and outcomes of assemblage urbanism as an approach to urban change in the service of sustainability. In the particular instance of building new sustainable neighbourhoods, a crucial role may be played by intermediaries in framing new practices and establishing new expectations of planning and development actors, and even end-users.

Intermediaries are necessary to advance practice because none of the key actor groups, while they are necessary and instrumental to bringing particular ecourban neighbourhoods into being, are invested with any particular role, responsibility or power to spread the practice of ecourbanism more broadly. A new kind of key actor is required to orchestrate this transition. The key actors designing, crafting, and promoting these frameworks may be leaders of government, industry, or non-government organizations, but the role they play is shared: we can generally refer to them here as visionaries. In

crafting particular certification systems, standards, frameworks, protocols, membership groups and challenges, these visionaries are all attempting to promote and advance the practice of a new technology of urban development. Not all visions, nor all visionaries, are created equal. Differences exist in the way in which these visionaries see ecourbanism as being best pursued; the priorities and roles for different actors vary. In order to better understand the difference that these differences can make, we will consider two technologies created by ecourban visionaries, the Living Community Challenge, and the EcoDistrict Protocol. After a brief description of each, we will consider the degree to which each of these model frameworks prioritizes our seven different extreme types, and what each model implies for the role to be played by different actors.

4. Case Studies

4.1 The Living Community Challenge (LCC)

The International Living Future Institute (ILFI) grew from the Cascadia Green Building Council, the branch of the green building industry association that spans the western US states and British Columbia in Canada. Its intention is to accelerate the ambitions of the green building industry. It is the home of what it calls the world's most ambitious green building certification system, the Living Building Challenge (LBC), and now a comparably ambitious Living Community Challenge. The ILFI describes its 'challenge approach' as "a philosophy of design masquerading as a certification system."

The LCC is described as "a cohesive standard, pulling together the most progressive thinking from the worlds of architecture, engineering, planning, landscape design and policy" (ILFI, 2014, p.7). The question posed to all these groups is: "How do we create communities that are good for all people through time?" The move to create the LCC out of the LBC is recognition of a need for much more sweeping change to the relationship between people and natural systems than what can be achieved by individual green buildings alone: "we must remake our cities, towns, neighbourhooods, homes and offices, and all the spaces and infrastructure in between" (ILFI, 2014, p.9).

The Living Community Challenge is currently being pursued by four development projects. Their diversity demonstrates the intent for the tool to be applicable across a range of neighbourhood types and densities: a project in Uptown Normal, Illinois, adjacent to an existing LEED-ND development; a resort hotel project in Belize on a mangrove island; a housing development on the outskirts of Mexico City; and a mixed-use redevelopment project in New Orleans. The ILFI is currently "in conversation" with 15-20 other potential LCC projects. The LCC pursues transformation of development practice in seven topical themes known as 'petals,' 20 imperatives and pursuant to 12 'patterns' that cross the various petal themes, as seen in Table 2 below.

Table 2. The Living Community Challenge: Petals and Imperatives (ILFI, 2014)

Petal	**Imperatives**
Place	1) Limits to Growth 2) Urban Agriculture 3) Habitat Exchange 4) Human Powered Living
Water	5) Net Positive Water
Energy	6) Net Positive Energy
Health & Happiness	7) Civilized Environment 8) Healthy Neighbourhood Design 9) Biophilic Environment

	10) Resilient Community Connections
Materials	11) Living Materials Plan 12) Embodied Carbon Footprint 13) Net Positive Waste
Equity	14) Human Scale and Humane Places 15) Universal Access to Nature & Place 16) Universal Access to Community Services 17) Equitable Investment 18) Just Organizations
Beauty	19) Beauty & Spirit 20) Inspiration & Education

4.2 EcoDistricts Protocol

EcoDistricts, or its precursor, the Portland Sustainability Institute (PoSI), was founded in 2009 in Portland, Oregon, to support the City of Portland's urban sustainability efforts. PoSI worked in collaboration with the City of Portland Mayor's Office, Portland Development Commission and the Bureau of Planning and Sustainability to pursue their first initiative, based on then-mayor Sam Adam's request to explore integrated neighbourhood-level solutions for sustainability that combined community development benefits and local economic returns (PDC, 2010; EcoDistricts, 2015). Throughout 2009-2012, five pilot districts within Portland implemented the newly-developed EcoDistricts Framework via collaboration on neighbourhood-level projects (EcoDistricts, 2014).

The EcoDistricts Framework took a different approach from other neighbourhood scale sustainability tools such as LEED for Neighborhood Development or BREEAM Communities, by focusing on the processes and actors around local action for sustainability. The EcoDistricts Framework contains no prescriptive strategies or metrics that must be demonstrated through the certification process. Rob Bennett, CEO of EcoDistricts, describes the framework as "loose-fitting", and states that "EcoDistricts isn't a place – it's a movement" towards collaborative governance (Schuler, 2014). An 'EcoDistrict' does have geographical boundaries at the neighbourhood level, but the outcomes attributed to applying the framework are more related to neighbourhood identity and collaborative decision-making, rather than any particular built-environment features. In justifying the focus on neighbourhood-scale processes, Bennett calls EcoDistricts "a model [that is] about sharing power and sharing decision making…these are things that cities don't do particularly well" (Schuler, 2014).

EcoDistricts launched a draft Ecodistricts Global Protocol in 2014, in partnership with the Target Cities pilot program of the Clinton Global Initiative. This program invites city leaders, urban planners and designers, community members, policy makers, community developers and other stakeholders to set new agendas and visions for district-scale sustainability work in 8 cities in the US and Canada (CGI, 2014). The formal EcoDistricts Global Protocol is slated for release mid-2015. Our discussion is based on the draft version released in Fall 2014. Whereas the LCC organizes its topical themes as seven 'petals', the EcoDistricts Protocol points to eight performance areas, shown in Table 3 below. EcoDistricts additionally articulates four phases at which different actions are taken toward these goals, and a set of six organizational values that encompass ecourban as well as accountability and transparency principles.

Table 3. The EcoDistricts Protocol: 8 performance areas and goals (EcoDistricts, 2014)

Performance Area	**Goal**
Equitable Development	Promote equity and opportunity and ensure fair distribution of benefits and burdens of investment and development.

Health & Wellbeing	Promote human health and community wellbeing.
Community Identity	Create cohesive neighborhood identity through the built environment and a culture of community.
Access & Mobility	Provide access to clean and affordable transportation options
Energy	Achieve net zero energy usage annually
Water	Meet both human and natural needs through reliable and affordable water management.
Habitat & Ecosystem Function	Achieve healthy urban ecosystems that protect and regenerate habitat and ecosystem function.
Materials Management	Zero waste and optimized materials management.

5. Discussion: How the LCC and EcoDistricts advance Ecourbanism

At face value, both LCC and EcoDistricts address the gamut of ecourban principles in our typology – with the notable absence of explicit reference to the *econ-urban* principle. The breadth and principle-based nature of both EcoDistricts and the LCC suggests the aspiration of both frameworks to act as catalysts of transformation that runs the gamut of integrated sustainable urban development practice. The Living Community Challenge, in being presented as a "challenge" rather than a "standard," captures this intention to challenge and propel the evolution of thinking in the development sector toward greater sustainability. EcoDistricts, in advancing a process "protocol" rather than a set of specific standards, articulates the notion of process as product, when it comes to transforming neighbourhoods toward sustainability. Both organizations, and both technologies of ecourban neighbourhood development, are positioned as agents of transformation at the institutional level as well as the level of urban design and infrastructure, recognizing the need for an active and visionary intermediary in order to move pragmatically toward a sustainable neighbourhood transformation "end game." Both are signaling, through their products and organizational development strategies, the intent to act in an advocacy role to promote learning and experimentation amongst development and planning actors as well as the public at large, toward this transformation of practice.

5.1 How do the LCC and EcoDistricts models value different ecourban principles?

The *ecol-urban* principle is privileged in the LCC framework because of the intent to expand the notion of community beyond the human monoculture, to include biophilic design principles that rely more on natural than engineered systems, more on natural than manufactured products, and that work toward eliminating toxins and carbon combustion in development. An *ecol-urban* principle of "living off the flow," or no net extraction of natural resource or energy stocks, is expressed in terms of the ban on any combustion-derived fuel as energy source, limiting water use to within the recharge rate of local aquifers, and requiring local waste water and sewage treatment and energy storage. In EcoDistricts, the *ecol-urban* principle is served by the Energy, Water, Habitat & Ecosystem Function, and Materials Management performance areas. The objectives within these performance areas relate to the conservation of energy, water and materials, and optimizing their associated infrastructure systems to reduce negative environmental impacts through the implementation of technologies such as renewable energy, stormwater management, and recycling of water, waste and other materials. Furthermore, the objectives of the Habitat and Ecosystem Function performance are to enhance and regenerate urban natural environments.

The *living-urban* principle within the LCC is expressed in Imperative 7, Civilized Environment, which emphasizes the creation of opportunities for social interaction in public space, and Imperative 8 Healthy Neighbourhood Design. More basically, the living principle is expressed in the LCC as a new

norm of community extending beyond the human community to include other forms of life. The human community and the urban infrastructure and design which typically have supported it are considered a 'monoculture' approach; whereas the effort within the LCC is to design for biophilic ecological urbanism. The metaphor used to describe the "living community" is a forest, with a complex ecosystem structure able to support many different functions and species and multiple evolutionary paths, as opposed to a monoculture of single purpose structures and infrastructures, built for modern, adult, able-bodied humans alone. The question of transforming practice toward revaluing life and living for people in more human-centric community development terms is less clear. Limits to density in the form of strict limits to buildings that create shade for neighbours, and through the first principle, Limits to Growth, suggest an implicit position on limiting population growth to within local ecological capacity. This has negative implications for human development and equity, which go unacknowledged. In EcoDistricts, the *living-urban* principle is highlighted by the Health & Wellbeing, Access & Mobility, and to a lesser extent the Community Identity performance areas. Livability and wellbeing in the EcoDistricts framework is about providing access to recreational and natural areas, healthy and affordable foods, good air quality, and beautiful and safe places that promote interaction. This framework, however, places the onus on local stakeholders to determine, collaboratively, how much and what qualities of livability can be achieved.

The *local-urban* principle is devalued in LCC because it conflicts with the ILFI's stance to "drive work and thinking toward universal solutions to the extent possible." The *local-urban* principle enters into ILFI framework development through the back door to the degree that local developers and local planners (and potentially, although not obviously, the local public) are invited to work directly with the ILFI in order to craft locally-specific solutions to problems that occur when the "universal" principles come in conflict with local conditions and priorities. This puts the onus of responsibility on proactive local actors, whether developers or planners, to argue persuasively for an effective local solution against the baseline scenario of a universal standard. By contrast, the *local-urban* principle is highly privileged by the local process-oriented nature of EcoDistricts, which implies significant onus on all three of the local actor groups involved to adapt to new roles and responsibilities relating to goal-setting at the local scale. More specifically, the Community Identity performance area, with its goal of creating a neighbourhood community identity, reinforces the EcoDistricts approach as a core community identity formation tool.

The *democ-urban* principle is valued by EcoDistricts for similar process-oriented reasons. The EcoDistrict approach in and of itself favours a local democratic structure, as it moves all actor groups through an engaged, participatory process of determining visions, priorities and actions to reinvent the district in question. Value placed upon the *democ-urban* principle within the LCC is evidenced by the use of the charrette as a key means of generating progress in determining the approach to the imperatives, particularly the more subjective ones such as Equity and Beauty. Locating key decision making stages within a democratic forum like a charrette is a marker of the value the LCC places on democratic interaction among actor types, although certainly with a higher degree of emphasis on directly engaging expert actor types compared to non-expert civic ones. At the same time, the LCC recognizes that the charrette process is suited for integration of the different actor types needed to implement better buildings, but that a charrette that engages and allows effective communication across the greater spread of diverse actors involved in neighbourhood development is a bigger challenge. Current practices situate problem-solving and decision-making on crucial points in segmented realms of expertise and authority. This situation poses barriers to integrative thinking, capable of tackling challenges of infrastructure, interactive effects, adapting to change and changing use over time at the neighbourhood. Developing a level of comfort with charrette-style thinking, and incorporating decision-making elements into this process, is no golden key to improved democratic process per se, but may still improve the chances that better processes will emerge.

The *diverse-urban* principle comes through in several EcoDistrict performance areas with objectives such as fostering inclusive, flexible and cohesive networks; expanding economic opportunities to a socially and economically diverse population; and ensuring diverse stakeholder involvement in EcoDistrict activities and decision making. Some recognition of the value of the *diverse-urban* principle is offered in the Beauty petal of the LCC, and components 19 Beauty + Spirit and 20 Inspiration + Education. However, the path to implementation of these objectives is unclear in both frameworks. In the case of the LCC in particular, the recognition of the value of diversity is tempered by the notion of urgency in addressing ecological limits driven, to the ILFI, by an excess of humanity – "a world with seven billion people and counting" (2014, p.9).

The *equi-urban* principle makes an appearance in EcoDistricts under Equitable Development, where objectives aim for equitable distribution of benefits and burdens of development, and for reducing forced displacement of existing residents. In the LCC, recognition of the value of the *equi-urban* principle is found in the Equity component and Imperatives 14-18, namely: Human Scale + Humane Places, Universal Access to Nature and Place, Universal Access to Community Services, Equitable Investment and Just Organizations. The Equity petal strives for more and better public spaces that are accessible regardless of economic wealth, as well as physical ability and age. The value of equity is expressed in specifically ecocentric terms: "A society that embraces all sectors of humanity and allows the dignity of equal access is a civilization that is in the best position to make decisions that protect and restore the natural environment." (ILFI, 2014, p.45)

Regarding the one remaining extreme type in the typology, despite the lack of explicit reference to an *econ-urban* principle, we cannot conclude that this principle is not embraced. Instead, what we see is a silent consent of both the LCC and EcoDistricts to the *econ-urban* principle. Examples of building transformative living spaces into neighbourhoods, such as Manhattan's High Line Park, are heralded by LCC for their success not only on *ecol-urban* and *living-urban* principles but also because this relatively low-cost intervention in the neighbourhood has brought about a tripling of property values surrounding the linear park. With market transformation envisaged, the ILFI sees no conflict in its desire to attract a maximum of capital to zones of living community transformation, in the pursuit of better, greener capitalism. Similarly, none of the eight EcoDistricts performance areas have a strong *econ-urban* emphasis that pinpoints the pursuit of green capitalism, but the early goals of the EcoDistricts initiative highlight local economic development as a driver for district-scale sustainability projects. According to EcoDistricts, these early goals were to: 1) create an integrated sustainability innovation strategy that linked local neighbourhood economic and community development with the region's clean technology and green development cluster; 2) launch catalytic district-scale projects that maximized community benefits and local green job creation; and 3) build robust neighbourhood governance to guide implementation and monitor progress over time to advance community and city objectives (EcoDistricts, 2015a). While 'community and city objectives' likely incorporate other concepts of ecourbanism, the focus of the first two goals clearly articulate an *econ-urban* bias for leveraging existing economic development practices for sustainability outcomes.

5.2 How do the LCC and EcoDistricts engage multiple actor groups?

The LCC is a set of three challenges issued explicitly by the ILFI to a comparable set of actors to those we identified in Section 2 of this paper, namely:

1. All developers, urban planners, architects, landscape architects and contractors to create the foundation for a sustainable future in the fabric of our communities
2. Local, state and federal politicians and government officials to remove barriers to systemic change, and to realign incentives and market signals that truly protect the health, safety and welfare of people and all beings; and

3. All of humanity to reconcile the built environment with the natural environment, into a global civilization comprised of individual communities that create greater biodiversity, resilience and opportunities for life with each adaptation and development. (ILFI, 2014, 5)

As stated above, LCC promotes a cycle of charrette processes as the project moves through addressing the different imperatives of community creation, engaging in common space in order to come to agreement about how to proceed and then actually proceeding in teams that work more independently of one another. However, beyond promoting a charrette process and advancing a negotiated approach to finding context-specific solutions to meeting its various imperatives, the LCC does not address explicitly how each actor type is to contribute to meeting the challenge together. It should also be noted that while both LCC and EcoDistricts are designed for implementation in a range of different neighbourhood types, the 'base case' LCC is a new master-planned neighbourhood, whereas the 'base case' for an EcoDistrict is an existing neighbourhood. This creates very different starting points for the assumption of direct involvement of local actors. The EcoDistrict Protocol, by contrast, attacks the question of shared and differentiated roles for different actors in a much more structured and sequential manner.

The four sequential phases of the EcoDistricts Framework are: district organization, assessment, development and management. At the district organization stage, local stakeholders create a shared sustainability vision and a governance structure to implement that vision, through community engagement and citizen participation. A governance structure is defined, often with a new or existing governance entity being endowed with the explicit goal of leading the district's sustainability projects. In pilot EcoDistricts projects, lead governance organizations have ranged from newly-formed neighbourhood entities, to a university's existing planning department, to new working groups led by planning students, to an existing transportation demand management association, and in one case, PoSI staff assigned to the initiative (EcoDistricts, 2015b). This stage requires significant negotiation and collaboration efforts among all three groups – the public sector, private sector, and civic actors.

At the assessment stage, a performance-based neighborhood sustainability roadmap is constructed to address the eight performance areas. This stage includes identifying and assessing district-level priorities, and establishing baselines and target metrics for these priorities. At the project development stage, stakeholders work together on new district-scale projects that pursue their performance goals. The types of projects can range from the built to the conceptual to the educational and include: green buildings, social housing, urban agricultural space (EcoDistricts, 2015a), community solar programs, arts-focused homes, and community-based energy awareness programs (Capitol Hill EcoDistricts, n.d.). Finally, at the management stage, implemented projects are monitored to gain a long-term understanding of their social, economic and environmental impacts, in order to understand the value of the intervention made. When reflecting on the experience of the five Portland pilot projects, EcoDistricts noted that the engaged actors suffered from a lack of direction in how to create a sustainability roadmap at the assessment stage, and challenges in collecting data for baseline reporting and monitoring at the management stage (EcoDistricts, 2015b). This suggests a lack of knowledge and governance capacity within at least these assembled actor groups.

6. Discussion

While both the LCC and EcoDistrict models embrace a multi-actor, collaborative approach, and are committed to the difference that creating these new configurations of actors will make to the results in ecourban neighbourhoods, neither has fully worked out a means to address the different constraints and interests that each actor group brings into the process. Table 4, below, illustrates the different hierarchies of actor groups and intended roles in each of the seven extreme types of ecourbanism in our typology. Depending not just on the stage of development, nor just the specific design issue at

hand, but also upon the principle being pursued by the neighbourhood development, each actor group will be faced with a particular landscape of positions, recognized expertise, and power. These dynamics have bearings on the outcomes of their interplay in ecourban neighbourhood development.

Table 4. Interplay of key actors and their roles in each extreme type of ecourbanism

Extreme Type	**Key actors and roles**
Econ-urban	Private sector actors play a key role as the owners of capital, attracted to new investment opportunities. Other actors work within the private sector's understanding of limits to profitability.
Ecol-urban	Public sector actors lead by integrating new science, technology, and concepts into the conventional patterns and built form, through regulations and incentives. Private and civic sectors are expected to take up new responsibilities to learn, build and engage in these naturalized landscapes.
Living-urban	Public sector actors play a key role in negotiating between the private sector's notions of sound development and those of the civic sector, typically as represented in theories and practices of community development.
Local-urban	The civic sector, residents in particular, expresses competency and sustained effort in self-determination and grassroots control and organization. The public and private sectors share responsibility to relinquish control over local affairs that they would typically run.
Democ-urban	Public and civic sectors share the responsibility here to reorient activities of citizenship and governance toward community-based decision making. Private sector is invited to the table.
Diverse-urban	The public sector, and sometimes the civic sector, assumes a primary role here in offering concepts, mechanisms, and supports for the emergence of a sense of community and belonging within a context of new interactions and diversity. The civic sector must assume a responsibility to take on the risk of these new interactions and connections.
Equi-urban	The public sector assumes a primary role in orienting the development process toward specific forms of equity. The private sector must be willing to take up the adjustments to practice in order to implement these equity measures.

Recognizing that the primary rift in ecourbanism practice worldwide is that between the modernist drive for profit and capital growth, on the one hand, and the humanist need for socially- and ecologically-authentic lifestyles and places to live, on the other, we nonetheless find this more multifaceted, seven-point typology to have significant utility in understanding the full gamut of efforts in ecourban practice as these gather speed. Moreover, Table 4 demonstrates that the mix of extreme type principles that are adhered to in different developments and the frameworks that are advancing practice has implications not only for the project priorities that are pursued, but also for the roles played by the different key actor groups.

Overlaid on this mix of actor groups and their shifting hierarchies is the superstructure of the new actor group in ecourban neighbourhood development represented by the toolmakers themselves, such as ILFI and EcoDistricts. As these organizations create and advance the emergent technologies of ecourban neighbourhood formation, they advance a particular solution set for designing, developing, and inhabiting ecourban neighbourhoods. There are a number of concepts and components that these technologies and their intermediary organizations share. Both are making important and distinctive efforts toward more integrative practice, in terms of the components of development considered within a district-scale planning and development approach and the perspectives needed at the table to advance them. They share a common, understated yet pervasive, agreement with the *econ-urban* principle. This is paired with a common, foregrounded and more explicit, *ecol-urban* commitment, and specification of the key and necessary components of improving ecological outcomes in our neighbourhoods. The frameworks have an equal and expansive focus on the *living-urban* principle, with ambitious goals to expand people's sense of community and their own well-being beyond those elements that conventionally figure into such sensations and calculations: health through design, biodiversity as health. Both frameworks, however, neglect the work needed to integrate this new understanding of liveability with the contemporary sense of the determinants of liveability: opportunity for household improvement in a capital sense; safety and improvement in a social sense; jobs, health care and education in a human development sense. In this oversight, they sideline subsets of public, civic, and private actors committed to these more traditional neighbourhood goals rather than bringing them into the collaborative fold.

In terms of other extreme types of ecourbanism, LCC and the EcoDistrict Protocol conflict. Whereas the EcoDistrict Protocol leverages the *local-urban* principle as its key contribution as an intermediary organization, the LCC has set its sights on universal aspirations toward which all localities ought to be morally compelled to agree. Aligned with this difference, the EcoDistrict Protocol is more forthright in embodying the *democ-urban* principle, which runs through all four phases of collaborative district creation. LCC embraces the *democ-urban* principle to a lesser degree, recognizing the value of a charrette process as key to determining approaches to the most subjective imperatives in the framework, but stopping short of articulating a governance framework overall, and staying more focused on urban design. Moreover, neither framework is explicit in putting upper or lower limits on inclusion, as this affects *democ-urban*, *diverse-urban*, and *equi-urban* principles. Language exists about the importance of a number of dimensions of diversity, but how this importance stacks up against other demands remains unclear, and perhaps untested. Nor, by the same token, is the EcoDistrict Protocol strong on articulating how to move toward attainment of the *equi-urban* principle. LCC is even more hesitant here, citing the limits of what it can undertake within the context of a primarily built-environment approach.

7. Conclusion

A neighbourhood development is more than a built environment, and any offering of a fully-integrated framework for ecourban neighbourhood development needs a manner to address the human, social, and community development requirements of effective and successful neighbourhoods. A great deal of wisdom exists in these requirements, but this wisdom is typically found in different books, areas of research and practice than where the keys to sustainable design can be found. More integration within the visionary actor category is thus needed, in order to settle such important questions about what integrative ecourban neighbourhood development practice looks like, who it involves, and how. Our ongoing Ecourbanism Worldwide research project seeks to uncover some of this critical questions, through investigating the overall global landscape of model sustainable neighbourhood developments as well as individual case studies, from the basis of a multipronged typology of ecourban principles.

8. References

Baeumler, A.; Chen, M.; Dastur, A.; Zhang, Y.; Filewood, R.; Al-Jamal, K.; Peterson, C.; Randale, M.; Pinnoi, N. Sino-Singapore Tianjin Eco-City (SSTEC) : a case study of an emerging eco-city in China. World Bank, Washington DC, USA, 2009. Available online: http://documents.worldbank.org/curated/en/2009/11/13550294/sino-singapore-tianjin-eco-city-sstec-case-study-emerging-eco-city-china (accessed on 16 December 2014).

Blok, A. 2014. Worlding cities through their climate projects? Eco-housing assemblages, cosmopolitics and comparisons. City, 18(3), pp.269-286.

Book, K.; Eskilsson, L.; Khan, J. Governing the balance between sustainability and competitiveness in urban planning: the case of the Orestad model. Environmental Policy and Governance 2010, 20(6), pp.382-396.

Bradley, K.; Hult, A.; Cars, G. From eco-modernizing to political ecologizing. In Sustainable Stockholm; Metzger, J.;Olsson, A.R., Eds.; Routledge, London, UK, 2013, pp. 168-194.

Capitol Hill EcoDistrict. N.D. Capitol Hill EcoDistrict. Retrieved from https://capitolhillecodistrict.org/

Caprotti, F. 2014. Eco-urbanism and the eco-city, or, denying the right to the city? Antipode, 46(5), pp.1285-1303.

Charlot-Valdieu, C.; Outrequin, P. L'urbanisme durable: concevoir un écoquartier, 2nd Ed; Éditions du Moniteur: Paris, France, 2011.

Clinton Global Initiative CGI, 2014. EcoDistricts Target Cities Pilot Program, 2014. Retrieved from http://www.cgiamerica.org/commitments/?id=884895

Criterion Planners. A global survey of urban sustainability rating tools. Available online: http://crit.com/wp-content/uploads/2014/11/criterion_planners_sustainability_ratings_tool.pdf (accessed on 16 December 2014).

Daly, H. Beyond Growth: The economics of sustainable development; Beacon Press: Boston, USA, 1997.

Downton, P.F. Ecopolis: Architecture and cities for a changing climate; CSIRO Publishing: Collingwood, Australia, 2009.

EcoDistricts, 2014. The EcoDistricts Protocol Executive Summary. June 2014. Retrieved from http://ecodistricts.org/wp-content/uploads/2013/03/EcoDistricts_Protocol_Executive_Summary_ISSUE_6.242.pdf

EcoDistricts, 2015a. District and neighborhood-scale sustainable development in the Pacific Northwest – A review of best practices case studies. Retrieved from http://ecodistricts.org/wp-content/uploads/2013/05/Sustainable-District-Scale-Development-in-the-Pacific-Northwest.pdf

EcoDistricts, 2015b. Portland EcoDistrict Pilot Program Evaluation – Report of Findings. Retrieved from http://ecodistricts.org/wp-content/uploads/2013/05/Portland-Pilot-Program-Evaluation.pdf

Hajer, M. The Politics of Environmental Discourse: Ecological modernization and the policy process; Oxford University Press: Oxford, UK, 1995.

Hodson, M. and Marvin, S. 2009. Cities mediating technological transitions: understanding visions, intermediation and consequences. Technology Analysis & Strategic Management, 21(4), pp.515–534. doi:10.1080/09537320902819213

Hodson, M. and Marvin S. 2010. Can cities mediate socio-technical transitions and how would we know if they were? Research Policy. 39(4), p447-485.

Holden, M.; Li, C., and Molina, A. 2015. The emergence and spread of ecourban neighbourhoods around the world. Sustainability, in revisions.

International Living Future Institute, 2014. Living Community Challenge 1.0. A visionary path to a regenerative future. Retrieved from https://living-future.org/sites/default/files/reports/LCC1_0_Final_sm.pdf. Accessed May 20, 2015.

McFarlane, C. 2010. The Comparative City: Knowledge, Learning, Urbanism. International Journal of Urban and Regional Research 34(4), pp.725-742.

Metzger, J.; Olsson, A.R., Eds. Sustainable Stockholm; Routledge: New York, 2013.

Ministrie de l'Ecologie, du Developpement Durable et de l'Energie (MEDDE). Le Plan D'Actions: Ville Durable. Available online: http://www.developpement-durable.gouv.fr/Le-plan-d-actions-Villedurable.html (accessed 16 December 2014).

Ministère du logement, de l'égalité des territoires et de la ruralité (MLETR). 2015. Les EcoQuartiers. April 24, 2015. Retrieved from http://www.territoires.gouv.fr/les-ecoquartiers

Nichols, C.A.; Laros, J.A. Inside the Civano Project: A case study of large-scale sustainable neighborhood development; McGraw-Hill: New York, USA, 2010.

Portland Development Commission (PDC). (2010 March 23). Portland Sustainability Institute – EcoDistricts [Video file]. Retrieved from https://www.youtube.com/watch?v=gmpRAWGZn0E

Rohracher, H. and Spath, P. 2014. The interplay of urban energy policy and socio-technical transitions: the eco-cities of Graz and Freiburg in retrospect. Urban Studies, 51(7), pp.1415-1431.

Ruano, M. Ecourbanism: Sustainable human settlements. 60 case studies. Gustavo Gill: Barcelona, 1999.

Schuler, T. 2014. In conversation with Rob Bennett. gb&d. 29 (Sept/Oct.). Retrieved from http://gbdmagazine.com/2014/29-rob-bennett/

Smith, A.; Stirling, A.; Berkhout, F. The Governance of Sustainable Socio-Technical Transitions. Research Policy, 34, pp.1491-1510, 2005.

Smith, A., & Kern, F. 2009. The transitions storyline in Dutch environmental policy. Environmental Politics 18(1), pp.78–98. doi:10.1080/09644010802624835

Turner, S., Merchant, K., Kania, J., Martin, E. 2012. Understanding the Value of Backbone Organizations in Collective Impact. Stanford Social Innovation Review. Retrieved from http://www.fsg.org/publications/understanding-value-backbone-organizations-collective-impact