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To cite this article: Saehoon Kim (2019) Design strategies to respond to the challenges of shrinking city, Journal of Urban Design, 24:1, 49-64, DOI: 10.1080/13574809.2018.1554345

To link to this article: https://doi.org/10.1080/13574809.2018.1554345

Published online: 17 Dec 2018.

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Design strategies to respond to the challenges of shrinking city

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ABSTRACT
Urban design decisions for shrinking cities need to take into account the quality of daily life of the community alongside with the built environment characteristics. However, little is known about why certain urban design strategies should be adopted in response to shrinkage. This paper examines approaches to influencing shrinkage through design, such as building a visible safety net for vulnerable populations, creating place-based social networks and reconfiguring the city’s stigmatized image. Based on the effects of each, four strategies are suggested for design practitioners and policy makers to choose and adopt during the planning processes.

Introduction: planning and design responses to shrinking cities

In many places around the world, shrinking cities are posing challenges to policy makers and urban planners. The persistent shrinkage of a city’s population and collapse of an industrial base is associated with a declining demand for land, transport, houses, businesses and other elements of social infrastructure. At the same time, unfavourable changes in community characteristics such as ageing, unemployment, brain drain and poverty concentration are stigmatized as symbols of shrinking cities, which in turn leads to the decline of neighbourhood attractiveness and street vitality. However, today’s shrinking cities are not just the hallmark of some post-industrial rustbelt in the American Midwest or in Eastern Europe; population losses and property abandonment are taking place worldwide. Across many Asian countries (e.g., Japan, South Korea, Indonesia and China), Latin America (e.g., Brazil and Mexico), and Southern Europe (e.g., Spain and Portugal), cities are shrinking, quietly in some and noticeably in others (Pallagst 2010; Audirac, Foll, and Martinez-Fernandez 2010; Kim and Rowe 2012, 2012; Alves et al. 2016; Galster 2017; Gao et al. 2017).

It is true that decaying cities have been around for a long time. Sometimes they are replaced by more successful cities, and at other times they remain abandoned for centuries until new pioneers emerge as creative transformers of disused buildings and aged infrastructure. However, compared to the long history of cities, the shrinking-city discourse has not fully emerged until quite recently. Within the context of the United
States, Mallach (2017) suggested that the reality of urban shrinkage was obscured by the notion of ‘urban crisis’ since the 1950s, delaying a practical understanding of shrinking cities until as late as the 1990s.

In the East Asian region, with the exception of Japan, the discourse was adopted more recently. For example, a nationwide investigation of shrinking cities in South Korea took place beginning in the mid-2000s, along with a number of prescriptive actions and the enactment of incentive-based regulations for regenerating cities (Lee, Won, and Kim 2016). In China, depopulation is taking place widely in previously master-planned metropolitan districts and rural villages, concurrent with little economic opportunities and deteriorating housing quality (Kim and Rowe 2013; Gao et al. 2017).

The awareness of shrinking cities around the world – coupled with global economic crises and the rise of local politics fighting against decline – became a point of departure for numerous actions. Some cities initiated a battle against shrinkage, developing plans for attracting the return of residents and jobs. While central and local governments often took the initiative, many non-governmental bodies such as non-profit organizations, community leaders and social ventures emerged as major players in the field of urban regeneration over the years. In other cities, shrinkage was accepted as a new reality, leading to the modification of land uses and infrastructure-management plans accordingly. Some actions are yielding short-term consequences, although they are at best weakly sensitive to long-term urban changes.

Among these, a few policy initiatives are commonly associated with the potential to remedy urban shrinkage (Table 1). Promoting creative industries, for example, was suggested as an effective planning intervention for triggering the revival of moribund communities (McCarthy 2006; Stevens 2015). Policies promoting creative clusters, handicraft workshops, theatres, music festivals and tourism sites to attract the ‘creative class’ have become globally recognized as effective vehicles for recovering from shrinkage. Although sometimes overshadowed by the stories of gentrification and greater inequality through ‘winner-take-all’ dynamics, the effects of creative economy were demonstrated in cities such as Leipzig (e.g., media, music and game industries), Manchester (e.g., knowledge-based industries), Belfast (e.g., entertainment and public art), Sheffield (e.g., creative manufacturing), Berlin (e.g., visual arts, publishing and design), Lagos and Mumbai (e.g., film industries called Nollywood and Bollywood, respectively), Berkshire, MA (e.g., media, commercial arts, design and music) and Incheon (e.g., art and tourism), among others.

Another approach is strategically reducing the size of a city so that the local government can afford to provide urban services. Cities such as Detroit and Youngstown are showcases for right-sizing the city’s urban territory. Detroit Future City, for example, presents a bold attempt to establish a 50-year strategic framework in which a non-profit organization is founded to implement the vision. One of the strategies in this approach involves a planned shrinkage of the city through the transformation of less-populated areas into open-space amenities and the closure of schools with low enrolment. At a smaller scale, the Youngstown 2010 Plan focused on ‘better, smaller Youngstown’, attempting to empty heavily vacant neighbourhoods while re-urbanizing stabilized neighbourhoods (Hollander 2011). In this way, oversized urban territories will become realigned with a future demand for land and available resources for management.
The piecemeal restructuring of abandoned land is another type of remedy for shrinkage. A ‘land bank’ is one example of this approach, where public institutions or community groups acquire, manage and transfer problematic properties to a type of non-profit developer. Abandoned houses with unpaid taxes and broken windows, for example, constitute the type of properties that would qualify. In the US, approximately 9.3% of the national housing stock was left vacant on a year-round basis as of 2017 (US Department of Commerce 2017). The rate varies depending on different countries, at approximately 13–14% in Japan and at 6.5% in Korea. By using some of these properties, land banking potentially contributes to neighbourhood stabilization, as transferred lands and abandoned houses are repurposed according to the needs of engaged citizens, which prevents the negative contagious effects of vacancy on blighted areas.

**Between helplessness and transformative change in shrinking cities**

**Why a template for urban regeneration fails**

The remedies described above, however, are hardly enough. One reason is that the scale and scope of shrinking-city problems are too extensive. Compared to an established

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Table 1. Typical urban design strategies responding to the shrinking-city problems around the world.

<table>
<thead>
<tr>
<th>Typical urban design strategies</th>
<th>Objectives</th>
<th>Programmes/cities</th>
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| Conversion of underused built properties and natural sites for introducing creative industries | • Attracting creative industries that transform an inactive or formerly inaccessible neighbourhood into a job-creating, economically animated cluster  
• Encouraging new entrepreneurship to diversify local talents and assets for change | e.g., Bremen Technology Park, Bremen, Germany; UNESCO Creative City, Kanazawa, Japan |
| Decommissioning old roads and open spaces for green infrastructure        | • Creating green infrastructure elements, such as greenways, parks, retention ponds and urban agriculture sites for recreational uses and economic impacts  
• Empowering the community through the collaborative making of environment-friendly land uses | e.g., Detroit Future City, Detroit, US; ‘Block by block’ project in Gautam Nagar (a resettlement colony), Mumbai, India |
| Densifying a shrinking neighbourhood with infill development              | • Filling vacant or derelict parcels with new development in a previously built neighbourhood (without spreading out the urban area)  
• Enhancing the continuity of streets and a sense of density and mixed-use characteristics; preserving open spaces near the built area | e.g., Postplatz development in Dresden, Germany                                    |
| Large-scale redevelopment envisioning a forward-looking regional hub      | • Consolidating a number of parcels for accommodating large-scale, mixed-use urban redevelopment with enhanced infrastructure  
• Branding the site for a new regional hub, a global logistics centre or a tourism venue | e.g., Competition for Tongyeong Dockyard redevelopment, Tongyeong, South Korea    |
| Pedestrianizing streets with bike lanes and walkable design               | • Transforming overly wide roads and unsafe streets into activity-friendly, ‘eyes-on-the-street’ walkways | e.g., Road diets and pedestrianization in Imagine Flint, Flint, US               |
template for urban development, much less is known about ‘what needs to be done’ to reverse the cycle of decline in cities. The efforts of land banking or greening a derelict plot may be able to reduce the chances of a decrease in housing value in the nearby parcels. However, these short-term consequences are weakly related to the improvement of the quality of life for remaining citizens living in isolation and poverty, as fundamental changes will only come with the long-term commitment of the whole community. In addition, filling vacancies in manufacturing and service industries is hardly achieved through piecemeal intervention, unless the city turns into a business-friendly environment to at least some entrepreneurs or migrant workers.

More importantly, every shrinking city has its own landmines marked by uncertainty and complexity. If it can be assumed that a city is struggling with a single cause of decline, e.g., job-related out-migration of the workforce or the health impact from a natural disaster, the best method for regeneration can be chosen from a list of tried-and-true prescriptions. However, such an empirically verified strategy is rarely found, nor would it be applicable to many shrinking cities around the world confronting their own particular issues (Figure 1). Even the formula of introducing creative industry may not be a solution for some cities in which long-term decline is unavoidable.

From an urban-governance perspective, local leadership and communities often do not share the same picture of a shrinking city’s future. Although there is a widespread agreement that a shrinking city must change, convincing different stakeholders that a specific vision will bring about the most meaningful change is difficult. Whether the vision is reinventing the city as a tourism boomtown or the endurance of a population

Figure 1. Abandoned houses in Nangok-dong, Seoul, South Korea. The houses are left abandoned for many different reasons, making the creative conversion of the properties highly uncertain and complicated. Planning interventions to adaptively re-use the houses were not very successful over the last decade.

Source: taken by the author.
loss as a new normal, having discrete visions is not always problematic as long as long-term plans can be made step-by-step and implemented within a consistent framework. However, in many places, resources for urban regeneration, e.g., budget, institutional capacity, public lands and social investment, come from different parties in and around the city, leading to differences in how particular goals are established and put into an action. Coupled with the difficulty of balancing long-term visions with everyday quality-of-life issues, this greatly complicates the decision-making processes.

**Diversified paths for transformative change**

Despite the difficulties, it is likely that the menu of choices for responding to shrinkage through urban design will grow. This is partly because the collaborative efforts of urban citizens, planners, social innovators and local officials are beginning to create a more comprehensive paradigm for pursuing diversified paths for redesigning cities. From a local-government point of view, previous studies proposed potentially effective strategies, such as expanding the local revenue base and reducing the expenditure for unnecessary services (Honadle, Costa, and Cigler 2004; Hummel 2014). Once the government’s revenue is stabilized, public investment in government-led social engagement and community’s capacity-building is enabled. From a ground-level view, formal and informal citizen action is one of the driving forces enabling new experiments. Indeed, Ryan (2017, 148) suggested that the most important lesson from planning in the age of recessions is that the ‘endless creativity of urban citizens in the face of adversity and large-scale inaction … can have positive effects in the built environment when private developers and government fail’.

More recently, there has been a notable rise in awareness about ‘shrinking-sensitive urban design’. The shift is largely built on the previous literature about the value of urban design in the face of shrinkage (Ryan 2008, 2012; Schilling and Logan 2008; Lee, Won, and Kim 2016) and stems from the idea that urban planners, architects, non-profit developers and community leaders should be attentive to the subtle changes in the built environment linked with the socio-economic processes of shrinkage. According to this perspective, urban designers should deal with the broad civic environments that are beyond the direct control of individual designers — such as the ambience of a neighbourhood, the social perception of urban places and street patterns crossing the boundaries of parcels — and then incorporate these elements into a wide-ranging design. This way, problems of shrinkage can at least be mitigated through innovative, open-ended approaches associated with the neighbourhood’s spatial issues.

Shrinking-sensitive urban design does not spotlight the accomplishments of a large-scale, capital-intensive urban transformation such as ‘the Bilbao effect’, which involves the opening of the imaginatively designed Guggenheim Museum, mixed-use waterfront redevelopment and upgrading metropolitan public transport systems. This is not because the project was less successful, but because the model is unlikely to be transferrable to other shrinking cities devoid of financial resources and a market-oriented demand for change.

The awareness is not a completely new notion, since urban design is fundamentally a prescriptive attempt borne out of a quest to improve built environments for various purposes (Moudon 1992). Here, the term ‘design’ does not always indicate an action
related to the development of new buildings and open spaces for growing cities. Remediative design in the face of social hardships and economic setbacks constitutes an important, but underrated foundation of the field of practical urban design.

Within this context, the paper is an attempt to identify some generalizable aims of urban design to remediate problems of shrinking cities. Although design alone cannot ensure a cure for deep-rooted urban problems, coping with shrinkage through urban design produces appreciable benefits to many urban citizens of a shrinking city. Here, some empirical foundation upon which the rationale for good urban design is built is investigated within that context.

**Influencing shrinkage through urban design**

In shrinking cities, urban design aims to reinvent places within which actions of regeneration – or at least actions delaying the rate of dilapidation – can be initiated and socially sustained. Moving away from both bureaucratic top-down planning and clumsy grassroots action, urban design should be able to intervene in the daily concerns and needs of urban citizens, embracing the qualities of the existing neighbourhoods that they value.

Influencing shrinkage through design requires a different approach from other types of development occurring in the midst of a property boom. In shrinking cities, population losses and community deprivation leave many services and housing demand out of scale. Families curtail the consumption of goods while businesses reduce investment – and public works are no exception to this pattern. Since shrinking neighbourhoods are in need of massive public support – including the maintenance of broken sidewalks, old sewage lines and deteriorated healthcare systems – bottom-up demand for upgrading infrastructure and public space is often met with hesitance due to budget-cutting and diminished resources for management. This is why design intervention against shrinkage should move away from conventional methods such as replacing vacant lots with infill development when the demand for new space is extremely low. In addition, a transformative redesign of the cityscape in a commercial area should be avoided in shrinking cities when retail owners and tenants lack the capacity to invest in their buildings.

In many shrinking cities, multi-layered urban regeneration plans – ranging from a city-level strategic plan to action plans at a number of different scales – are made to pave the way for motivating innovative, yet affordable change in and around the city. The early phases of implementation are often funded by governments or public investment. Using the initial seed funding, a successful plan aims to make incremental change in the built environments, leveraging the advantages of existing human capital and neighbourhood assets rooted in the city.

This does not mean that every city can expect to hit a turning point through shrinking-sensitive urban design. For one thing, many cities are in the middle of a downward spiral of the local economy and property values. Therefore, it is important to learn to live with shrinkage, such as slowing down the speed of obsolescence through neighbourhood stabilization and deterring the remaining people from leaving. This requires authentic dialogue among policy makers, planners, architects and a broader range of urban citizens, including residents, social activists, artists, religious people,
school parents, volunteer workers and service workers. Once a shared goal is established, civic aspiration needs to be translated into sensible design. During these processes, urban designers establish some goals for the positive effects of design on shrinking cities. Potential goals and design strategies are summarized in Figure 2.

Goals of urban design responding to shrinkage

Building a visible safety net

The first goal of urban design responding to shrinkage is building a visible safety net. Shrinkage triggers economic instability of affected households and undermines the social well-being of urban citizens. Although this affects the city's entire population, the worst social stigma is not evenly distributed. For example, children in a poor family or aged people with mental disabilities living alone will suffer more than affluent people from the disappearance of a daycare and a medical institution in their neighbourhood. When a neighbourhood falls into dilapidation marked by abandonment and crime, the toll will be greater on vulnerable citizens and local businesses. Thus, the role of urban design is to provide an immediate benefit to the people hardest-hit by shrinkage. Setting up a safety net of accessible safeguards against social disruption within the remaining communities will help to retain their integrity and ensure their presence. This safety net may have many different forms.

One is the establishment of a service-sharing platform in a residential area. Cities are sustained by a multiplicity of agents and inhabitants, including the recipients and providers of various services. As the growth of the local economy slows down, a wide range of city services such as policing, healthcare, home repair and garbage collection, as well as private retailers such as grocery stores and restaurants, become deficient. The deficiency has two effects: individuals are forced to pay a larger portion of their income on services of substandard quality, and individuals have to go outside of their
neighbourhood for necessities, causing the quality-of-life struggles characteristic of disadvantaged urban households.

In some places around the world, the issue is addressed through designing a service-sharing space in a process that engages community members. In Seoul, in keeping with the proverb ‘it takes a village to raise a child’, a group of residents formed a cooperative for raising their children. In the early phase of housing design, potential tenants are invited to participate in the selection of housing prototypes, and the aesthetic design of a childcare room and an outdoor plaza. Once the clamouring voices of tenants are meshed with the design processes, child-rearing spaces such as a babysitting room, a group exercise space and a children’s library can be developed and maintained at affordable costs, according to the norms of community governance. This leads to a mutually beneficial outcome for participating families, who become active parts of their self-supporting community.

At a neighbourhood scale, reducing the transportation costs and commuting time of low-income people is an example of a safety net. In many places, urban functions are geographically separated, leading to the isolation of housing from jobs and services. People living in a hillside slum neighbourhood without access to mass transit, for example, often work in a distant urban centre. The resultant long commuting hours and a sense of isolation inflict high economic costs on the already disadvantaged populations. In addition, hilly geography serves as a physical barrier to the daily activities of older people, affecting the time spent on outdoor activities and chances of getting palliative care for illnesses.

Recent cable-car developments in Latin American cities, such as 4.9 km lines in Ecatepec, Mexico City and a 2 km gondola lift called Metrocable in Medellin, are transformative attempts to provide complementary mobility systems for displaced passengers living in the slums. The projects reflect the notion of ‘social urbanism’, a term coined by Alejandro Echeverri, the former director of urban projects under Mayor Sergio Fejardo in Medellin. According to Echeverri, social urbanism focuses on putting the largest public investment in the most vulnerable area of the city (Echeverri 2009). This can lead to the formation of a visible safety net integrated with play, work and entertainment hubs at the heart of chaotic, densely populated cityscapes.

Creating place-based social networks

The exodus of middle-income households and familiar neighbours away from a shrinking city has many negative social ramifications. Remaining residents, for example, lose meaningful interactions with people who might have shared resourceful information and other forms of social support. As civic connections begin to disappear with shrinkage, tangible virtues of urban society such as neighbourhood trust, shared job-seeking resources, reliable helping hands and collective eyes on delinquent behaviours are also diminished. In addition, a sense of isolation, a lack of compassion and prejudice towards disadvantaged residents may become prevalent. The loss is not only accrued to individuals, but also to the larger community that used to benefit from the spillover effects of reliable social ties.

Facing this problem, urban design aims to make urban places more conducive to social contacts and diverse uses, and to create an atmosphere that is inviting to a variety
of people. This arguably provides place-based means through which urban citizens build and sustain their social relationships (Williams 2005). While many young generations rely on online networking services for communication, close proximity to trustworthy neighbours and people with social skills can open up opportunities for positive socialization and face-to-face communication.

Urban design primarily helps to build social networks through two paths. First, the planning process provides an opportunity for conversation among participating groups. This serves not only as a legal procedure for the legitimacy of a plan, but also as a critical social-learning process where individuals become acquainted with others. While avoiding communication with unfamiliar neighbours and antagonizing others with opposing views can become a source of conflict, a good design process draws stakeholders and other residents to partake in many forms of authentic interaction. In this way, there is a fair chance that contentious conflicts are mitigated and localized knowledge is incorporated into design decisions. However, network building is not just confined to the internal relationships of a community. Outreach activities and collective appeals for pledges may also serve as a vehicle for at least partially filling the void of diminished social capital and financial resources necessary for regenerating shrinking cities.

Second, careful design can generate substantial use value of urban places. Good spatial qualities, e.g., attractiveness, adaptability to spontaneous activities, flexibility towards changing demands and divisible layouts for smaller groups, enhance a previously disused location’s potential for meaningful social use over time. This potential activates a welcoming atmosphere for community care or social entrepreneurship. Here, the quality of an urban place is not narrowly defined by its aesthetic appearance; it also involves the manner in which a place is maintained, operated and re-fashioned to foster diverse voices. As suggested in Carmona (2014), the quality of urban places is shaped and unknowingly reshaped by the day-to-day activities and human associations.

Reconfiguring the stigmatized image of the city

Population losses and property abandonment are at least partly attributable to the undesirable image of shrinking cities. Degraded housing, ugly streets and rundown commercial districts with frequent crime are part of this stigmatized portrait. The devalued image further deteriorates if ‘no-go areas’ occupied by defamed spaces spread across the city. As stigmatization reflects the reality of a city’s lack of competitive merits, further regeneration efforts and innovative will for change can be discouraged.

Urban design helps to reinvent the negative image of shrinking cities in several ways. As suggested in Southworth (1985) and Rofe and Stein (2011), carefully designed urban places mould the image of a city and manipulate the associated psychological impression of the place shared among the community. However, unlike cities without stigma, urban citizens in shrinking cities generally show indifference to public image-making efforts and sometimes distance themselves from neighbourhood change. Furthermore, wiping out the undesirable landscape of the past may inadvertently erase the last strands of emotional attachment bonding the remaining residents to the neighbourhood. Thus, creating a counter-image of shrinkage through urban design should be accompanied by genuine social engagement and the gradual empowerment of broader civic society.
Once the citizens emerge as engaging groups, urban designers can integrate the city’s major assets and civic identity with life-supporting spaces. Despite widespread social stigma, shrinking cities do have some attractive assets – or at least familiar places that recall shared memories and positive emotions – that appeal to the remaining citizens. In addition, as suggested in Hollander (2011), the depopulation of a neighbourhood may occur while the perceived quality of living in that same place is not degraded. The loosely defined public assets in shrinking cities will play an important role in mitigating the prejudicial belief that life in a shrinking city will always be one of despair.

Urban design strategies responding to shrinkage

Within the framework of shrinkage mitigation, this study proposes some urban design strategies as summarized in Table 2. Since piecemeal policy intervention cannot provide all the necessary urban design components, a better approach is to

<table>
<thead>
<tr>
<th>Urban design options against shrinkage</th>
<th>Urban connector strategy</th>
<th>Place patchwork strategy</th>
<th>Social incubator strategy</th>
<th>Process-based strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing land uses to promote the extension and rehabilitation of old buildings</td>
<td>■□</td>
<td>■</td>
<td>■□</td>
<td>□</td>
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<tr>
<td>Accommodating cultural clusters and talented people for creative economy</td>
<td>■</td>
<td>■□</td>
<td>■□</td>
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<tr>
<td>Transforming an underused facility into local-based amenities to enhance the residents’ quality of life</td>
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<tr>
<td>Upgrading a marketplace for new shopping experience and diversified services</td>
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<tr>
<td>Turning an abandoned alley into a kids’ playground through public participation</td>
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<tr>
<td>Restoring and placemaking historic sites for slowing down the pace of change</td>
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<tr>
<td>Calibrating surplus transport infrastructure (or introducing a new public transit)</td>
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<tr>
<td>Creating urban agriculture sites by demolishing abandoned houses</td>
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develop a set of strategies for coping with the multiple issues of shrinking cities. The strategies illustrate how remediativ e urban design can improve the critical places of cities with adverse shrinkage conditions. For design professionals, these strategies are consistent with widely accepted approaches at the conceptual design phase. For policy makers, careful effort will be required to align these strategies with other approaches to improving the various conditions of shrinking cities.

**Urban connector strategies**

First, ‘urban connector’ strategies attempt to link distinctive urban places along a linear or circular pattern of streets, open spaces, historical assets or points of large transport infrastructure at a local or a regional scale. The basic assumption is that a neighbourhood undergoing shrinkage can be further stigmatized with a fragmentation of meaningful sites. As fine-grained activity hubs are left alone, chances of their contribution to a recovery from social inactivity can be dismissed. However, it is essential that socially valued places are reconnected with each other to have a meaningful impact on the quality of life in shrinking cities. The mode of connection may vary, and include a pedestrianized street, a bikeable path, a greenway and community gardens along the road, a visual corridor or linearly-integrated land uses, among others.

Nevertheless, the urban connector is more than a mere collection of individual buildings and residual spaces. The connector as a whole is a stimulator for forward-looking social activities and positive neighbourhood perception, potentially reconfiguring a derelict area into a series of socially animated, intimate, legible and creatively programmed places. Once the connector is formed and valued by the community, as

*Figure 3.* An example of ‘Urban connector strategy’: a series of small and large-sized built environments are proposed along an arterial road crossing a deserted stone quarry in the middle of urban area in Seoul, South Korea. This attempts to revitalize a formerly underutilized quarry site through linear design intervention.

Source: drawn by the author and Urban Lab Cooperative.
illustrated in Figure 3, it becomes the morphological background guiding future development and heterogeneous commercial activities. In this manner, diverse but coherent streetscapes can be generated along the urban connector over time.

Although some flagship development projects may initiate visual changes along the connector, their strategies do not aim to construct a few landmark buildings or emblematic places. This type of landmark development may appeal to outsiders seeking tourism amenities or investment, but it hardly penetrates into the social fabrics of urban citizens. The urban connector strategies recommended here attempt to examine opportunistic places for humane uses, innovative co-working, social contacts, kids’ play and pop-up recreational activities. The connector does not have to be a major street crowded with pedestrians and shoppers. Rather, an alley occupied by youngsters and a few clubhouses where community meetings take place constitute important places that are incorporated into a larger linear space.

**Place patchwork strategies**

Second, ‘place patchwork’ strategies provide another method that advocates small-scaled, scattered and reversible design intervention over inflexible development projects. Compared to the previous urban connector strategies, this strategy favours the current mode of spatial decentralization of various urban places. Fragmented sites are left accessible to remaining inhabitants scattered across a neighbourhood. But instead of leaving them as they are, individual places are redesigned to be more attractive, distinctive and child-friendly, so that the ordinary routines of everyday lives are enhanced. The piecemeal, accidental and spontaneous qualities of urban patterns are preserved and reinforced to be reconnected with neighbourhood environments.

Patterns in many shrinking cities around the world have been formulated in a piecemeal manner over time, leading to messy urban fabrics and disorganized juxtaposition of housing typologies, e.g., the single-family houses of the 1960s with narrow alleys, low-rise residential blocks from the 1970s, a modern big-box outlet store and parking lots developed in the 1990s but left abandoned since then, and the mid-rise studio flats that mushroomed in the 2000s. Since the original pattern of development and decline is, according to MIT professor Brent Ryan, ‘episodic and scattered rather than neat and organized’, a ‘patchwork urbanism’ approach needs to be incorporated (Ryan 2013, 286–288). Avant-garde modern architects in the early twentieth century attempted to eradicate this type of morphological cacophony through comprehensively organized urban projects. However, in patchwork strategies, urban designers attempt to embrace a number of seemingly conflicting urban elements constituting individual places – such as streets, fences, greenspaces, urban grid patterns and residential blocks – for a loose, dynamic relationship of proximity and permeability.

This patchwork serves as a flexible urban palette on which people, activities, capital and various fixtures are socially or visually associated with each other. Interaction is often without formal consistency, but continues to evolve over time, retaining the quality of multiplicity and adaptability to spontaneous transformation. In some places, a targeted urban project can constitute part of the patchwork, as it
encourages the gradual transformation of the nearby area. This type of project is often called ‘urban acupuncture’, a term coined by Spanish architect Manuel de Solà-Morales (de Solà-Morales 1992). Moving away from the formalism of a master architect’s design or large-scale infrastructural improvement, these strategies involve multiple solutions grounded in the situational reality of individual places. Architects, planners, artists, social activists and stakeholders are invited to collaborate on the implementation of transformative ideas, which accumulate upon the dispersed urban places interwoven throughout the patchwork pattern of a neighbourhood.

**Social incubator strategies**

Third, ‘social incubator’ strategies shift a design focus to nurturing the human capital of the community for change. These strategies defy the myth of ‘once we build it, they will come’, by moving away from a vision of specific urban-form making. In shrinking cities, neighbourhood change may begin with smaller steps: feeling attached to a nearby park, growing older with neighbours, accommodating collective needs for street management, learning new skills within the community, generating ideas to solve contentious problems, and rubbing shoulders with neighbours for a solution. The role of urban design is to initiate and influence much-needed social interaction in shrinking cities. As suggested in Innes and Booher (2004), the change can be promoted through small steps such as nurturing volunteerism and institutional capacity building in the community, based on advice and assistance from outside players, which will minimize the unproductive and sometimes brutal development that tends to replace existing people and neighbourhood environments.

Although a flourishing innovation for growth is not necessarily expected from the daily routine of urban residents, making a valued place for social incubation can slowly change the atmosphere of a neighbourhood. Many strategies for urban revitalization assume that regenerating a city requires self-motivated human capital, positive attitudes towards collaboration, and a devoted engagement for change. This process ideally operates and is enhanced in a cluster of carefully designed urban places, such as formal workshops, informal community rooms and local administrative centres refurbished to stimulate social interactions.

**Process-based strategies**

Fourth, specifying the direction that urban places are designed is not the only way of redesigning shrinking cities. Downsized cities present many intangible signs of decline, including the loss of local culture and identity, and the rise of multifaceted social tensions, e.g., between the newcomers and the old residents, or between the redevelopment-favouring group and others who hope to remain in the old neighbourhood. In these circumstances, producing the ‘best’ design solution agreed upon by the community or anticipating social innovation is hardly achievable. Sometimes, allowing enough time for empowered citizens to have their own ideas and then supporting the process of their decisions with minimal design intervention can be efficient. According to these strategies, finalizing the manner in which
a neighbourhood will change over time – either through urban-form making or social incubation – does not take into account the indeterminate characteristics of urban citizens’ actions in a shrinking city.

Imaginative, less-costly design accommodating the social needs of different times is an adequate response. At first, process-based design intervention may lead to plain, less aesthetic results, such as crude artistic painting on the walls, the installation of energy-saving devices on the roofs of houses and community festivals selling hand-made goods in the marketplace. These amateurish activities collectively become important assets for turning neglected spaces into ‘maintained-by-community’ sites, potentially bringing about a more creative milieu filled with small-scale actions and appended urban elements. The process may reinforce the formation of collective values associated with everyday issues in the neighbourhood, which serve as a strong impetus for reshaping the image of determinate places.

Conclusion

The rise of the shrinking-city phenomenon will bring urban planners and designers significant challenges and a great deal of uncertainty about the responses to undesirable urban changes. A wide spectrum of cities with shrinkage, such as de-industrialized towns, urban ghettos, marginalized quarters, rapidly ageing districts and crime-ridden alleys, will render decisions focused on creative change highly difficult. This paper proposed some potential benefits offered by shrinking-sensitive urban design. Urban design strategically tailored for shrinking cities strives for positive effects through methods such as building a visible safety net, creating place-based social networks and reconfiguring the stigmatized loci of the city. The application should be customized to individual cities so that all of the participating stakeholders see themselves as potential beneficiaries of shrinkage-sensitive urban design.

However, the design strategies proposed in this paper are not final. As an increasing number of cities accumulate their own experience – and whether they end in success or failure – new strategies will be added to the shrinking-city conceptual framework. In addition, individual strategies are not mutually exclusive. For example, the process-based strategies can be reverted to urban connector strategies once regenerative changes in a neighbourhood occur along a linear path. Urban designers and policy makers should change the way they plan for regeneration by introducing more effective, comprehensive and context-specific strategies into the design processes.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT & Future Planning (NRF-2017R1A1A1A05001205).
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