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Urban Greening Techniques in U.S. Cities:

Public Welfare or Social Warfare?

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It is widely accepted that the effects of climate change have likely intensified immensely over at least the past couple of decades due to global warming (International Panel on Climate Change 2021). Furthermore, a multitude of the public health issues facing cities, including intensified storms, flooding, and extreme heat events, are also attributed to earth's changing climate (United Nations Environment Program, n.d.; Leighton 2019). Urban greening techniques – including rooftop gardens, revitalization of parks, and alternative transportation methods – are hot topics in the realm of sustainability that are being employed to mitigate these public health issues in cities across the world. Some cities are even taking additional steps to reduce socioeconomic disparities by introducing community gardens that grow fresh produce and farmer's markets that encourage local business. All of these tactics are well-intentioned in theory, but studies of their successes are bringing into question whether vulnerable residents are ultimately benefitting from their implementation. In the past decade, ecological gentrification – also referred to as green gentrification or environmental gentrification – has come to be understood as “the implementation of an environmental planning agenda related to public green spaces that leads to the exclusion of the most economically vulnerable human population” (Dooling, 2009, 630). In other words, it is the process by which urban greening techniques are employed by planners and developers in a way that not only fails to provide access for the most vulnerable residents, but also to protect those residents against ethnic cleansing. This paper analyzes peer-reviewed articles and news articles to answer the question, *how have urban greening techniques excluded marginalized groups from ecological services and gentrified low-income neighborhoods in the United States?*

Generally speaking, planners, developers, and policy makers that have the funding to work on these often aesthetically pleasing and expensive revitalization projects value economic

potential over the capacity to provide maximum humanitarian benefits (Maantay and Maroko 2018). Additionally, installments such as community gardens can be expensive to maintain and, therefore, difficult for marginalized groups to participate in (Alkon and Cadji 2018).

Consequently, greening techniques are typically employed more frequently in non-white neighborhoods, are inaccessible to residents living outside of those neighborhoods, and paradoxically increase the cost of living for low-income residents when they *are* employed within proximity to marginalized groups. Thus, the ecological services produced from urban greening projects in some ways are more beneficial to affluent residents than to low-income and racially diverse ones, due to a lack of housing and zoning policies in place to encourage proper development. This not only puts vulnerable groups at even higher risk of morbidity and mortality from climate-caused events, but also potentially displaces those vulnerable groups to more environmentally degraded areas.

When it comes to installations of parks, gardens, or other green spaces, their locations determines their quality. Green spaces that exist in lower income and racially diverse neighborhoods have been characterized as smaller, less safe, and less accessible than parks that exist in higher income areas are. For example, one study of park facilities in New York City found that even though neighborhoods composed of mostly marginalized groups are located near more parks than other neighborhoods are, this is only true when including the parks with the highest levels of associated crime, traffic injuries, and pollution levels in the city (Weiss et al. 2011). Worse, a study of fourteen thousand city and town parks nationwide that was published in 2020 by the Trust for Public Land found that parks within a ten-minute walking distance of majority nonwhite neighborhoods are, on average, half the size and five times as crowded as parks within the same distance from majority white neighborhoods are (Trust for Public Land

2020). While these discrepancies can likely be attributed in part to the resources that more affluent residents have access to, the vacant spaces that are in proximity to low-income residents due to zoning practices tend to be contaminated sites or have impervious surfaces to begin with. For instance, one study of native pollinators in two U.S. cities (Ann Arbor, Michigan and Ypsilanti, Michigan,) concluded that community gardens managed by lower-income populations contained higher weed areas, lower crop areas, and less diversity in flower species than gardens managed by more affluent populations had (Luliano, Markiewicz, and Glaum 2017). Thus, the residents that have access to fewer of the resources needed to clean up sites properly are typically the same ones that are left to work with brownfield sites. Realistically, many of the parks and available open space located in close proximity to many marginalized families are either unsafe to get to, are perceived as unsafe to be at due to a lack of surrounding economic activity, and/or do not provide sufficient ecological services to residents (Cohen et al. 2016).

In addition to existing parks being inadequate in marginalized areas, opportunities to build green spaces on the multitude of empty lots are also often missed out on due to poor zoning and a lack of incentives for developers to do so (Maantay and Maroko 2018). Historically, some cities have encouraged zoning ordinances that locate high-density and traditionally working-class housing closer to factories and other polluting facilities, where public funding for park development is least likely to be allocated (Wolch, Wilson, and Fehrenbach 2013). This has been the case for Los Angeles, California, where high-density areas comprised of primarily Latino and African American families have 0.6 and 1.7 parks per acre per one thousand people, as compared to the 31.8 parks per acre per one thousand people in primarily white neighborhoods (Wolch, Wilson, and Fehrenbach 2013). Zoning and land tenure issues also make it difficult for community groups located in particular urban areas to maintain community gardens. In New

York City, for example, seventy-five percent of twenty Latino-run gardens that were surveyed reportedly experience land tenure issues, which can put those organizations at risk of losing their space if the land is sold or repurposed by the municipality (Saldivar-Tanka and Krasny 2003). While this survey is relatively outdated, this is just one example of how zoning and land use fluctuations determine which urban residents can have reasonable access to urban greening amenities.

Despite this disparity, parks in white neighborhoods do not have proportional attendance between families of differing socioeconomic status and race. This occurs because of two main factors: a perceived unwelcomeness towards non-white families, and limited transportation options. First, African Americans and other people of color are faced with a heightened disadvantage over low-income families when they do not have healthy parks in their neighborhood. This disadvantage is that they must extend themselves into a place that might be outside of their social circle. In her novel, “Black Faces, White Spaces”, Caroline Finney eloquently writes, “[t]here is no monolithic African American environmental experience,” meaning that historically, people of color have not been represented or included in American outdoor spaces or in the environmentalism movement (Finney 2014, 98). For reasons that this paper will not expand on, American people of color utilize public recreational facilities dramatically less than white Americans do, especially when those facilities are primarily operated by white people. At the national level, reportedly less than a quarter of visitors to U.S. National Parks are people of color, despite minority groups making up forty-two percent of the U.S. population (Ebbs and Dwyer 2020). This issue is also observable at the city level: in a study of a park’s use in Los Angeles, only 14.8% of visitors over the course of a one-week period were black (Derose et al. 2015). While there are many determinants to the specific demographics of

each park, low participation in general from people who are black can at least in part be attributed to the structural racism imbedded in the outdoor setting. Thus, encouraging people of color to make use of parks in neighborhoods dominated by white families enforces the racial barriers that have been enforced over the course of U.S. history.

Second, the poor efficiency of urban public transportation systems across the U.S. often further exacerbates existing challenges for low-income groups to enjoy green spaces. Contrarily to most European cities, U.S. cities were designed around the same time that the automobile became a prominent technology, which is why many transportation systems in this country are dependent on roadways rather than on railways or bus systems (English 2018). Although there have been some waves of transportation development since the 1950s, the modifications that have been made have not resolved the issue that “trains are too infrequent and too expensive to be used as a real local transit service” (English 2018). One study conducted by the Federal Highway Administration found that households making about \$100,000 per year in Atlanta, Georgia; Los Angeles, California; and New York City, New York travel on average between three and fourteen miles farther than households at or below the poverty line do, and that around half of them own at least two cars (Federal Highway Administration 2009). While this may seem to contradict claims made earlier in this paper about socioeconomically influenced distances to amenities, the fact that “individuals in poverty take about three times as many transit trips as those in the higher income groups” is typically what makes location such a barrier to accessing green spaces (Federal Highway Administration 2014, 1). Ultimately, a lack of investment in effective transportation infrastructure that is affordable to users – especially given the number of transfers between systems that are needed to get to many destinations – makes it difficult for low-income residents to get to green amenities when walking is not an option.

Paradoxically, locating green projects within a close proximity to low-income neighborhoods is not necessarily an equitable solution to the problem on its own, either. In fact, enhancing spots like parks, community spaces, and micro-mobility infrastructure in these neighborhoods often turns them into gentrifying areas, if the extent of a project as well as supplemental policies are not considered. Crossing the line from development that is “just green enough” – a concept coined by Curran and Hamilton in their book about revitalization in Greenpoint, Brooklyn – to development that rebrands an area as an economic hotspot is what attracts white affluent families and ultimately drives up the cost of living there (Curran and Hamilton 2020).

Cases where greening projects have gentrified areas can be seen in Oakland, California, and Portland, Oregon. In Oakland, which has a falling majority-minority population, one organization that has been working to achieve food justice is Phat Beets (Alkon and Cadji 2018). Urban greening techniques that have been employed by Phat Beets organization include community gardens, food stores, and black-led farmers markets (Alkon and Cadji 2018). Despite the seemingly genuine attempts to bring green spaces to poverty-stricken areas, flooding the area with aesthetically pleasing spots has consequently attracted a “group of newly arrived young middle-class countercultural folks” and resulted in a doubling of the average rent since 2010 (Alkon and Cadji 2018). In Portland, a proposed bicycle improvement plan failed to gain support from African American residents despite the possibility that it could technically make micro-mobility options an option for those residents (Lubitow and Miller 2013). According to a case study of this improvement project, opposition was born out of fear of gentrification due to both poor representation of people of color in the planning process, and a history of redlining over the past fifty years in the North Portland area (Lubitow and Miller 2013).

Three common issues between Oakland's Phat Beets and Portland's bicycle improvement project are a lack of new affordable housing developments, a pattern of zoning issues, and a failure to include residents in decision making. While location and transportation barriers drastically impede accessibility for marginalized groups, the consequence of gentrification brought on by some greening techniques are ultimately what exclude people from ecological services. Affordable housing projects often are not enticing enough for developers to propose on their own, so incentives from local, state, and federal governments are essential in making sure that at the very least, rents and property costs do not grow so high as to force out certain individuals. Examples of these kind of incentives include density bonuses, which allow developers to build more units in a residential building, and expedited permitting, which allows developers to begin construction quicker, if in both cases affordable housing units are included in the plan (Home for All n.d.).

Combined with housing incentives, similar zoning incentives and changes for greening projects in general would potentially increase the number of urban green spaces in marginalized neighborhoods, without gentrifying those areas to the extent they do currently. For example, the Hawthorne Avenue farm – a community garden in Newark, New Jersey that was built on an abandoned construction site – is a state-granted plot of land that is managed by the Greater Newark Conservancy (Primerano 2016). Between the Hawthorne Avenue farm and another farm managed by the same organization, “[t]he future of...[the]... state-owned parcel on Hawthorne Street, is more secure,” according to the executive director of the conservancy (Primerano 2016). Thus, if public entities invest more funds into the maintenance and protection of community gardens in lower income areas, those gardens will have a higher chance of surviving land use changes. Lastly, community engagement in city planning of any kind is essential in achieving

equitable results. Especially in cases like the Portland bicycle project, public feedback early on in planning processes can reduce the costs of implementation as well as potentially make projects more effective for all residents.

To sum up, urban greening techniques bring undeniable benefits to residents ranging from relief from climate change effects to improved access to locally grown food. However, these techniques do not always relieve socioeconomic disparities as they intend to due to, which may be due to harmful patterns of land use and development such as red lining and public disinvestment in post-industrial cities (Wolch, Wilson, and Fehrenbach 2013). Thus, green spaces range substantially in quality, safety, and size, based on the income level and racial makeup of the neighborhoods they are near. This means that certain affluent residents have access to more substantial ecological services than lower-income and racially diverse ones do. Additionally, structural racism and a public disinvestment in transportation infrastructure has made it difficult for minority groups and low-income groups to access parks and other green spaces that receive funding from governments. Combined, these two issues lead to disproportional attendance between low-income and high-income families at public parks. Lastly, planning initiatives that incentivize affordable housing projects and protect historically low-income areas from rapid booms in economic development are not in practice as much as they should be. This is resulting in the unfortunate displacement of marginalized groups from rapidly gentrifying areas to other areas that are likely experiencing environmental racism. It would be wrong to suggest that urban greening techniques as a whole are an entirely harmful to marginalized groups. However, an increase in policies and development plans that incorporate equity issues such as cost of living, transportation efficiency, and diversity in community engagement are needed to build cities designed for all people to thrive in.

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