



UCL POLICY BRIEFING – JUNE 2012

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The UCL–Lancet Commission: Shaping Cities for Health

Policy briefing: Implications for architecture

Summary

Health and wellbeing are complex systems within the social and built environment. The UCL–Lancet Commission’s *Shaping Cities for Health* report provides an analysis of how health outcomes are part of the complexity of urban processes and argues against the assumption that urban health outcomes will improve with economic growth and demographic change.

Instead, the role that urban planning, architecture and landscape interventions can and should play in delivering health improvements through reshaping the urban fabric of our cities is highlighted. The report suggests five urban interventions, which are not intended as solutions of best practice examples, but rather are used to explore some of the complexities of urban systems and to understand some of the factors that shape the connections between urban planning policy and better health outcomes.

This briefing considers each of these interventions in turn from the perspective of the key challenges for architecture.

Sanitation and wastewater management

Architectural practice needs to consider sanitation requirements.

There are **significant disparities** between high-income and low- and middle-income countries with regards to their expectations of sanitation. In high-income countries, households expect potable water supplied regularly to internal bathrooms and kitchens, flush toilets, and storm drainage to prevent flooding. In low- and middle-income nations, such expectations are often only found in the wealthiest neighbourhoods and comparatively well-off municipalities.

The challenge is to design effective water and sanitation services. **Coverage remains grossly inadequate** both because governments are unwilling or unable to invest in it at a major scale, and because

KEY MESSAGES

- Architectural practice needs to consider **sanitation requirements**.
- **Energy efficiency** should be incorporated into policies for architectural design.
- Architectural practice must consider **user-friendly public spaces** in order to encourage physical activity.
- Architectural design should take account of the needs and challenges of the **local climate**.
- **Innovative architectural design** can maximise the potential of urban architecture.

poor households give it a lower priority over more pressing items of expenditure. This is true in badly managed cities and in the poorest parts of many cities.

COMMUNITY-MAINTAINED TOILETS

Most disease transmission occurs on a neighbourhood scale. The Slum Sanitation Program (SSP) in Mumbai builds on the idea that a sense of ownership spurs communities to maintain toilet blocks more effectively than the state would. The 328 two- and three-storied toilet blocks now serve an estimated 400,000 slum dwellers. Many toilet blocks have also become community centres, providing space for teaching and meetings. These are not simply 'toilet blocks', but spaces to provide and strengthen the links between access to sanitation and disease prevention, and to safeguard privacy and dignity for individuals as well as for the community.

Building standards, thermal comfort and indoor air quality control

Energy efficiency should be incorporated into policies for architectural design.

The **fabric quality of buildings** is particularly important for thermal control over heat losses or gains through the walls, windows and roofs. Ventilation characteristics influence the indoor air quality both through the overall permeability of the dwelling and via purpose-built ventilation systems (ranging from simple windows which open to more complex mechanical approaches).

In informal urban settlements of low-income communities, there is **insufficient planning control** over even the most basic architectural prescriptions relating to building form and quality. Yet people who live in these dwellings are among those who would benefit most from simple measures to reduce climatic exposures.

Environmentally competent buildings can have a significant impact on public health, with direct effects on respiratory and circulatory conditions. While energy efficiency may not be a priority compared to other built environment needs (such as sewerage or water); its inclusion in policies for architectural designs can establish a basis for efficient building codes.

INDOOR ENVIRONMENTAL QUALITY

In high-income cities, like London, building regulations and development control attempt to ensure adequate indoor environmental quality. Given the potential health benefits of energy efficiency, city level policies for energy efficiency and energy systems are an important catalyst for improved health. Large-scale refurbishments present a complex set of challenges, owing to the diversity of London's building stock. We must also consider the health impacts of improved ventilation, and the associated changes in the spread of external pollution.

Transportation, mobility and physical activity

Architectural practice should consider user-friendly public spaces in order to encourage physical activity.

There is compelling evidence to show that both objective measures and perceived features of the built environment are associated with health outcomes.

Although walking and cycling are traditional modes of both transportation and leisure-time physical activity, differentiating between utilitarian (e.g. commuting) and leisure activities helps to clarify the complex associations between environmental attributes and physical activity levels.

Utilitarian walking tends to be more prevalent among poorer people than wealthier groups while leisure-time physical activity is more frequent among higher-income groups.

An important consideration in promoting urban physical activity is the perception of safety from crime and from the dangers of traffic and pollution. Evidence shows that neighbourhood safety is positively correlated to higher levels of leisure time physical activity among adults and aesthetic factors may also play a role.

INTERVENTIONS IN PUBLIC SPACE

Interventions in the design of urban public spaces to introduce adaptable road design and user-friendly public spaces to accommodate traffic and pedestrians efficiently are not straightforward and can prove to be challenging. A successful example was 'Ciclovia Recreativa', an initiative launched in 1974 in Bogotá, the capital city of Colombia, where streets are closed to motorised traffic for fixed periods on Sundays and public holidays.

Urban heat island effect

Architectural design should take account of the needs and challenges of the local climate.

An urban heat island (UHI) is characterized by temperature differences between urban and rural regions, and is one of the most evident climatic manifestations of urbanization. Where expansion takes the form of urban sprawl, it results in an increase in the area covered by impermeable surfaces, and a greater number of buildings generating anthropogenic heat emissions.

To address these challenges, the design of buildings and their surrounding landscape requires understanding of the local climate. A range of interventions are available with variations between cities: (1) increase greening and inclusion of water features; (2) increase the solar reflectance of hard surfaces; (3) reduce anthropogenic heat emissions; (4) increase air flow through the urban form.

FORM, GEOMETRY AND THERMAL QUALITY

Recent studies of indoor building temperatures for London suggested that the combined effect of the form, geometry and thermal quality of a building may be of greater importance to prevent overheating than the location of the building in the UHI. Effective adaptations will also provide enhanced protection to heat via direct modification of the indoor environment. Attempts to offset projected increases in temperature should integrate external and internal strategies, in conjunction with policies on building design for the greatest health benefits.

Urban food production

Innovative architectural design can maximise the potential of urban architecture.

Implementation of urban agriculture – cultivating, processing and distributing food within the city – could prove an important response to food shortages, and provide economic and health benefits.

Innovative architecture design, building techniques and materials can maximize the potential of urban farming. There are examples of **community urban farming projects** located in different climates flourishing through innovative surfacing materials and interstitial spaces.

For example, **vertical farms** can support compact city agriculture, resulting in three-dimensional hermetic farms which ensure year-round high-yield crop production with minimal risk of infection without the use of pesticides. This model also reduces the need for fossil fuels and takes advantage of energy-waste trades with other urban activities.

CLUSTERS OF HOUSING AND FARMING

In new cities, housing developments can be planned to integrate agriculture on a landscape scale with optimally sized clusters of housing and farming suburb-terraces. A stepped arrangement can improve natural lighting within apartments, enable cross ventilation, and support increased housing density without adverse overshadowing. The terracing also creates level rooftops which can be used for farming without the risk of erosion and slippage, resulting in a symbiotic connection between mass housing and arable land. Beneath the growing membrane, a gravel substrate is used to filter water. In this model, the city integrates the three functions of shelter, water purification, and food cultivation in the same space while improving thermal insulation and surface water retention.

The UCL–Lancet Commission’s key recommendations

- 1 **City governments should work with a wide range of stakeholders to build a political alliance for urban health.** This should involve all those able to deliver urban change for health in active dialogue; in particular, health officials and practitioners need to be in dialogue with urban planners and managers at all levels.
- 2 **Attention to health inequalities within urban areas should be a key focus of planning the urban environment.** This will necessitate community representation in arenas of policymaking and planning for urban health and may require local government to support less well-resourced and less well-organised sections of the urban population.
- 3 **Action needs to be taken at the urban scale to create and maintain the ‘urban advantage’ in health outcomes through changes to the urban environment.** Planning frameworks for cities should explicitly incorporate urban health goals and policies aimed at improving urban health, as a signal to key decision-makers of the importance of action for urban health.
- 4 **Policymakers at national and urban scales would benefit from undertaking a complexity analysis to understanding the inter-relationships between interventions affecting the urban environment and urban health outcomes,** identifying where there are bi-directional relations of causality, feedback loops and tensions between objectives, and being alert to the unintended consequences of their policies.
- 5 **Progress towards effective action on urban health will be best achieved through local experimentation in a range of projects, supported by evaluation and self-reflection.** This should involve practitioners and communities in active dialogue and mutual learning. Tools such as impact assessments and indicator sets should be used judiciously to support such evaluation.

Further information

For links to the UCL–Lancet Commission’s full report published in *The Lancet*, commission membership, further briefings for professionals and policymakers, and upcoming events, see the Healthy Cities website (www.ucl.ac.uk/healthy-cities).

BACKGROUND: SHAPING CITIES FOR HEALTH

The majority of the world’s population live in cities. With current high rates of urbanisation, the World Health Organisation has recognised the need to understand how urban environments influence health outcomes and benefits as an urgent priority.

In response the UCL–Lancet Commission on Healthy Cities met from November 2009 to June 2011, bringing together a cross-disciplinary team of experts with the aim of understanding the dynamics involved in delivering better health outcomes through interventions in the urban environment in cities across the world. The resulting report, published in *The Lancet* on 16 May 2012, was a major output from the UCL Grand Challenge of Sustainable Cities (GCSC), which seeks to rally the breadth of our expertise – in partnership with external agencies – to address aspects of the major problems facing cities in the 21st century.

The UCL Grand Challenges are those areas in which we are facilitating cross-disciplinary interaction – within and beyond UCL – and applying our collective strengths, insights and creativity to overcome problems of global significance. Along with GCSC, the other UCL Grand Challenges are of Global Health, Intercultural Interaction and Human Wellbeing. See the UCL Grand Challenges website (www.ucl.ac.uk/grand-challenges).

