Exploring urban resilience in practice: a century of vacant sites mapping in Dublin, Edinburgh and Philadelphia

Philip R. Crowe & Karen Foley


To link to this article: http://dx.doi.org/10.1080/13574809.2017.1298401

Published online: 06 Mar 2017.

Article views: 229

View related articles

View Crossmark data

Citing articles: 1 View citing articles
Exploring urban resilience in practice: a century of vacant sites mapping in Dublin, Edinburgh and Philadelphia

Philip R. Crowe and Karen Foley

School of Architecture Planning and Environmental Policy, Landscape Architecture, UCD Earth Institute, Richview, University College Dublin, Dublin, Ireland; School of Architecture Planning and Environmental Policy, Landscape Architecture, Richview, University College Dublin, Dublin, Ireland

ABSTRACT

Urban resilience can be understood as the application of social-ecological systems thinking to the city in order to build adaptive capacity to change in urban systems. Vacant sites can become the focus of explorations into how to adapt and do things differently, for example in response to a housing crisis or recession. This paper explores the mapping of vacant sites as an example of urban resilience in practice using two approaches: the re-examination of historical precedents of vacant sites mapping in Edinburgh and Dublin influenced by Patrick Geddes (1854–1932), and related engagement with vacant sites in Philadelphia; and investigation of case studies of the contemporary practice in these same three cities in the context of Geddesian thinking and the contemporary discourse on urban resilience. Geddes is considered of particular relevance to urban resilience as his theories and practice also applied an understanding of social-ecological systems to the city.

Introduction

The concept of urban resilience has emerged in response to the convergence of “civilisation-threatening planetary crises” (Heinberg 2010, 7) such as the ‘triple crunch’ of a credit-fuelled economic crisis, climate change and peak oil (NEF 2008), demanding a re-think of ‘almost everything’, including the design of the built environment (Buchanan 2012). Urban resilience can be understood as the application of social-ecological systems thinking to the city, and therefore a mechanism for thinking differently about the city. Change is the only constant in social-ecological systems (Walker and Salt 2006), and urban resilience thinking aims to help build adaptive capacity in urban systems in order to facilitate and manage change whilst maintaining basic functions (Ahern 2011).

There is a need to understand what urban resilience thinking means in practice (Wilkinson 2012). This paper reports on research carried out as part of the EU FP7 TURAS project (Transitioning to Urban Resilience and Sustainability) that sets out to explore the practice of vacant sites mapping as an example. Two approaches are employed: re-examination of historical precedents of vacant sites mapping in Edinburgh and Dublin influenced by Patrick
Geddes (1854–1932), and related engagement with vacant sites in Philadelphia; and investigation of case studies of the contemporary practice in these same three cities. Geddes is considered of particular relevance to the current discourse on urban resilience as his theories and practice also applied an understanding of social-ecological systems to the city.

The paper provides a context for the two approaches with brief reviews of the contemporary discourse on urban resilience, vacant sites mapping, Geddesian thinking and the debate on land reform from the start of the twentieth century. A discussion section reflects on how the practice in each city relates to Geddesian thinking and the contemporary discourse on urban resilience.

As there is no universally agreed or accepted definition of vacant sites (Pearsall, Lucas, and Lenhardt 2014), the general definitions of “unutilized or underutilized parcels” (Pagano and Bowman 2000, 2) and land “not devoted to any functional use” (Northam 1971, 355) are assumed here unless otherwise stated.

Urban resilience and vacant sites mapping

A discourse for change

The term ‘resilience’ is used across a wide variety of disciplines and applied policy contexts (Hopkins 2010; Anderies 2014), and many different definitions of resilience are provided in the literature (CARRI 2013). Two mainstream definitions can be identified: equilibrium, or engineering – the ability to return to a stable equilibrium point after disruption; and non-equilibrium, or social-ecological – a dynamic and evolutionary paradigm referring to the ability of a system to adapt and adjust to change and disturbance (Pickett, Cadenasso, and Grove 2004).

Ecologies and cities both comprise interconnected systems, being dependent on historical events, spatial linkages and a non-linear structure (Holling and Goldberg 1971), and cities are embedded in global social-ecological systems (Anderies 2014; Pickett et al. 2014). Therefore, the social-ecological definition of resilience can be considered the most useful for urban planning (Davoudi 2012; Shaw 2012). Social-ecological resilience thinking accepts the inherent discontinuities, uncertainties and interdependencies of the social-ecological systems within which we live (Walker and Salt 2006), replacing a deterministic conception of nature, science and ecology where man could control and repair the environment through technology (Ahern 2011). Wilkinson (2011) notes a broad understanding of the ‘social’ in social-ecological resilience that includes social, cultural and economic systems.

Social-ecological resilience thinking emerged from the study of ecology (Holling 1973) and is based on an understanding of adaptive cycles that influence or drive change at different temporal or spatial scales, and thresholds that separate multiple states (Folke 2006; Walker and Salt 2006). An understanding that change is not random but follows a recurrent pattern is central to (social-ecological) resilience thinking (Rees 2010). However, Davoudi (2012) notes adaptive cycles in a social-ecological context are less about inevitabilities than general trends or tendencies, principally because humans have foresight and can adapt in anticipation of any change (Hopkins 2010). An understanding of the adaptive cycle allows management of a system’s resilience, identifying optimal times for interventions (Walker and Salt 2006; Wilkinson 2011). Resilience thinking is therefore considered to offer “a key insight for those planning our future” (Hodgson and Hopkins 2010, 17). However, there are
issues of conflict in power and politics related to who benefits (or not) from resilience thinking (Wilkinson 2011; Davoudi 2012).

Urban resilience thinking, as the application of social-ecological resilience thinking to urban planning and policy, aims to navigate a desirable trajectory in social and ecological systems that can help avoid collapse (Elmquist, Barnett, and Wilkinson 2015), provide innovative approaches to urban problem solving, and build adaptive capacity to facilitate and manage change whilst maintaining basic functions (Ahern 2011).

Adaptive capacity can be understood to include a temporal dimension relating to identification of appropriate times for intervention (Anderies 2014); a social dimension relating to a sense of belonging and attachment to place, and social learning, memory and networks (Wilson 2012); and a spatial dimension relating to locations and types of space that can respond and adapt to change, such as vacant sites (McPhearson, Kremer, and Hamstead 2013).

In practice, urban resilience is understood to facilitate numerous approaches such as assuming change and uncertainty (Wilkinson 2011); identifying the non-deterministic processes and disturbances that a landscape or city is vulnerable to (Ahern 2011); setting up a “mutually respectful dialogue” in public participation processes (Pickett, Cadenasso, and Grove 2004, 379); and enabling local communities to evolve their own response strategies by making relevant information and systems accessible (Wardekker et al. 2010). These approaches are consistent with the adaptive governance paradigm of adaptive co-management (Plummer, Armitage, and de Loe 2013) through which urban resilience is operationalized (Olsson et al. 2006), for example, placing an emphasis on learning, feedbacks, bridging organizations, mediation and collaboration between diverse actors at all scales (Olsson et al. 2007).

By the mutual adoption of the language, concepts and methodologies of ecology, urban resilience can be related to practices within landscape urbanism where the built/unbuilt continuum of the landscape provides a medium “uniquely suited to the open-endedness, indeterminacy, and change” required to appropriately respond to the challenges of global urbanization (Waldheim 2006, 39).

**Spaces for change**

A site may be vacant due to many contextual factors such as land speculation, contamination, undevelopable topography, infrastructure challenges, ecological classifications (Bowman and Pagano 2004), apathy of site owners, planning disputes, funding and delays in development, legal or ownership problems, and lack of demand (Civic Trust 1988). Vacant sites can be left in the wake of urban expansion and sprawl (Northam 1971), and considered an inevitable product of growth, low cost transportation (Berger 2006), and greenfield or suburban sites being easier to develop (Brophy and Vey 2002). Vacant or underused sites tend to become scarce in places where city boundaries are fixed and there is an expanding local economy (Bowman and Pagano 2004). Many contextual factors contributing to vacancy are compounded in periods of recession where private investment vanishes and public finances are non-existent (Oswalt, Misselwitz, and Overmeyer 2007).

Vacant sites can be perceived as being in transition from usefulness to wilderness, an ambiguous social-ecological system state that may stimulate “a re-imagining of human–nature relationships” (Jorgensen and Tylecote 2007, 457). de Solà Morales (1995) uses the
term ‘terrain vague’ to refer to empty and abandoned spaces that are “internal to the city yet external to its everyday use” (120), and respects them as places apart that allow projection of an alternative utopian future. The importance of utilizing human imagination and anticipation in an uncertain future is recognized in the community resilience literature (Davidson 2010) and social ecology ethics: “In this confluence of social and ecological crises, we can no longer afford to be unimaginative; we can no longer afford to do without utopian thinking” (Bookchin 1991, 39).

Vacant sites are therefore obvious candidates for opportunistic uses (Jorgensen and Tylecote 2007). They are spaces for evolution (Berger 2006) and “laboratories for the future city” in which to experiment (Dann et al. 2009, 2). For example, a recession can provide a time for re-thinking established practices, including in spatial planning and economic development (Bertolini 2011), when new ‘civil stakeholders’ emerge and engage with vacant sites, influence public debates and form new partnerships (Groth and Corijn 2005). Vacant sites and buildings therefore effectively present a city with spaces for change and transformation (Bowman and Pagano 2004).

A spatial template for change

Where these spaces for change are located, how they are distributed, and how they relate to one another and to urban systems is key to understanding the spatial dimension of adaptive capacity in an urban area. Therefore a preparatory step towards realizing the transformative potential of vacant sites is to locate them in one singular, synoptic image. In systems thinking a synoptic approach facilitates an understanding of whole systems and their component and interrelated parts, and provides a basis for considering effective and creative change: “Change comes first from stepping outside the limited information that can be seen from any single place in the system and getting an overview” (Meadows 2009, 108).

The layering of a vacant sites map with other spatial databases in geographical information systems (GIS) can provide an evidence base for informed and coordinated strategic planning (Brophy and Vey 2002), revealing opportunities for interventions and experiments that can be referred to as ‘urban acupuncture’ (Ryan 2012). For example, McPhearson, Kremer, and Hamstead (2013) use vacant sites mapping as a framework to identify key areas for conservation and social-ecological transformation, and Desimini (2013) examines the potential of aligning hydrological planning with vacant sites management. In these cases vacant sites mapping provides a spatial pattern or template within which to address challenges in urban systems.

The process of vacant sites mapping presents significant challenges, not least from the scale of areas involved (Johnson, Belblidia, and Campbell 2011; McClintock, Cooper, and Khandeshi 2013) and the fluidity of data such as the turnover of the property market (Pagano and Bowman 2000). The process can involve multiple stakeholders such as local government, citizens, community development organizations and businesses (Brophy and Vey 2002), and diverse data sources, including tax status data, census data, weed abatement programmes (Community Health Councils, 2014) and plot permeability records (Garden Justice Legal Initiative, 2014). Most examples in the literature rely to some extent on aerial photography and GIS. Aerial photography is a fit-for-purpose tool as it enables a synoptic view and reading of the city in one image (Berger 2006; Lerup 2006), although it has limitations related to availability and age (McClintock, Cooper, and Khandeshi 2013), tree canopies (McPhearson,
Kremer, and Hamstead 2013), and estimating property boundaries (Johnson, Belblidia, and Campbell 2011).

It is suggested that these challenges and limitations can be addressed to an extent by local community participation (McPhearson, Kremer, and Hamstead 2013) in the production, verification and maintenance of the data. This process of ‘volunteered geographic information’ (VGI) can reduce dependence on data from government and provide more relevant and insightful information as local stakeholders will often have a more intimate knowledge of neighbourhood conditions than planners working with city government (Johnson, Belblidia, and Campbell 2011). The mapping of vacant sites can therefore generate an overview coupled with local and nuanced information, providing Corner’s (2006, 32) “synoptic maps alongside the intimate recordings of local circumstance” as a spatial template for change in the city.

A century of vacant sites mapping

Vacant sites and vacant sites mapping in the city are not new phenomena. For example, the practice of vacant sites mapping is evident at the start of the twentieth century in the theory and practice of the Scottish polymath Patrick Geddes (1854–1932), and reflects elements of the wider debate on land reform in Great Britain and Ireland at that time. This section re-visits Geddesian thinking and the discourse on land reform before re-examining vacant sites maps influenced by Geddes in Edinburgh and Dublin, and related engagement with vacant sites in Philadelphia.

Patrick Geddes

Patrick Geddes is attributed a broad range of expertise, including evolutionary biologist, ecologist, conservationist and town planner (Meller 1990; Welter 2002). Geddes’ theory and practice resonates with the discourse on urban resilience as he understood the world in terms of social and ecological systems and applied this intelligence to the city. Geddes realized that man was an integral part of nature, albeit an intelligent one. His most famous ‘thinking machine,’ the Valley Section, is a synoptic view of interdependent and interconnected social and ecological systems over space and time, linking the street to the city, the city to the region, the region to the world and the universe (Welter 2002). This echoes Walker and Salt’s (2006, 38) description of resilience thinking as “a framework for viewing a social-ecological system as one system operating over many linked scales of time and space”, within which actions on a small scale can potentially cause a regime shift at higher scales.

Geddes identified the need for the industrial city of his time to make a transition from an inefficient “paleotechnic order” that was “dissipating resources and energies” (Geddes 1915, 86), towards his vision of an efficient ‘neotechnic’ city with “a more subtle and more economic mastery of natural energies” (Geddes 1915, 93). In order to contribute to this transition Geddes advocated for a civic survey process in order to diagnose the city before remediation. This was to be a dynamic, inclusive and collaborative process that utilized geographical local knowledge, an early version of VGI, which he considered to be a key aspect of citizenship that would lead to local attachment and belonging (Matless 2000). By understanding and engaging with the local it would be possible to comprehend global issues (Macdonald 2004),
with change (towards the ideal city) resulting from the aggregation of local efforts, “city by city, region by region” (Geddes 1915, 73).

As with social-ecological resilience thinking, systems thinking and landscape urbanism, Geddesian thinking emphasizes the importance of a truly synoptic approach, which was considered essential in order to understand any part of the city (Geddes 1915).

The mapping of vacant sites was a constituent part of the civic survey. Geddes considered vacant sites an opportunity for civic engagement, and a key resource for change within the city. He worked on the transformation of many vacant sites into community gardens and playgrounds in Edinburgh and Dublin (Bannon 1985; Meller 1990).

**Land reform**

The debate on land reform responded to poverty and social injustice in the industrial city, and the need for social reconstruction and reorganization (MacLaren 2001). Short (1997) describes the radical ideas of this time as “perhaps the closest thing to approach genuine land reform in the modern period” (36) and a “fundamental rethink” (335) on the nature of land and land ownership.

Many proposals were put forward, including the nationalization of land (with compensation) for public or social use, and a single site value tax (applied to the land and not the improvements on it) in order to remove (tax) disincentives to making improvements, eliminate property speculation and force vacant sites into use (Douglas 1974).

These proposals relate to the ideas of the American philosopher and political economist Henry George (1839–1897). George (1880) observed poverty in the midst of plenty in the Industrial Revolution, and responded by proposing the substitution of individual ownership of land with common ownership and a tax on land whether it was productively or unproductively used. He believed that land belonged to the people by natural right, and that inequality in the distribution of wealth was core to social and environmental problems. The result was to be the efficient use of land and a fair society where “no citizen will have an advantage over any other citizen save as is given by his industry, skill and intelligence; and each will obtain what he fairly earns” (George 1880, 139).

Land reform was a central focus of the Liberal Government in London. Churchill (1909) described vacant sites owned by property speculators as ‘ripening’ at the expense of the whole city and its citizens. With the Finance Act of 1910 (House of Commons 1910) the British Government introduced a suite of land reform taxes including an ‘Undeveloped Land Duty’ and an ‘Increment Value Duty’ that taxed the unearned increment of land value (Short 1997). The new taxes were to be based on a comprehensive valuation of land, and aimed to encourage the productive use of land and to emphasize the obligations of property, not just the privileges (Short 1997).

The valuation was hampered by legal and technical difficulties, and the taxes were complex and aggressively opposed. In Ireland, despite the valuation being mainly focused on urban areas, as the Griffith’s Valuation already provided comprehensive data, relatively little progress was made before the Great War started in 1914, after which the valuation and land taxes foundered (Short 1997).

The land reform movement was strongest in Scotland (Douglas 1974), and Geddes would have been familiar and engaged with all aspects throughout his career. The ‘constructive unionism’ land reform programmes in rural Ireland, which had resulted in spectacular
transfers of rural land in the late 1800s (Aalen 1993), alerted Scots to a similar need for land reform in rural and urban areas of Scotland (Douglas 1974). For example, Dunfermline Council campaigned in 1896 for a local site value tax (Short 1997), eight years before Geddes produced his Dunfermline town planning report.

Geddes was also acquainted with many leading advocates of land reform, including his fellow biologists Alfred Russel Wallace (1823–1913) and Herbert Spencer (1820–1903), who promoted land nationalization, and the philanthropists Joseph Fels (1853–1914), Benjamin Seebohm Rowntree (1871–1954) and William Lever (1851–1925).

**Vacant sites mapping in Edinburgh and the Philadelphia connection**

Geddes’ ‘Survey of Edinburgh’ provided a model for future civic surveys in all towns. Vacant sites were recorded on two maps: a plan of the Old Town of Edinburgh identifying 75 existing and potential ‘open spaces’ for playgrounds and urban agriculture from 1908 (Figure 1), and a plan of the entire city from 1910 entitled ‘Directory Map – Vacant Lands’ showing 450 unused acres (Figure 2). The former is drawn and coloured by hand and attributed to Geddes’ Outlook Tower Open Spaces Committee, and the latter consists of a Post Office Directory ‘Plan of Edinburgh, Leith and Portobello, with suburbs’ overlaid by a transparent sheet onto which annotations were drawn by hand. This early geographic information system (GIS) was then recorded as a black and white photograph on glass negative. Sites are identified by blocks of differing shades, suggesting that the original was coloured and indicated a number of different categories of space.
While the 1908 map documents opportunities for Geddes’ interventionist approach to urban regeneration, ‘conservative surgery’, the purpose of the 1910 map is not clear. However, the later map specifically acknowledges the contribution of Geddes’ friend Joseph Fels from Philadelphia, a soap millionaire and philanthropist. This connection may provide some clues as to the purpose of the map. Two suggestions are made here.

The first suggestion relates to Fels’ support for the single-tax on land value as proposed by Henry George. The Patrick Geddes Papers at the University of Strathclyde Archives include a paper delivered by Fels to the Farmers’ Club, London, in 1906, where he suggests that access to land is a fundamental right, and that men “can no more live without land than they can live without air or water” (Fels 1906, 1). He observes the negative effects of land (in England) being owned by a small number of people, and the potential of existing property rights to exploit tenants (Fels 1906).

The collaboration with Fels confirms that Geddes was very much engaged with these debates and suggests that perhaps the map was to help make the case for land reform by communicating in a clear, synoptic and visual format how much land was vacant within the city boundaries, and therefore potentially liable for the land value taxes of the Finance Act 1910.

The second suggestion relates to the fact that Fels considered land and people the most important natural resources, but observed huge tracts of unused land and vast numbers of unused people, or ‘idle labourers’, wandering the streets (Fels 1906). Fels (1906, 1) records his involvement in several experiments in America “with a view to turning the unused labour of cities back on to the land” in urban allotments and “farm labour colonies”. Urban agriculture

was also seen as a solution to recessionary periods, occupying those “who are temporarily displaced from their accustomed work, through slack times or changes in machinery, or removal of industries” (Fels 1906, 2). Fels recognized that the results of the experiments went beyond the produce grown to building a sense of community and nurturing physical and mental well-being. He founded the Philadelphia Vacant Lots Cultivation Association, where he observed the environmental and social benefits of urban agriculture: “A large number of vacant, unsightly spaces became attractive centres of local interest and activity, the public became interested in thrift and co-operation” (Fels 1906, 2). Cooperation, or mutual aid, was considered a significant factor in evolution by another of Geddes’ influential friends, the Russian geographer and anarchist Pyotr Kropotkin (1842–1921), which would result in the “development of intellectual and moral faculties which secure to the species the best conditions for survival” (Kropotkin 1902, 2).

These ideas would have resonated with Geddes, who saw gardening as a core activity for cultural evolution that engaged citizens in “vigorous health and activity, guided by vivid intelligence” (Geddes 1915, 99). It is suggested here that the 450 acres in Edinburgh identified categories of land for urban agriculture uses. This may have been related to exemptions to the ‘Undeveloped Land Duty’ for agricultural land and publicly accessible green spaces in the Finance Act 1910.

**The Dublin Inquiry Map, 1913**

Both Edinburgh maps were shown in Dublin during 1911 as part of Geddes’ ‘Cities and Town Planning Exhibition’ (Geddes and Mears 1911). The influence of the 1910 map can clearly be seen in a subsequent map of derelict sites and tenements by the local architectural firm Kaye-Parry and Ross, who were commissioned by the Local Government Board for Ireland.
to carry out the Dublin Civic Survey (Civics Institute of Ireland 1914). This was then used as the basis for a map that appears in the appendix of the report of the inquiry by a Departmental Committee (appointed by the Local Government Board for Ireland) “into the Housing Conditions of the Working Classes in the City of Dublin”, which took place in early December 1913 (Bannon 1985). This map is hereafter referred to as the Dublin Inquiry Map (Figure 3).

It is unlikely that either of the Dublin maps were generated through the type of dynamic and participatory process envisioned by Geddes.

The Dublin Inquiry Map uses colour to differentiate between ‘Derelict Sites’, ‘Land available for building’, ‘Insanitary areas’ and ‘Dangerous Buildings’ (Dublin Housing Inquiry 1914, 324–325), all illustrated in one singular synoptic view. While no commentary for the map is provided, these categories identified sites that were potentially subject to the new land value taxes of the Finance Act 1910. For example, the ‘Undeveloped Land Duty’ applied to land within the city boundary identified as suitable for development, and land that had been developed but was now derelict “owing to the land ceasing to be used” (House of Commons 1910, 14). The map also identifies “Areas for which schemes are in preparation” and “Artisans Dwellings already erected”, and therefore can be considered a tool for the strategic planning of housing provision as well as the administration of land value taxes.

The Dublin map provides some clues as to what the 1910 Edinburgh map may have looked like in colour, and the categories that may have been indicated. It therefore suggests a third possible purpose for the Edinburgh map as a strategic planning tool for housing provision.

The report of the inquiry provides valuable insight into deliberations around vacant sites in Dublin at that time. For example, Geddes reveals his support for urban agriculture initiatives by suggesting that “all vacant land around towns should be reclaimed … in the public interest” and allocated amongst the poorer classes in order to create a level of income and improve nutrition (Dublin Housing Inquiry 1914, 211). This proposal clearly reflects the land reform debate of the time.

Another expert witness, E.A. Aston, of the Housing and Town Planning Association of Ireland, advocates for a tax on vacant sites to encourage their use, and compulsory purchase powers for Local Authorities on sites that have remained vacant for over two years (Dublin Housing Inquiry 1914). Aston suggests the tax can be based on the valuation being undertaken as part of the Finance Act 1910 (Dublin Housing Inquiry 1914). His proposal perhaps reflects frustration with the ‘Undeveloped Land Duty’, which had proven challenging to implement (Short 1997).

Case studies of the contemporary practice of vacant sites mapping

Over a century later, vacant sites are still very much in evidence in the cities of Dublin, Edinburgh and Philadelphia. The paper now focuses on the motivations, processes, challenges and uses of the contemporary practice of vacant sites mapping in each city, drawing on grey literature and responses to semi-structured interviews with key people involved. A transcript of each interview was issued back to the respondents for review and approval. Please refer to Table 1 for a summary of the findings.

As the capital city of a small open economy that has experienced in recent years the extremes of the boom and bust economic cycle, the context of Dublin is set out in more detail.
Dublin

In the twenty-first century Ireland embraces a fusion of neoliberal doctrines, a post-colonial anxiety around land and property, and a prioritization of local interests in politics (Kitchin et al. 2012). The latter phase of the so-called Celtic Tiger culminated in a ‘massive property orgy’ that led to a catastrophic collapse of the market and economy (Kitchin et al. 2012). Many contributing factors can be identified, including the over-extension of property and area-based tax incentives or selective waivers (Williams and Boyle 2012), a lack of regulation in property finance and banking, a developer-led planning process, high levels of speculative development over an extended period, and corrupt and inappropriate zoning and planning decisions (Williams 2011). The property boom resulted in housing demand and supply becoming disconnected (Kitchin et al. 2012), an oversupply of land for development,
dispersed urban growth or sprawl, and single use and low-density development, often in areas with little or inappropriate infrastructure (Williams 2011).

After the collapse, during the Great Recession, many ‘civil stakeholders’ initiated alternative social, ecological and cultural projects on vacant sites in Dublin (Bresnihan and Byrne 2015), and great emphasis was placed on the urban core of the city as the economic driver of the country (O’Callaghan and Lawton 2015). The prevailing politics of austerity prompted Dublin City Council (DCC) to adopt a dual urban regeneration strategy of addressing the numerous vacant sites remaining after the crash, and improving the public realm using temporary urban acupuncture projects (O’Callaghan and Lawton 2015). Many alternative projects became institutionalized and were promoted as mechanisms for stimulating normative urban regeneration (O’Callaghan and Lawton 2015). For example, a temporary urban park on a former social housing site in the north inner city from 2013, Granby Park, initiated by a voluntary arts collective (see Moore-Cherry 2015) was subsequently promoted as a method of stimulating urban regeneration (O’Callaghan and Lawton 2015). The Dublin City Development Plan 2011–2017 introduced various policies to support “appropriate temporary uses” on “vacant, under-utilized or derelict sites in the city” (DCC 2011, 91). Resulting initiatives included the ‘Vacant Space Scheme’, where DCC helps the creative sector access work space on a temporary basis, and a multitude of temporary pocket parks, community gardens and allotments (Rose 2013a, 2013b).

While the recession was an opportune time for Ireland to learn from mistakes (Williams 2011), the solutions that were put into operation ultimately demonstrated no ‘re-think’, hanging on to the same neoliberal policies in order to protect the developer and financial class, with no evolution of the political-economic system even though it had evidently failed spectacularly (Kitchin et al. 2012).

In 2013 the DCC Brownfield Initiatives Steering Group was formed in order to bring together all the Council’s work in relation to vacant sites, and to consider the introduction of a vacant sites levy for the city. Coinciding with the centenary of the implementation of the ‘Undeveloped Land Duty’ and E.A. Aston’s evidence to the Dublin Housing Inquiry, the levy was motivated by a recognition that existing tax mechanisms on property in the city effectively encourage vacancy and the incapacitation of buildings, and an understanding that the hoarding of vacant land contributed to the property boom as it led to a false impression of scarcity, artificially driving up prices (Quinn 2013). The aim of the levy was to induce behavioural change, optimize the productive use of city land and reduce urban sprawl (Quinn 2013).

DCC started to survey ‘vacant and underutilized sites’ in 2013 in order to provide an evidence base for the levy, to develop new techniques of mapping and monitoring the sites, and to help judge supply and demand of land in the city (Rose 2013a). The survey covered a limited area defined by the Grand and Royal Canals. The definition of vacant land evolved into a three-way classification of sites not currently subject to any tax regime: a site that is totally clear of structures; vacant land with dilapidated buildings; a site comprising mainly of a dilapidated building or buildings that are likely to be incapable of occupation. The survey was based on visual assessment in the field with planners collecting information on ownership, building condition, impediments to redevelopment etc. This information was then inputted into an overall GIS map, and site boundaries verified by existing maps and previous planning applications.
Challenges identified included the interpretation of definitions and finding the resources to undertake the gathering, verification and maintenance of the data. A lack of confidence in the veracity of data undermined efforts to make the information accessible and therefore useful to a wide range of stakeholders.

The resulting ‘Vacant Lands Study’ recorded 282 sites, 91 of which comprise vacant land with dilapidated buildings, and 40 of which are a dilapidated building or buildings likely to be incapable of occupation (DCC 2015a). The total area covered by these sites is 61 hectares or 4% of inner city zoned lands (DCC 2015a). It is not possible to make any direct comparison with past surveys due to inconsistent survey areas and criteria for designation. However, it is notable that even after a sustained period of economic boom many sites remained undeveloped, often despite the availability of tax incentives and a booming market (Quinn 2013).

The vacant land levy was subsequently included in the Urban Regeneration and Housing Act 2015 (Government of Ireland 2015), which provides yet another definition of ‘vacant or idle’ land zoned for housing or regeneration with a size threshold of 0.05 hectares. A new Active Land Management Unit was formed in 2016 within the DCC Planning Department in order to oversee all the Council’s work in relation to addressing vacant and underused sites, including an ongoing revision of the Vacant Lands Study to reflect the requirements of the new Act.

**Edinburgh**

The Scottish Vacant and Derelict Land Survey (SVDLS) was first produced in 1988 as a response to the extent of post-industrial vacant land in Western Scotland, some 80 years after the efforts of the Outlook Tower Open Spaces Committee and coincident with a UK Civic Trust (1988) report that made strong recommendations for exactly this type of ‘land audit’. The City of Edinburgh Council survey for the SVDLS has been produced on a more or less annual basis since 1995. The Scottish Government ultimately controls the process, issues guidance on how it is to be carried out and provides support.

The main aim of the survey is to generate statistics that provide an evidence base for the extent and current status of urban vacant and derelict land, including remediation and progress towards re-use. Land is recognized as a finite resource and the stated objectives of the mapping are strategic planning for sustainable development, economic competitiveness, social justice and environmental quality, for example by preventing development on greenfield sites (The Scottish Government 2001). The SVDLS is also a key tool for the management of the Vacant and Derelict Land Fund, which supports land remediation, enabling infrastructure and town centres (The Scottish Government 2014).

In the SVDLS ‘vacant’ land is defined by three criteria: land unused for the purposes for which it is held; land viewed as appropriate for development; and land that has had prior development on it or preparatory works in anticipation of future development. The definition for ‘derelict’ land (and buildings) covers land that has been so damaged by development that remediation is essential, and land that is not being used for the purpose for which it is held or a use acceptable in the local plan (City of Edinburgh Council 2013). Sites must be at least 0.1 hectares, so some pockets of land may not be recorded (City of Edinburgh Council 2013).

The annual survey update is assigned to one planner and each vacant or derelict site is checked on the ground and results recorded manually. The planner relies on feedback from
colleagues, for example in relation to planning applications and responses to notices placed in the Council’s quarterly planning news publication. Aerial images play a minor role. The data are stored in two inventories: one for recording vacant and derelict land, and another recording land taken out of the survey as it no longer meets the criteria. A verification process identifies anything inconsistent or contradictory. Categorized GIS shape files are created for each site and the data is inputted into the GIS system of the Scottish Government.

The challenges associated with the SVDLS approach relate to the differentiation between definitions of vacant and derelict. An anomaly is identified in that some sites, while they are evidently capable of use in an urban area, may historically have never been used and so do not come under either definition. Also, changes to the definitions after 2005 have made longitudinal analysis difficult.

The survey information is used at national and local government levels. For the Scottish Government the outputs are mainly statistics relating to changes, proportions and proximities, collated into a report covering all local authorities. The information is used in combination with other datasets, such as the index of multiple deprivation, to seek patterns and narratives, and it is published in an objective format that allows readers to interpret the data as they see fit. The City of Edinburgh Council uses the data for strategy and policy, identifying locations for housing development, helping with planning decisions, and informing work on natural heritage and biodiversity. The data feeds into the local and regional development plans. Recent figures show that there has been a reduction in the number of sites since 2007 (The Scottish Government 2014).

The SVDLS information is also used by developers, communities and businesses looking for land in the city. There have been debates between councils on how much information to make public, principally as the data relates to funding. The GIS data is not accessible to the public, nor is an overall map of the city showing its vacant and derelict sites. Instead, the survey is communicated in an annual report and individual maps of sites.5

**Philadelphia**

The legacy of the Philadelphia Vacant Lots Cultivation Association is evident today, particularly in the work of Grounded in Philly, a partnership set up in 2012 between the Garden Justice Legal Initiative (GJLI), Philadelphia and 596 Acres, New York.

Land tenure and land sovereignty are major issues on the approximately 48,000 vacant lots in Philadelphia on which hundreds of gardens and farms, some going back generations, often have no legal rights. It is complex to gain legal access to public land even if it is vacant and the City is open to granting access. Grounded in Philly aims to make data on vacant lots and urban agriculture accessible and coordinated; demonstrate to City Government the benefit of aggregating data and making it accessible in order to enhance civic engagement; and provide support to community and market gardeners through direct legal services, policy advocacy, community legal education and community organizing. In the long term it is hoped that the project will reduce the vulnerability of alternative community land uses and highlight the extent and import of urban agriculture in the city.

In Philadelphia, the term ‘vacant site’ is understood to relate to three non-mutually exclusive typologies: underutilized land, land that might present an opportunity, and land that has been abandoned and that could be negatively impacting neighbourhoods. The mapping does not include buildings and three categories are used: public, private and ‘in use’.
At the start of the initiative stakeholder interviews were held in order to frame the project, ensure that it would be useful, and to achieve buy-in from city agencies, non-profits and residents. Initially, City Government provided existing data in bulk, but GJLI now work on an ongoing basis with the open data office in the City Government. Datasets that had previously existed only in institutional or departmental silos are now brought together to form layers in the Grounded in Philly GIS, including parcel outlines, land use designations, permeability data, vacancy licenses and violations, and billing information. The mapping is updated in real time through application programming interfaces (APIs). The probability of a plot being vacant is judged by a number of criteria informed by the datasets and verified online by feedback from the public. The only original data collected by the GJLI is in relation to lots that are being used as gardens. This is gathered from aerial photographs and ground-truthing by volunteers.

A number of challenges were identified in the process related to accuracy of data, privacy issues in relation to permissions to access and use a piece of land, and the ethics of making the aggregated information public amid concerns over developers using it for projects that might have negative impacts through gentrification and displacement.

Grounded in Philly connects individuals and groups and helps them understand and engage with what is happening in their locality through a crowd-sourced interactive web platform (www.groundedinphilly.org) based on the map of vacant sites. GJLI also works on the ground with communities to overcome the ‘digital divide’ through workshops and flyers etc., making information available in analogue form. The initiative provides guidance and assistance to community groups, helping them to understand how to access land from the city. Through the integration of datasets into the GIS the project facilitates cross-referencing and coordination between city agencies, providing a strong basis for the informed development of policy.

Discussion

The case studies of vacant sites mapping explored in this paper respond to a diverse range of conditions related to the dominant economic ideology of capitalism: Dublin, Edinburgh and Philadelphia exemplify “capitalism’s imperfectly formed spatial fabric” (Jorgensen and Tylecote 2007, 452) across the century. For example, the Dublin maps in 1913 and 2013 emerged from extreme conditions in socio-economic systems such as a housing crisis or recession, when there is a critical need for new ideas and alternative ways of doing things.

Further, this paper has revealed that the maps from the start of the twentieth century had much more ambitious and radical motivations. It is suggested that the theory and practice of Geddes, who promoted the practice of vacant sites mapping as part of the application of social-ecological systems thinking to the city, and was influenced by these more radical ambitions, can provide a fertile source of insight into how vacant sites mapping might provide a useful example of urban resilience in practice today.

This section reflects on how the practice in each city relates to Geddesian thinking and the contemporary discourse on urban resilience.
The case studies and Geddesian thinking

Vacant sites mapping in Dublin is a fledgling practice with a forgotten but notable heritage. The current motivation is for a management tool for a vacant sites levy that has direct parallels with the ‘Undeveloped Land Duty’ introduced by the Finance Act 1910, and a similar but more punitive idea put forward to the Dublin Housing Inquiry by E.A. Aston. However, this motivation falls short of the perhaps more generous and imaginative social-ecological uses for the mapping espoused by Geddes, such as a mechanism for civic engagement; a diagnosis for the city before remediation; a management tool for the strategic planning of urban systems such as housing or urban agriculture; and an opportunity to make the case for land reform. Unlike Geddes’ interactive, dynamic and inclusive survey process the contemporary mapping has no mechanism for accommodating inevitable fluidity in the data, or making this knowledge accessible and therefore of use to citizens in self-organizing.

Vacant sites mapping in Edinburgh is an established and comprehensive system for managing a finite resource efficiently. The legacy of Patrick Geddes is evident in the aim to support strategic planning in relation to housing, social justice and environmental quality. However, this is achieved through statistics, reports and plans of individual sites, as opposed to a synoptic overview of the city. As in Dublin, it is suggested the contemporary practice is somewhat lacking in relation to Geddes’ ideas of ‘civic uplifting’ (Dublin Housing Inquiry 1914), where the practice of mapping was to build community capital by engaging citizens with their place and one another. Unlike two of the suggested purposes for the 1910 ‘Directory Map – Vacant Lands’, the contemporary mapping does not attempt to support land reform or urban agriculture.

Vacant sites mapping in Philadelphia is a crowd-sourced and interactive process that is based on the collation of multiple citywide datasets. It is suggested here that Grounded in Philly would have met with the approval of Patrick Geddes, not least because it engages with citizens in a dynamic and inclusive survey process and supports the continued reclamation of vacant land for urban agriculture in vulnerable communities. In addition, Grounded in Philly reflects debates on land reform in the early twentieth century by viewing unused land as commons and supporting the rights to land of those who will use it productively. Grounded in Philly concurs with Geddes’ evidence to the Dublin Housing Inquiry in recognizing that urban agriculture can provide a level of income, improve nutritional intake, build community capital and ultimately address to some extent social inequality.

The case studies and urban resilience

Many aspects of the historical and contemporary case studies of vacant sites mapping can be linked to concepts within the discourse on urban resilience, such as adaptive capacity and adaptive co-management.

Vacant sites mapping has the potential to strengthen the social dimension of adaptive capacity, for example through interactive, dynamic and inclusive mapping processes that engage citizens with their place and one another, as with Grounded in Philly. The practice can also build the social dimension by supporting urban agriculture uses (Grounded in Philly), the strategic planning of housing provision (Dublin Inquiry Map), and attempts at land reform to reduce social inequality and redistribute wealth (historical precedents in Edinburgh and Dublin).
The spatial dimension of adaptive capacity is supported by the creation of a synoptic view of a city’s opportunity spaces, as demonstrated by the maps of Edinburgh and Dublin from the early twentieth century. This synoptic approach creates a spatial template for change that can be used in combination with other layers of information in GIS, as demonstrated to an extent by the SVDLS in Edinburgh and the Dublin Inquiry Map, to reveal optimal locations, and times, for interventions into the adaptive cycles of social-ecological systems of a town, city or region. A vacant sites map can provide a spatial framework for viewing the whole (urban) system, within which actions on a small scale can be justified and seen to have an effect.

Vacant sites mapping also has the potential, in line with Geddes’ Civic Survey, to build the temporal dimension of adaptive capacity by helping to document drivers of change over time, as demonstrated by the SVDLS in Edinburgh. Geddes considered a comprehensive Civic Survey of the past and present an essential pre-requisite to future planning: “By this study of the actual progress of town developments ... our present forecasts of future developments may usefully be aided and criticized” (Geddes 1915, 352).

Many links can also be identified between vacant sites mapping and the governance paradigm of adaptive co-management, which aims to build adaptive capacity and represents a new role for municipalities. For example, the GJLI in Philadelphia (and perhaps the Outlook Tower Open Spaces Committee) as coordinator of a vacant sites mapping project, could be interpreted as a bridging organization that mediates between diverse actors at various scales in the urban system and provides access to relevant knowledge and learning through feedback mechanisms in order to support opportunities for self-organization. Grounded in Philly also demonstrates that vacant sites mapping requires the creation, collation and integration of different datasets, and therefore new partnerships and collaborations across disciplines and departments.

Conclusion

This paper set out to explore the practice of vacant sites mapping as an example of urban resilience in practice. The research has shown that vacant sites mapping is often a response to socio-economic crises such as a recession, not simply because there may be more vacant sites, but because there will be a need for new innovative ideas on how to do things differently in order to avoid the mistakes of the past and maintain functioning (if not thriving) urban systems.

The early twentieth century has been shown to provide a fertile source of ideas related to land reform and social reconstruction, most of which would still be radical today. A re-examination of Geddesian theory and practice has provided a precedent for how these ideas, and the application of social-ecological systems thinking to the city, can influence the processes and uses of vacant sites mapping.

The contemporary case studies have been shown to reflect different aspects of their early twentieth century counterparts, Geddesian thinking and the discourse on urban resilience. It is concluded that vacant sites mapping has the potential to build social, spatial and temporal dimensions of adaptive capacity through an interactive, dynamic and inclusive survey process, generating an evolving synoptic view of opportunity sites that can (in combination with other layers of GIS data) identify connections and opportunities (in space and time) to strategically address challenges facing urban systems.
Notes

1. The land-owning elite considered land reform a threat and, in the case of nationalization, tantamount to socialism. The Finance (1909–10) Act (otherwise known as the ‘People’s Budget’) precipitated a constitutional crisis that resulted in the Parliament Act of 1911, stripping the House of Lords of its powers to veto finance legislation.

2. Personal communication, 2014, with Sofia Leonard, former Director of the Patrick Geddes Centre, Edinburgh.

3. The John Nolen Papers in The Rare and Manuscript Collections at Cornell University Library include a photograph of the 1913 map. To date, no copy of this map has been located in Ireland.

4. This included projects “pursued under Dublin City Council’s Public Realm Strategy” (DCC 2015b, 68) including Granby Park.

5. A report funded by the Central Scotland Green Network (CSGN) Development Fund in 2011 collated the vacant and derelict sites data for Edinburgh into a series of maps of the whole city in a pilot study exploring proposals for interim uses on a selection of sites with the aim of optimizing environmental and social benefits (Open Optimised Environments Ltd 2011).

6. Much of the data are accessible on the public data website www.opendataphilly.org

Acknowledgements

The authors would like to thank the respondents in each case study for their time and input, and the reviewers for their insightful comments.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This research was supported by the EU FP7 (ENV.2011.2.1.5-1) TURAS (Transitioning towards Urban Resilience and Sustainability) Project, Grant Agreement number: 282834.

References


