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**Urban Challenges in a complex World**

The urban geographies of the new economy, services industries and financial market places

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**Extended abstract**

The practice of social innovation, in which collaborative actions are developed as an integrated design approach to sustainable development is an increasingly popular strategy for building community resilience. Within that research context, we find novel approaches to planning in the built environment, informed by an ecology for cities. Emphasised by a trans-disciplinary approach in both analysis and urban design, collaboration among stakeholders can facilitate development resilient frameworks and strategies for sustainable development. Within a community ecosystem, feedback loops and multi-agency working inform approaches to socio-economic and environmental challenges. Hence a renewed interest among researchers in the ecology of an urban commons, with scholars from different disciplines coming together around the science of an ecology for cities. Part of a wider body of research, this study builds on a hypothesis that social innovation develops over phases of the network, framework and architecture – where knowledge transfer can inform more holistic understanding.

Through a literature review, the paper examines what is meant by an ecology for cities, and how self-management of common resources can set a sustainable course for building community resilience. Focusing on how place-based frameworks encourage collective ambition for inclusive growth, reference is made to five criteria of urban ecological science, and Ostrom's eight design principles of commons management. The study identifies methods and best practice by investigating the shape of collaboration in the case of Gaelic Ireland. Newly examined in the context of planning, this past example is applied to contemporary scenarios, looking to understand how effective frameworks can bring about more sustainable and resilient architectures. The article applies this knowledge to another case study of a community in Bronzeville, Chicago, where a local urban development network is working with local stakeholders and organisations to develop community energy and agriculture projects. Taking an engagement-led approach, the paper presents findings from ethnographic action-research in Bronzeville on the development of an urban commons.

• **Theoretical background**

The scale and nature of urbanisation on our planet is increasingly unsustainable (McPhearson et al, 2016), as evidenced in a growing number of shocks that threaten our capacity for a safe and secure future. Many of these shocks are driven by inequality in how the world's resources are distributed (Childers et al, 2014; 2015). The myriad of social, economic and environmental challenges facing global society is highlighted (Horgan and Dimitrijevic, 2018). At the same time, the pace of innovation in late-capitalist society (Horgan and Dimitrijevic, 2019; Greenfield, 2017) is offering novel platforms for individuals and communities to participate in agile and networked placemaking and urban

governance. These dynamic characteristics of the city, as a site for experimentation on new ways of sustainable living, reveal the city's nature as a rich ecosystem of actors, agents and processes (McGrath and Pickett, 2011). Taking theories on social innovation put forward in previous research, the study tests a historical model from precolonial Ireland within a contemporary community development scenario in Chicago. Part of a broader investigation, this study focuses on ecological frameworks as a strategy for social innovation in the built environment, and in particular, at contemporary approaches to the development of urban commons. Informed by a wide literature review, the research looks at findings by Ostrom and others in relation to the management of common pool resources. Models from Irish Gaelic society are re-examined to identify contemporary understandings for best practice in collaboration and governance, illuminating Ostrom's criticism of Hardin's Tragedy of the Commons. The paper refers to recent research that promotes a transdisciplinary approach to developing an ecology for cities - bringing together fields of study to facilitate knowledge transfer and collaboration among many disciplines. The case study of a community network in Bronzeville, Chicago, USA, who are working with partners to develop an Energy Commons - a self-sustaining solar farm is chosen to test the theory. Researcher spent a number of days living with community organisers in Bronzeville in order to understand the context of social need and map the nature of collaboration among stakeholders and partners. Ethnographic research was conducted through open conversations with the organisation members and participation in sessions with the Illinois Institute of Technology, who works with Bronzeville Urban Development on the grid proposal. Findings from the literature were then examined alongside the Bronzeville project in order to identify transferable best practice. It was found that behaviours around law, governance and participation in decision-making could be reimagined in Bronzeville based on the Gaelic example. Gaelic commonage would seem to meet all of Ostrom's criteria for commons management, for example, collective-choice arrangement; monitoring; sanctions and conflict resolution through Brehon Law and nested joint enterprises (Slater and Flaherty 2009a; 2009b). Central topics discussed in the paper centre around an ecology for cities, and related topics of resilience in communities and urban settlements - informed by the research of Pickett et al (2004); Childers et al (2014) on complex adaptive systems building on findings from Folke (2006). The paper identifies behaviours from Pickett et al (2004) in relation to Ostrom's concept of human ecosystems, and applies these to both past and current scenarios in Ireland and Chicago. Transdisciplinarity among the urban disciplines, collaborating on common frameworks for transition is also looked at, including McPhearson et al's (2016) five criteria that define an ecology for cities. These concepts all contribute to a nuanced reading of how an urban commons may be conceived, governed and managed.

#### • Research questions

The purpose of this varied study is to make connections across diverse areas of knowledge, linking approaches as part of a wider study on social innovation in the built environment. Increasingly, scholars are focused on transdisciplinary approaches, that combine interdisciplinary research (Pickett et al, 2014) in an ecology for cities (Childers et al, 2014; 2015). This emphasises the importance of looking at ecological and social factors together in a holistic planning process (McPhearson et al, 2016). Identifying ecological approaches to urban development that view the city as an ecosystem, a framework for analysing the city as a complex adaptive system is applied. This investigation will further consider the notion of the urban commons within this ecological model, referring to recent discourse around the management of common-pool resources. Part of the paper suggests tools and methodologies for governance of a contemporary urban commons, looking at precedence in pre-feudal Gaelic Irish society. Finally, the paper will share findings from action research with a community in Bronzeville, South Chicago, USA, who are looking at establishing an energy commons and associated social infrastructure to increase their capacity for resilience. The paper is part of a wider study looking at socially innovative practice within the built environment, and specifically at policy frameworks and mechanisms that contribute to community resilience. The research question in this case is focused on ecological frameworks, and the notion of the commons in particular. The

paper examines models from the past - in Gaelic Ireland - in order to understand how they may be re-examined in order to facilitate a contemporary urban commons. The research takes the scenario of the community in Bronzeville Chicago, developing an energy commons - a solar farm on redundant rail infrastructure - and proposes learnings from the Irish Gaelic model that could inform an environmental framework, and strategy in Bronzeville.

#### • Methodology

The science of ecology offers a number of established frameworks for the study of urban resilience as a topic of transdisciplinary research and a platform for co-producing solutions to cope with transition (Childers et al, 2014; McGinnis and Ostrom, 2014; Ostrom 2007). Contemporary readings of an ecology for cities allow for a holistic understanding of the actors, agents and processes that collectively contribute to a city ecosystem. Viewing the city as a complex adaptive system [Childers et al, 2014; Pickett et al, 2014; McGrath and Pickett, 2011], allows for a more comprehensive understanding of resources flows and associated shocks to the system. A literature review looks at how the study of urban resilience can be better understood through an ecological lens that recognises the city as a complex adaptive system (Childers et al, 2014; Pickett et al, 2014; McGrath and Pickett, 2011), with associated inertias that threaten the flow of resources (Pickett et al, 2014). In doing so it is first defined what is meant by concepts such as resilience, sustainability and the methodologies of an ecology for cities. Pickett et al (2014:150) refer to Ostrom's concept of human ecosystems that focuses on transformation and recognises the "*interconnectivity of organisms, including people as individuals and the members of institutions... and their physical environments*". Remembering that the goal of sustainability is iterative and not fixed stage, Ostrom's framework allows for a social understanding of how a complex system responds to change by identifying "four quadrants of behaviour that differ in the degree of system connectivity and the amount of capital available to or in the system" (Pickett et al, 2014:154). With Ostrom's theories in mind we can begin to identify learning and best practice from both historical and modern communities that allow for better management of resources and pathways to resilience (McGinnis and Ostrom, 2014). As indicated previously, transdisciplinarity and collaborative production of knowledge is a central to this approach to planning. As is demonstrated later in the paper, the pre-colonial Gaelic society of medieval Ireland functioned according to a system closely attuned to Ostrom's principles, which may offer some interesting insights for researchers. An extensive literature review was conducted in order to identify insights and best practice from the Irish case study, on the management of a commons. Approaches are then proposed in relation to the aspirations of the community in Bronzeville. The needs and ambitions of Bronzeville urban Development were collected through a period of ethnographic investigation, where the researcher spent a period living among community organisers in Bronzeville to understand their strategy - resources and capacities - in greater detail. Behaviours from the Gaelic examples were then mapped onto themes of ownership, governance and participation, which were identified as concerns from the research in Bronzeville.

#### • Results/findings

Given the lack of knowledge around the Gaelic system within the academe - owing to the impact of British colonialism in Ireland - the researcher felt it important to emphasise how the Gaelic case supports Ostrom's understanding of commons-management, providing a concrete retort to Hardin's (1968) criticism in the seminal Tragedy of the Commons. Three themes of ownership, governance and participation were interpreted and explored in the Chicago case. More research is required - working closely with stakeholders in Bronzeville - in order to understand how these themes could be applied in practice and how they could contribute to social innovation, and build capacities for resilience and self-management for that community. The "*primitive communalism*" in place in Ireland known as rundale, derives from the Irish *roinn* (to divide) and *dáil* (assembly) (Yager, 2002). Cooperation and social equity are key to the system of rundale which included the "concrete social practices of gavelkind and changedale (sic)" (Slater and Flaherty, 2009b:12) of land distribution, meaning that all members had a right of access (Slater and Flaherty, 2009b:12). Marx drew attention

to the importance of the Irish case, which seems to match with Ostrom's principles for maintaining a commons. More importantly, Gaelic society was bound by a strict - yet also decentralised - legal code in the form of the Brehon Law, which governed all matters of property and civic obedience (Higgins, 2011). The Gaelic approach to communing was systems focused, mindful of relationships and feedback among social, ecological and technical actors. The mode of production was participatory and multi-scalar, adapted to local conditions and land quality, and based on an innovative legal system and polygovernance. Gaelic commonage would seem to meet all of Ostrom's criteria, having well defined albeit continuously redistributed boundaries; by adapting to local conditions; facilitating collective-choice arrangement; monitoring; sanctions and conflict resolution through Brehon Law and nested joint enterprises (Slater and Flaherty 2009a; 2009b). The nature of bottom-up decision-making within a self-governing *túath* (community), an understanding of system dynamics and a strict adherence to environmental laws shows that the Gaelic system provided for an ecological approach to sustainability (Flaherty 2013; 2015; 2016). These concepts convey many characteristics relevant to ambitions of modern community development. Developing such capacities for resilience is an imperative to the survival of the community studied in Bronzeville, Chicago. In order to bounce back from the challenges faced, Bronzeville needs to develop a resilient and equitable urban ecology, rich in social capital that affords access to opportunities for local citizens. Bronzeville Urban Development (BUD) was established in order to grow such capacities from the bottom up, recognising a need to develop their own local solutions and collective strategies for inclusive growth (BUD). In an ambition to become more self-reliant, self-sufficient and ultimately resilient, BUD have initiated the Bronzeville Microgrid Project, looking to develop an energy commons for Chicago.

#### • Significant/general conclusions

The paper refers to transdisciplinarity in the context of developing environmental frameworks for resilience. The full paper examines the relations between the ecological framework, the precedence in the Gaelic case and applies the learnings to the Bronzeville case. Further research is proposed in order to dig deeper into how these learnings could be applied in practice - particularly how Brehon law may be interpreted in the contemporary case, alongside communal governance and decision-making practices. Looking to the case of social cooperation in the Gaelic system – and mindful of Ostrom's principles - we can propose strategies for the governance and management of an urban commons that recognise the social value created within an ecosystem and the need for feedback loops, strict codes and responsibilities. New knowledge uncovered in examination of the Irish example, advances our understanding of both governance and collaboration, and could therefore initiate potential new approaches to social innovation, in the case of Bronzeville, Chicago. A holistic concept of an "*ecology for cities*" is well placed as a platform to conduct research of this nature and offers a host of innovative tools and methodologies that promote the co-production of urban knowledge (McPhearson et al, 2016).

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