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Government Obligations and the Negative Right to a Healthy Urban Environment

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Abstract

Urban development often generates noise and light pollution, reduces green space, produces heat islands, and increases population density that can exacerbate crime, disease transmission, anxiety, and stress. This article argues that individuals and communities have rights to not have their space impinged upon by urban plans, designs, or development. This negative right means governments have ethical obligations to develop infrastructure that mitigates adverse health consequences, preserves natural environments, safeguards ecological well-being, and promotes peace and public health.

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Public Health and Urban Development

As of 2020, US urban areas housed 80% of the population.¹ Urban dwelling potentially confers significant advantages on residents compared to their rural counterparts: better wages, greater educational opportunities, and enhanced access to health care. However, some evidence suggests that select US cities have more than 3 times the incidence of tuberculosis as the US population excluding those cities, due in part to greater population density, and that urban development is associated with higher rates of homicide, air pollution from indoor and outdoor sources, anxiety and depression, and sleep disorders resulting from noise and light pollution.^{2,3,4,5,6,7,8} Moreover, neighborhood clearance undertaken for new developments, shopping centers, or highways—often promoted as urban revitalization—frequently requires the relocation of residents, leading to feelings of isolation, difficulties locating secure and safe housing, and reduced economic opportunities.⁴

Government action often facilitates such development and revitalization projects, directly or indirectly. We argue here that individuals and communities have a negative right to not have their space impinged upon by government-facilitated action or development that adversely affects their health (eg, development through government

purchase and use or purchase and sale to a private developer). We argue further that this negative right suggests an ethical obligation on the part of municipalities and states to consider the state of knowledge relating to the built environment, to build in such a way as to avoid harmful health effects, and to incorporate elements that will enhance individuals' and communities' health and sense of peace. We first discuss government's role in facilitating urban development and its potential harms.

Government's Role in Urban Development Harms the Health of Marginalized Groups

Eminent domain. Local, state, or federal government can acquire privately owned land through eminent domain, a legal mechanism that permits the government to take private property and convert it for "public use" or "public welfare" in the "public interest" in the belief that it will lead to accrual of "expected public benefits."^{9,10,11,12,13} Often effectuated with a bias toward business and private interests, eminent domain has led to the greatest adverse social, economic, and health impacts in low-income neighborhoods: community rupture, residents' relocation and loss of economic opportunities, and the transformation of neglected development-designated lots into vacant sites of gun violence, dumping, and substance use.^{11,13,14} Even when eminent domain has been exercised to revitalize blighted or slum areas, the destruction of substandard housing has often not led to construction or replacement of public or low-income housing but instead to private redevelopment of the area.¹³

Zoning. Zoning law, originally developed as a strategy to manage the development of urban areas and protect the public's health, later became a tool enabling those with greater economic and political power to implement and sustain segregation, leading to a diversion of investment from and a reduction in services in segregated areas and the use of many of these locales as sites for illegal dumping and storage of hazardous materials.^{15,16} Zoning laws have also been implicated in the development of adverse health outcomes.^{15,17} The greater exposure of low-income populations and populations of color to poor environmental quality has resulted in their bearing a disproportionate health care burden, variously referred to as environmental injustice or environmental racism.^{16,18}

Redlining. The practice of redlining was utilized by the Federal Housing Authority from 1934 until the passage of the Fair Housing Act in 1968.¹⁹ Redlining entailed the designation of predominantly African American neighborhoods as not creditworthy, thereby discouraging banks from lending in those areas and perpetuating racial segregation.¹⁹ Although redlining ceased in 1968, its resulting adverse health effects—once manifest in a tuberculosis inequity—continue to be evident today in these areas relative to non-redlined areas in a higher prevalence of preterm births, a higher incidence of violent crimes, an increased risk of late-stage cancer diagnosis, and a higher percentage of adults reporting poor mental and physical health.^{20,21,22,23,24}

General Health-Harming Effects of Government-Facilitated Development

Noise pollution. Noise pollution is a major problem in all developed countries and is one of the primary mechanisms leading to a reduction in quality of life.^{25,26} In the United States, it was estimated in 2013 that 104 million persons experienced noise levels sufficiently high to put them at risk of noise-induced hearing loss.²⁷ Noisy environments have been associated with decreased quantity and quality of sleep; the resulting stress increases blood pressure and might increase risk of cardiovascular morbidity.²⁸ Continuous sound exposure could also lead to psychological stress and annoyance.^{29,30} Exposure to aircraft and road traffic noise are associated with annoyance, sleep

disturbances and high blood pressure, and, among children, reductions in learning ability, reading comprehension, motivation, and long-term memory.^{5,31,32,33,34} Evidence also suggests a causal connection between background noise pollution and increased rates of violent crime.³⁵ Research designed to assess racial/ethnic and socioeconomic inequalities in exposure to noise pollution found that the most highly segregated geographical subdivisions, regardless of their racial composition, experienced the highest estimated noise exposures, which may contribute to health disparities.³⁶

Light pollution. Adequate outdoor lighting increases environmental safety for drivers and pedestrians; facilitates the use of outdoor spaces after dark for work, leisure, and transit; contributes to a peaceful community by increasing individuals' sense of security and reducing anxiety; and can reduce violent crime rates.³⁷ However, nighttime artificial lighting has also been linked to **adverse health effects**, including a disruption of circadian rhythms, sleep disorders, and increased risk of some forms of cancer.^{38,39,40} Moreover, research findings indicate that Asian, Hispanic, and Black Americans experience mean exposures to health-harming light pollution that are roughly double that of White Americans.⁴¹

Light and noise pollution also have a significant effect on wildlife, which invokes our responsibility as stewards of nature, but stewardship also carries downstream risks to human health. Bright lights alter insect populations and pollination behavior, which can disrupt local agriculture.^{42,43} The sensitive eyesight and hearing of nocturnal creatures, such as owls and bats, can be impaired by artificial noise and light, thereby hampering their ability to locate prey, such as mosquitoes and rodents, which are vectors of human disease.^{44,45,46}

Urban heat islands. Built-up developments can impinge on their surroundings through another mechanism: heat. Exposure to excess heat causes discomfort and loss of productivity; can exacerbate chronic health conditions, including lung, heart, and kidney disease; can worsen mental health outcomes, including by increasing suicide risk; and can worsen pregnancy outcomes.^{47,48,49} Heatwaves are currently recognized as the most significant cause of weather-related mortality in the United States, with the intensity and frequency of such events increasing due to climate change.^{50,51} Elderly persons, infants, those with disabilities and chronic illnesses, and those experiencing homelessness are particularly vulnerable to heat-related injury and death.^{52,53}

Urban environments are consistently warmer than neighboring rural areas in the same regional climate due to variations in the landscape. Building materials utilized in urban areas, such as asphalt and concrete, increase temperatures by absorbing solar radiation and emitting it as heat, in contrast to how vegetation reflects sunlight, creates shade, and provides evaporative cooling. Tightly packed buildings reduce airflow; the resulting increase in population density contributes body heat, hot exhaust from vehicles, and energy utilization. Such built-up environments create urban heat islands (UHIs), which elevate temperatures during the day and maintain higher temperatures at night.^{54,55} Given the negative health effects of excess heat, particularly during heatwaves, people have a negative right not to be exposed to UHIs.

UHIs are prominent around industrial areas and major roadways,⁵⁶ which are commonly government facilitated, and have been found disproportionately in low-income communities.⁵⁷ Multiple studies have found higher temperatures and decreased vegetation in postal codes and census tracts with lower per capita income and higher

percentages of racial and ethnic minorities.^{58,59,60} Historical injustices have contributed to these disparities: formerly redlined urban neighborhoods across the United States experience temperatures that average 2.6 higher than non-redlined neighborhoods.^{54,61} The lasting effects of redlining on UHIs suggest that the heat burden from contemporary development projects borne by minoritized and low-income groups will persist for decades to come, likely becoming more pronounced with climate change, and perpetuate existing health and economic disparities.

Gun violence. Gun violence is also an insidious threat to public health and peace. The rise in gun violence across US rural and urban communities threatens peace by eroding social cohesion and undermining public health through senseless morbidity and mortality.^{62,63,64} Nationwide data indicate that, between 2014 and 2019, firearm injuries in gentrifying neighborhoods increased by an additional 26% above the baseline increase in non-gentrifying neighborhoods.⁶⁵ As such, “renewal” efforts have not only failed to construct peaceful built environments that mitigate adverse environmental health conditions but also increased exposure to community violence.

On one level, **gun violence** disrupts the sense of quiet and security essential for well-being in urban areas, shattering the peace and tranquility vital for community resilience and emotional health. Exposure to the trauma of community gun violence also leads to pervasive anxiety and fear among residents, particularly among children,^{66,67} and can lead to significant mental health disparities by increasing “levels of psychological distress, depression, suicidal ideation and/or psychotic experiences.”⁶⁸ Quiet, safety, and peace in this context are not mere aesthetic values but fundamental determinants of urban health.

Potential Solutions

Stewardship of the ecological conditions for health and peace ultimately necessitates government effort and leadership and collaborative approaches to mitigate the adverse effects of development and to optimize community safety, health, and peace.⁶⁹ The intentional building of green spaces into urban built environments is one way to achieve these goals. Urban green spaces produce a durable and economical cooling effect that can extend several hundred meters beyond the space itself.^{55,70,71} Research indicates that green spaces can be proactively integrated into the design and planning of large-scale development projects to offset their heat burden on the surrounding community.^{72,73,74,75} Green spaces confer additional community benefits by improving air quality; reducing noise pollution; providing peaceful spaces for recreation, exercise, and socialization; serving as community gardens; and reducing crime.^{76,77} Development of urban green space planning indices in accordance with the principle of distributive environmental justice holds promise for the ability of city planners and government policy makers to reach specific goals related to enhancing greening interventions in urban areas.⁷⁸ Green spaces can also help mitigate negative effects of urban development on wildlife by increasing biodiversity and improving resilience of ecosystems.⁴⁶

In addition to building urban green spaces, governmental entities must ethically consider the current state of knowledge in designing nighttime lighting. Possible solutions that provide adequate illumination while minimizing harmful effects include streetlamp shades to prevent light from shining into residential windows and warm-color bulbs to decrease eye strain and circadian rhythm disturbances.⁷⁹

In line with various organizations that have argued that cooling is a basic human right, akin to water or heating in the winter, some municipalities have enacted heat action plans (eg, extending public pool hours, opening cooling centers during heat events, or legally requiring housing providers to maintain a maximum indoor temperature).^{80,81,82} Although air conditioning protects vulnerable persons' microclimates, it contributes additional heat to the surroundings and is not a sustainable solution to UHIs.⁸³

In sum, governments have an ethical obligation to utilize sustainable design techniques, including the use of green spaces, to minimize and mitigate UHI effects and to avoid impinging on individuals' and communities' **negative right to a peaceful and healthy environment**.

Conclusion

We have argued that individuals and communities have a negative right to not have their environment impinged upon by development that has been shown to adversely affect their health, safety, and sense of peace. Much of this development is occasioned directly or indirectly by government entities through mechanisms of eminent domain, zoning, and private sale. Accordingly, the government has ethical obligations to develop interventions, such as the establishment of green spaces, which will ameliorate, if not eliminate, such conditions. Developing such interventions will not only serve to respond to the present issues at hand caused by urban "renewal" and gentrification but also allow policy makers to begin addressing and interrupting the perpetuation of historical racial and ethnic socioeconomic inequalities that have brought forth environmental conditions—from tormenting heat to stray bullets—that prevent peace.

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