HEALTH AND GARDEN CITY

TOWARDS NEW FUTURES

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HEALTH AND GARDEN CITY: TOWARDS NEW FUTURES

This paper presents Grange-In-The-Hedges – winner of the RIBA competition to expand the Garden City of Letchworth – as a case study in re-imagining a modern day Garden City and its healthy living principles.

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EcoResponsive Environments is a multidisciplinary design practice committed to developing a systemic approach to shaping our built environment. Prachi Rampuria, the lead author, is co-founder and director of the practice.

KEYWORDS

Healthy place-making

Multi-scalar design approach

Joined-up thinking

INTRODUCTION

Against the background of global climate change and rising social inequalities, people and planetary health are at a crossroads. Our 21st century challenge is to create conditions for a thriving, health-inducing future for all, within the means of the planet (Fig. 1).[1]

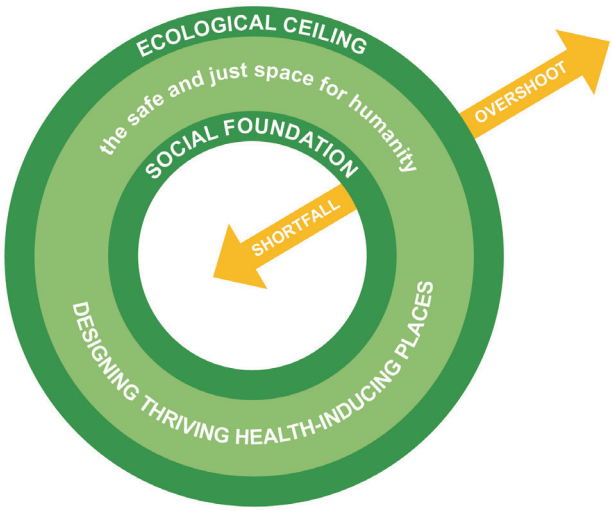


Fig.1: 'Humanity's 21st century challenge is to ensure that no one falls short on life's essentials (from food and housing to healthcare and political voice), while ensuring that, collectively, we do not overshoot our pressure on Earth's life-supporting systems, on which we fundamentally depend – such as a stable climate, fertile soils, and a protective ozone layer'.[1] Source: Diagram adapted from 'Doughnut Economics' by Kate Raworth.

PIONEERING HEALTHY PLACE-MAKING

In 1898, Ebenezer Howard put forward a pioneering approach to healthy place-making in 'To-morrow: a peaceful path to real reform'.[2] Intended to "balance the most energetic and active town life, with all the beauty and delight of the country", Howard's Garden City movement addressed the dire living conditions faced by people drawn to towns in search of work, as technology eroded agricultural employment. The movement was a direct response to the overcrowded, unhygienic housing and monotonous working conditions of the early 19th century, which had resulted in a sharp rise of health issues such as tuberculosis and alcoholism. At its heart, the movement promoted healthy lifestyles through holistic design – seeking basic social and economic fairness. These values are as important and valid today as ever but they must now address new health issues.

FACING A NEW TOMORROW

Current ways of life are damaging natural capital's capacity to regulate climate; to provide healthy food, clean air and water; and to offer the cultural inspiration on which all aspects of human health ultimately depends. Artificial intelligence is rapidly reducing the demand for all but highly skilled workers, generating a precariat trapped in poverty and low job satisfaction. This can have a deep impact on the mental health of both individuals and wider communities, although the creative use of ICT has growing potential to support an alternative co-operative economy. Social systems, too, face problems, with many people trapped between endemic loneliness and a pervasive sense of stranger-danger. The Garden City approach must therefore evolve to face a new tomorrow.

Although current issues have rekindled interest in learning from the original Garden City ideals, expressed through government initiatives,[3] conferences and talks, these initiatives have also received widespread criticism: the Garden City brand is accused of being used often as a shallow exercise in public relations to justify suburban sprawl.[4] The RIBA competition 'Re-imagining the Garden City', seeking to expand the original Garden City of Letchworth, offered us an opportunity to rethink the current relevance of the Garden City in a deeper way. We present Grange-in-the-Hedges – the winning proposal from 95 international entries – as a case study in re-imagining a modern-day Garden City (Fig. 2). The purpose of these notes is to explain the healthy living principles that underlie our proposal.

Although demonstrated in the low-density, edge-of-town context of the competition site, our project embodies robust ideas: adaptable to higher-density living and diverse cultural contexts.

Fig. 2: Grange-in-the-Hedges: aerial view of the masterplan proposals.
Source: EcoResponsive Environments

A MULTI-SCALAR DESIGN APPROACH

The Garden City's long-lasting success stems from the pioneer designers' embrace of complexity; weaving together the systems of natural landscape, public space, plots and buildings in symbiotic ways across multiple scales of space and time. To enable long-term health and well-being, the Garden City movement was driven by a creative search for 'value capture' – understood as gaining the maximum community benefit from external commercial forces, while maximising the cultural and provisioning services afforded by the natural world.

Grange-in-the-Hedges re-imagines this multi-layered approach. The new possibility is that we can lace them together with bottom-up information systems for a better collective future. Unlike the original Garden City, however, this is expanding an existing place; the Garden City ethos demands that each layer of the new place must support existing people's interests (Fig. 3).

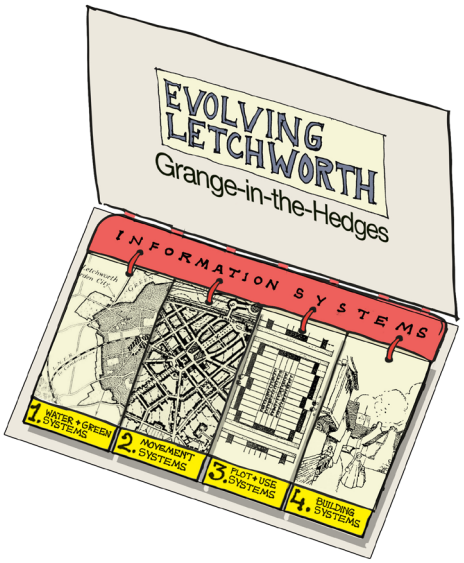


Fig. 3: Water, green structure, human movement and development plots are interlaced with bottom-up information systems – challenging the stresses of underemployment, climate change and social disconnection to evolve a renewed Garden City fabric to create the healthy places of tomorrow. Source: EcoResponsive Environments

THE NEED FOR JOINED-UP THINKING

To create this re-imagined fabric in practice, we need to bring together all kinds of design skills. These are difficult to integrate because they are traditionally separated out into specialised disciplines, with health workers in a separate silo (Fig. 4).

Healthy living, however, is affected by all these skills together. The real breakthrough therefore lies in combining what they each have to offer and discovering what happens when they dance on the same page. Some knowledge fields face up to this situation better than others: in particular, there is much to learn from how specialist and generalist perspectives are combined in the practice of medicine. In the commentary that follows, we review ways in which design practice can be re-imagined to benefit from joined-up thinking at all scales: from design of natural infrastructure through to the details of building construction.

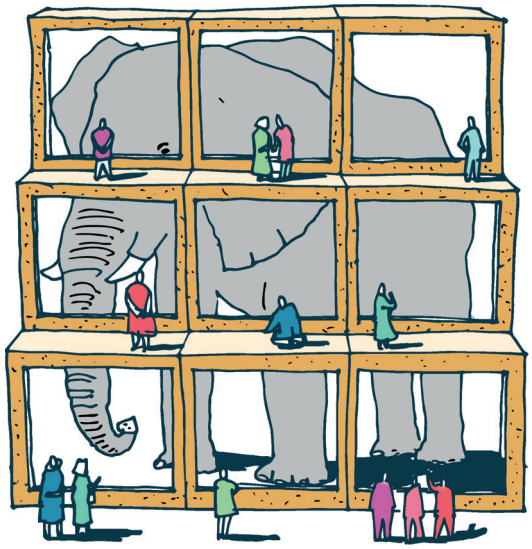


Fig 4: Professional myopia exposes all designers to the danger of making well-intended decisions in ways that affect other subsystems, and through them the settlement as a whole and, eventually, the wider ecosystem, in unintended ways. Source: EcoResponsive Environments

NATURAL INFRASTRUCTURE

There is plenty of evidence that contact with nature has positive health consequences.[5] These are particularly significant in the context of anthropocene lifestyles, which raise inherent issues of both physical and mental health. In physical terms, health implications of over-consumption and under-exercise, such as increasing child obesity worldwide,[6] threaten future levels of heart disease, diabetes and cancer. In parallel, mental disorders account for more of the global burden of disease than both heart problems and cancer.[7]

Physical and psychological health are strongly connected: ultimately, there is no health without mental health.[8] The state of the immune system is central to both: like physical health, psychological depression has been linked to inflammation of the physical immune system.[9] Since experience of nature has been shown to enhance immune function,[10] interactions with natural infrastructure afford wellness potentials in both physical and psychological terms.

To this end, Grange-in-the-Hedges re-imagines the green system as a multi-scale, multi-function productive landscape, affording people everyday interactions with natural systems. Since all functions depend on biodiversity, local plant species and peripheral meadows create a Wildlife Recovery Network, linking the site into the wider landscape. Soil-to-soil agriculture, enabled by the provision of commercial orchards, community gardens and allotments, and local composting centres, offers a hands-on understanding of ecological processes: an invaluable foundation for creating ecologically aware lifestyles.

Extreme weather events will probably increase, so Grange-in-the-Hedges re-imagines water cycles to be as local as possible; to slow runoff, maximise aquifer replenishment, and avoid flooding downstream, in order to ensure landscape security patterns, a precondition for healthy living, are fit for the future. This is achieved through swales in all the streets where topography allows, eventually draining into a series of retention ponds and wetlands, retaining excess flows, and creating biodiversity habitats. Water shortages and costs are minimised by treating and recycling runoff and domestic effluent as locally as possible through 'living machines' – constructed wetlands, which generate bathing-quality water, fertiliser, plants, fish and employment; all underpinning a productive landscape. Together, they result in everyday life experiences nestled in nature (Fig. 5).

'Re-imagining green system as a multi-scale, multi-function productive landscape, affording people everyday interactions with natural systems.'

'Re-imagining water cycles to be as local as possible to ensure that the landscape security patterns are fit for the future.'

Fig.5: Everyday life nestled in nature. Source: EcoResponsive Environments

STREET SYSTEM

From the early 20th century, the private car began to open up ever-increasing travel choices in people's everyday lives. Policy evolved to favour car-centric developments with hierarchical layouts, prioritising the convenience and safety of car journeys. Widespread concerns about security – particularly in societies with wide income-disparities – led to the development of so-called 'gated communities', intended to exclude non-residents. As an unintended consequence, this type of layout disadvantaged pedestrians who now had to follow longer, less direct routes, making car dependency the default setting for everyday life. Car dependency raises acute health problems today, ranging from carbon emissions contributing to climate change, to lack of natural exercise, social disconnection, traffic noise and particulate air pollution.[11]

To turn the tables around, Grange-in-the-Hedges re-imagines the movement system as a highly connected, landscape-integrated network that is convenient, safe and attractive for healthful walking, cycling and play. The aim is to construct a richer movement system that minimises car dependency, offering significant advantages in health, air quality and climate change.

Streets integrate existing planting with new trees, increasing both biodiversity and the restorative biophilic benefits[12] of natural sounds, such as birdsong and rustling leaves, while improving comfort through evaporative cooling, and by controlling the impact of sun and wind. This green system also absorbs particulate air pollutants and reduces unwanted noise. Streets incorporate swales creating 'ecology trails' to show how natural systems work. On the main streets, traffic is slowed to cycle-friendly speeds through planting and limited on-street parking. Filtered permeability[13] for cars, car clubs and bike hire encourage ride-sharing, minimising residents' dependency on car ownership, and supporting the current trend towards fewer young people owning cars.[14] Together, these design decisions foster the active lifestyles necessary for healthy living (Fig. 6).

'Re-imagining the movement system as a highly connected, landscape-integrated network that is convenient, safe and attractive for healthful walking, cycling and play. The aim is to construct a richer movement system that minimises car dependency.'

Fig. 6: Prioritising convenience for low-energy, low-pollution, healthful walking, cycling and play. Source: EcoResponsive Environments

PLOTS AND LAND USE

Current market processes increasingly drive the pattern of building types, resulting in a focus towards those that generate the highest financial returns ¬and tending to squeeze out others. This has adverse impacts: for example, social housing is grouped together into low-esteem areas affecting mental health[15] and ghettos of elderly living accommodation that worsen loneliness.[16]

Grange-in-the-Hedges, in contrast, is organised with fine-grain, plot-based perimeter blocks, each with a large communal garden encouraging intergenerational living. Local amenities, such as school and shops, are located on the most connected streets, encouraging walking and cycling. The shared communal spaces, with controlled community access, afford sheltered opportunities for urban food production with therapeutic impacts.[17] Surrounded by a mix of dwelling types and tenancies, the layout encourages opportunities to meet a wide range of people – addressing the problem of loneliness, but with a 'gasket' of private gardens as a protective interface for family life. Safely disconnected from the wider settlement, these communal gardens are also suitable for active, relatively unsupervised play in outdoor green environments supporting child development[18] and combatting 'stranger danger'. A perimeter block with a mix of housing types and tenures, involving people of differing ages and lifestyles, generates diversity in the realms of form, sensory experience and cultural meaning – essential for psychological well-being (Fig. 7).

'Re-imagining the plots and land-use system in the form of mixed-use, fine-grain perimeter blocks with private communal gardens to encourage social integration and intergenerational living.'

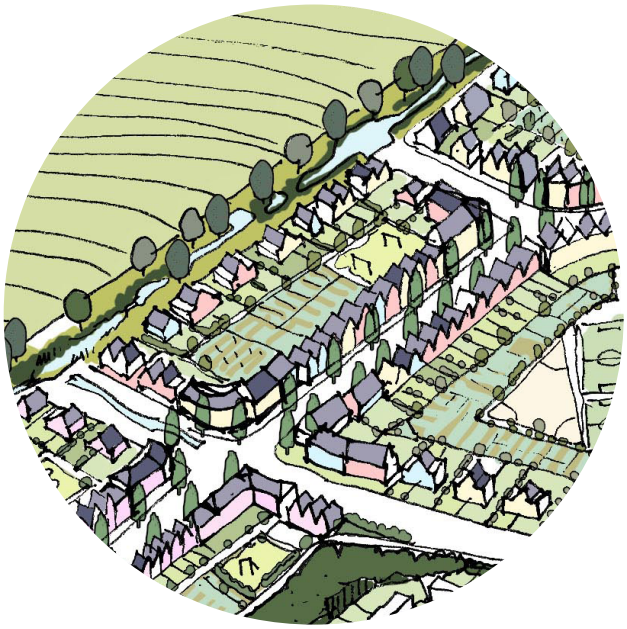
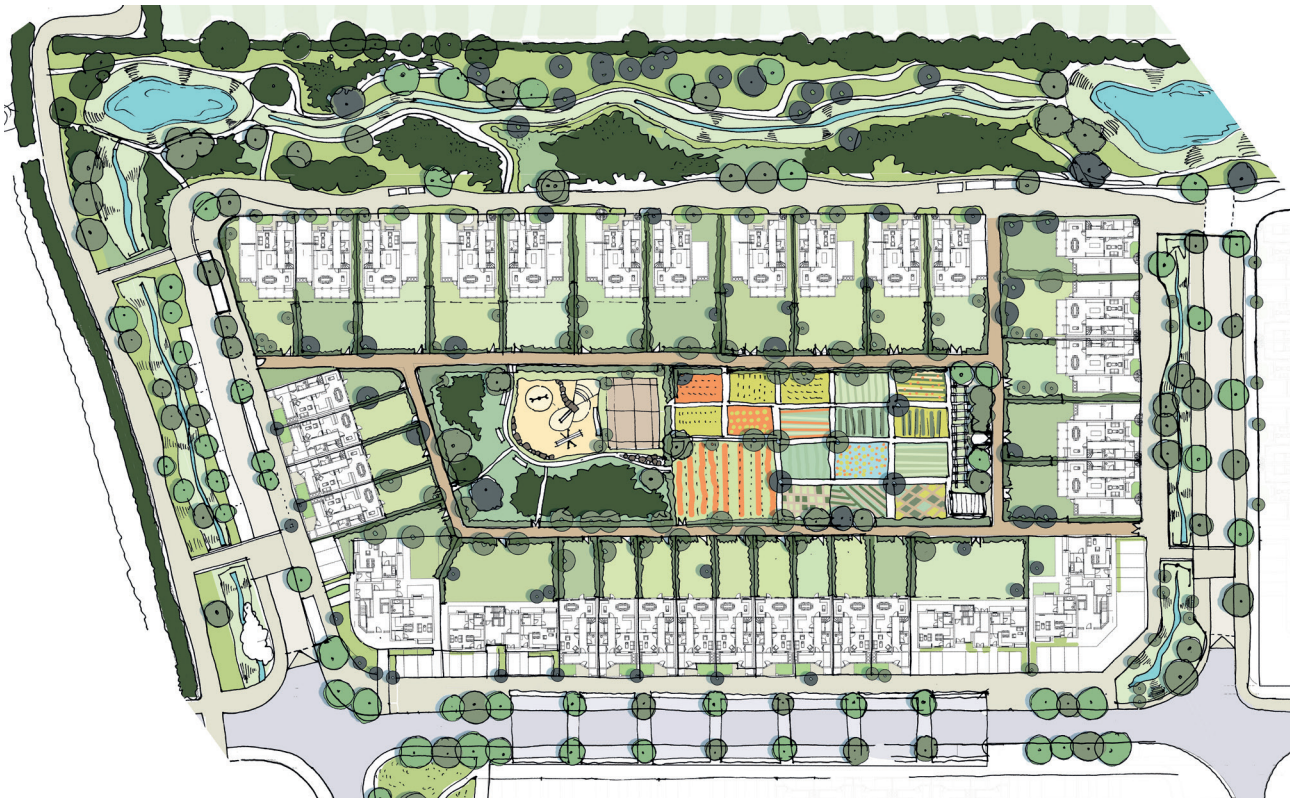


Fig. 7: Diagrammatic representation of a fine grain plot-based perimeter block with a central communal garden with controlled community access, enabling intergenerational living. Source: EcoResponsive Environments



BUILDINGS

We're witnessing a rapid evolution in working patterns and household structures, owing to a range of socio-economic issues; such as ageing population, loneliness, financial difficulties for young people seeking to buy homes, and increased amounts of working from home. A mismatch is therefore developing between activity patterns and building design; aggravated by the mainstream design culture of use-specific, non-adaptable buildings, focused on responding to short-term market needs; contributing to shorter building lifespans. This has implications on waste generation, and on carbon emissions associated with the construction industry[19], worsening climate change and, consequently, planetary health.

The market's drive for profitability inexorably limits the diversity of activities that a project can initially contain. Long-life buildings open up possibilities for sidestepping these pressures in the longer term. As buildings age, their rent levels typically fall, relative to those that newer buildings can attract; enabling a wider range of users to afford the lower rents; increasing diversity over time, and offering people a greater range of activities[20,21] within cycling and walking range, thereby supporting public health.

These factors suggest a general argument for 'slow architecture': the creation of adaptable buildings with active frontage that remain useful long enough to cope with more rapid cycles of social and economic change, contributing to everyday health and to the settlement's overall energy efficiency.
Grange-in-the-Hedges therefore re-imagines the building system as a series of flexible spaces that can be updated to reflect the needs of each generation. Particularly on main streets with potential 'passing trade', the dwelling's street interface allows alternative configurations to support emerging types of socially positive home businesses (Fig. 8).

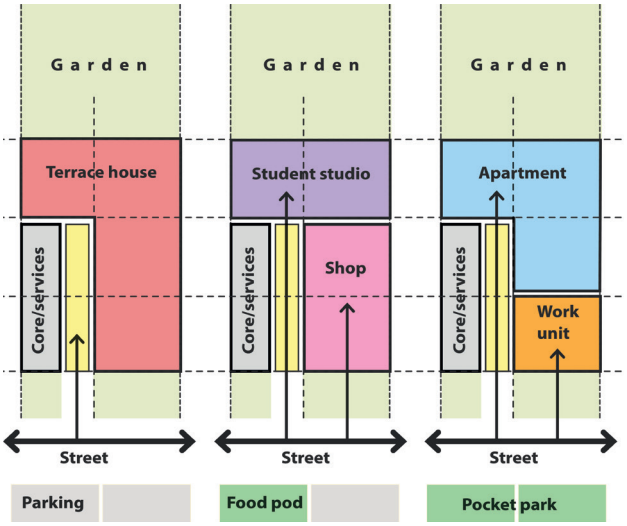


Fig. 8: Diagrammatic representations of house plans showing grouping of the 'hard' services and circulation spaces, within a simple grid structure supporting easy reconfiguration of the 'soft' internal spaces and external skin. Source: EcoResponsive Environments

'Re-imagining the building system as adaptable structures with active frontage that can be updated to reflect the needs of each generation.'

Internally, the main living spaces benefit from multiple focal spaces, such as nooks, bays, and window seats, allowing a variety of individualised activities to take place at the same time and supporting family togetherness. Such conditions create appropriate settings for a wide variety of individual activities to take place together, against the tide of increasing isolation while supporting the potential for flexible working. (Fig. 9)

Fig. 9: Internally, the main living spaces benefit from multiple focal spaces, such as nooks, bays, and window seats, allowing a variety of individualised activities to take place at the same time and supporting family togetherness. Source: EcoResponsive Environments

COMPONENTS

At a perceptual level, well-being is fundamentally affected by the materiality of the physical environment.[22] Evolving in a context of other natural systems, the human brain developed to enable easy processing of sensory information organised in multi-scale structures.[23]

Natural systems, from coastlines to birdsong, although varying widely in almost every way, share one common characteristic: they have evolved into multi-scale structures containing many more small elements than large ones, related together in similar ways at each scale and remaining rich in details regardless of how much they're magnified. Psychologists call this fractal fluency.[24]

Grange-in-the-Hedges draws on this attunement with nature's scalar structure, learning from the pioneers,[25,26] to re-imagine the aesthetics of streets, buildings and open spaces using today's technology, sustainable materials and contemporary detailing. The range of likely viewing distances affects the range of scale at which richness must be considered.

Where the surface will be seen at long range, large-scale richness is necessary; while at close range, richness must be achieved by small-scale elements. So, to maintain richness from long range to close range, we need a hierarchy of elements from large-scale to small-scale; for example, building envelopes with several gables and bays, each with several windows, several glazing bars, and complex profiles, set in the smallest-scale texture of rough-cast, supporting multi-scale sensory experience. This approach proposes turning today's design culture on its head by substituting organised complexity with detail at all scales, for current minimalist aesthetics (Fig. 9).

'Re-imagining detail components as multi-scale structures using today's technology, sustainable materials, and contemporary aesthetic detailing – to support multi-scale sensory experiences.'

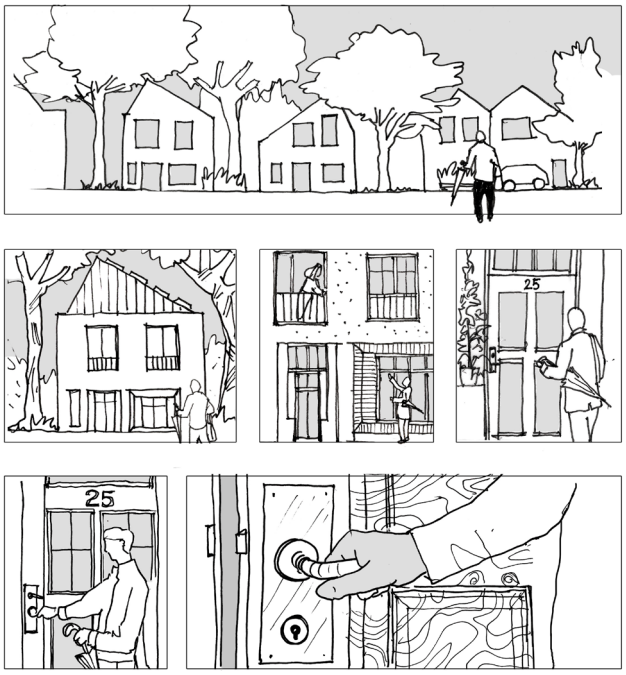


Fig. 9: Architecture rooted in organised complexity: details within the simple overall forms and that is maintained at every scale – so as you go closer and closer something new is revealed. Source: EcoResponsive Environments

INFORMATION SYSTEMS

Beyond short-term commercialism, the project seeks long-term sustainable value-capture by using technological innovation to empower community involvement and a community-led management system through 'Share-App'. Considering data as 'currency', the idea is for residents to benefit from their own data. It enables residents to benefit from a variety of services in the fields of mobility, joint energy generation, food production, and effective use of space and skills. People may use flexible housing types for creating goods and services – from gardening to small-scale manufacturing – and trading and sharing equipment through information systems, such as Share-App, to create an ever-expanding social marketplace. The desired outcome is to increase quality of life, self-sufficiency and enable a new co-operative economy (Fig. 10).

Fig. 10: Integration of bottom-up information systems to empower community involvement. Source: EcoResponsive Environments

CONCLUSION

This competition was a tool for an in-depth exploration of how design can support healthy living in the context of current economic, social and ecological crisis. At the deepest level, we found that the Garden City movement's systemic approach provided a holistic structure for this exploration, allowing us to identify a re-imagination agenda for healthy place-making across a range of scales.

1. Re-imagine the water system to be as local as possible – to slow runoff, maximise aquifer replenishment, avoid flooding downstream, and reduce waste and external dependency.

2. Re-imagine the green system as multi-scale, multi-function productive landscapes, affording everyday exposure to the interactions with natural systems.

3. Re-imagine the mobility system as a highly connected, landscape-integrated network that is convenient, safe and attractive for low-energy, low-pollution, healthful walking, cycling and play.

4. Re-imagine the plots and land-use system in the form of mixed-use, fine-grain perimeter blocks with private communal gardens.

5. Re-imagine the building system as adaptable structures with active frontage that can be updated to reflect the needs of each generation.

6. Re-imagine the detailed components of streets, buildings and open spaces as multi-scale structures using today's technology, sustainable materials, and contemporary aesthetic detailing – to support multi-scale sensory experiences.

The next task is to encourage wider debate around this re-imagination agenda, so that the mainstream practice of design can similarly be re-imagined.

AUTHOR

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