

## **Brownfields Redevelopment for Affordable Housing**

### **Introduction**

Decent-quality and affordable housing is recognized as one of the primary needs of civilized society. Providing affordable housing for all sections of the society was recognized by the federal government when it passed the Housing Act in 1937 and provided subsidies for capital costs to the state and local government. Other programs like Home Investment Partnership Act (HOME), Community Development Block Grant (CDBG) and Low Income Housing Tax Credits (LIHTC) are few of the successful programs in federal government's long list of attempts at providing affordable housing to the lower income population. However scarcity of land, especially in the inner city areas of a metropolitan region where most of the affected population lives, has been a persistent obstacle in creating affordable housing. The increasing suburbanization of the cities has in fact depleted resources from the city and driven businesses from the core. This has rendered communities helpless and without assistance to redevelop their neighborhoods. The inner city has suffered due to changes in the economy and job loss as industries moved out of the cities, leaving behind their contaminated sites. These brownfields - abandoned properties with suspected or real contamination due to previous industrial use – account for a large proportion of vacant land in inner cities and have had a detrimental effect on the health of the neighborhood – economically and physically.

However, the presence of brownfields, also a potential eyesore and one of the reasons that drive down property values, has not been completely exploited to remedy the problem of affordable housing. Abandoned land in form of unused industrial sites obtained at low prices can be a useful resource after remediation measures have been carried out. The fact that such sites are often ill-suited to commercial or industrial due to its location and size factors furthers the case for housing on brownfield sites. Moreover the presence of brownfield sites in primarily inner city districts greatly enhances their potential for affordable housing usability.

This paper will explore the potential of brownfield sites for creating affordable housing. The paper will first briefly examine the emergence of brownfields in inner cities and dwell on the problem of affordable housing in American cities. It will analyze the effect of brownfields on housing in low-income areas and compare its economic and social feasibility with greenfield development. The paper will then briefly list the potential

barriers – psychological, economical, environmental, and social – for redeveloping brownfields. Lastly, the paper’s primary goal would be to make a case for redeveloping brownfields for affordable housing.

### **Emergence of Brownfields**

The Environmental Protection Agency defines brownfields as “abandoned, idled, or underused industrial and commercial facilities or properties, expansion or redevelopment is complicated by real or perceived contamination” (EPA, 1995). There are estimated 60,000-100,000 such sites all over the country although varying in size and level of contamination. Most of these sites are located in erstwhile industrial cities like Detroit, Pittsburgh, New York, etc but several brownfields are also located in rural parts of the country. Change in industrial, transportation, and manufacturing technology and the subsequent shift in economy from manufacturing to service-oriented industries has exacerbated the growth of brownfield sites. Such brownfield sites are not only marked by heavy contamination but also accompanied by social prejudices that often drive down the value of the land that they are sited on. The negative social, economical, and cultural impacts of the presence of such sites in inner cities – erstwhile industrial locations – have also contributed to the lower-income and racial segregation trends that every city is plagued with.

Contamination of land, along with suburbanization and deindustrialization is cited as one of the primary cause of vacant urban land in the past decade (Bowman & Pagano, 2000). Four factors led to the growing emergence of brownfields in American city, namely land-use decisions, racial-economic discrimination, suburban sprawl, and global capitalism (Ellis et al, 2002). Unfettered use of toxic chemicals in industries often located on urban land prior to the introduction of the environmental laws in 1970s damaged the environment via air, water, and soil pollution. These contaminated sites now located in mostly low-income and minority neighborhoods due to suburbanization, also receive little or no attention regards cleanup and decontamination measures due to pervasive discrimination (Bullard, 2000). Redlining and discriminatory practices by real estate agents have further diminished the efforts for redeveloping such contaminated sites. Developers, industry, and other service industry interests have followed the middle-income and higher-income ‘flight to the suburbs’ thus rendering inner-city areas abandoned, derelict, and underutilized due to fears of contamination. This caused heavy concentration of brownfield sites within a specific area of a city, notably closer to the

less-empowered population i.e. minorities and low-income population of a region (Urban Habitat, 1999).

Presence of such contaminated sites also increased the health risks of the affected population in addition to making them susceptible to economic downturns. These two factors combine to make the environmental health hazards more concentrated in low-income and minority neighborhoods. These neighborhoods also account for higher incidences of depression, asthma, diabetes, and heart disease (Cohen, 2003). Although brownfield sites alone need not directly cause these illnesses, the correlation between living in a deprived neighborhood and low health is high enough to warrant questioning. Brownfield redevelopment thus can be completely justifiable under the health of the community alone, irrespective of other reasons. Also the literature suggests the high likelihood of brownfields in disadvantaged communities as opposed to more 'prosperous' communities.

### **Problem of Affordable Housing**

After passing the Housing Act of 1949, the federal government effectively made a case for provision of affordable housing for disadvantaged citizens by stipulation in the said act, "realization of as soon as feasible of the goal of a decent home and suitable living environment for every American family". Although the government has enacted and implemented many affordable housing provision acts, severe shortage still persists. This shortage often is attributed to the mismatch in high market rents and low income of people who most need it. Provision of direct housing by the government has often resulted in substandard quality of units that mostly fall below the standard of acceptable living conditions. Private landlords who try to upgrade their units and rent housing often aim for the more affluent and profitable clientele (Freeman, 2003). Tight housing markets often make it impossible to construct new units due to scarce lands in places where the low-income people most need it. This results in renters paying a higher proportion of their income on rents when 30% (of the income share) is the accepted norm. Also, presence of low-income families reduces the property values of land in inner-city communities that suffer from limited real estate markets (Galster, 1999).

Affordable housing programs were initiated with complete government control by provision of fixed-cost rental housing; the future provision has been primarily market-based. The government has since then moved from direct housing provision to working with local organizations to build affordable housing units via legislation and programs like

HOME, HOPE VI, CDBG, and LIHTC. These are effectively local government initiatives that function on public-private partnerships to revitalize derelict neighborhoods while appealing to the feasibility of the project. The Community Development Block Grant (CDBG) and HOME Investment partnerships Program are the two main sources of federal support for state and local urban revitalization and affordable housing initiatives. HOME remains the largest federal block grant to state and local governments designed exclusively to create affordable housing for low income household.

Despite economic prosperity in the 90s, this strategy has still resulted in increase of the gap between need for housing assistance and availability of affordable units (Smith, 1999) and more avenues have to be explored to solve the affordable housing problem using existing resources.

### **Effect of brownfields in low-income communities**

Although the presence of brownfields has not been restricted to deteriorating areas, their redevelopment priorities have been significantly different in middle-income communities as compared to low-income communities. Presence of brownfields in low-income neighborhoods actually depresses the housing demand and deters development, effectively tying in the homeowners in low-income neighborhoods without any means to sell or redevelop their properties. The low-income population seeking housing in the areas with presence of brownfields are in fact discouraged by the government who would prefer them to move to better neighborhoods, thus leaving the plight of brownfields unchanged (Leigh, 1996). Section 8 housing vouchers lend mobility to low-income population that is restricted to impoverished neighborhoods. But highest concentrations of Section 8 households are in areas that have high concentrations of brownfields and even the poor quality of housing in these areas is shown to be related to brownfields (Coffin, 2002). Locating near brownfields can be considered risky and hazardous, which is often true but this perception often carries forward even when brownfields are remediated and rendered habitable. But changing trends in affordable housing signal a changing perception in affordable housing circles. "With Section 8 households in Cleveland more than two times as likely to locate near a remediated brownfield, the results demonstrate that these low-income residents are already locating in brownfield neighborhoods" (Coffin, 2002).

The EPA although actively supports brownfield redevelopment does not do so for provision of housing explicitly but in fact, advocates redevelopment for creation of jobs

and taxable activities, and to eliminate the risk of people living near brownfields due to health concerns (Platt, 1998). But most of the brownfield properties were found to be too small for placing commercial and industrial use in order to create jobs and were more suited for small shops, parks, and multifamily housing units (Miller et al. 2001). Also, the people in the neighborhood prefer uses other than those suggested by the EPA. 90 percent of the neighborhood in Perth Amboy, NJ with more than a dozen brownfields wanted park and play areas and more than 80 percent wanted art and cultural facilities while the other half wanted housing. Factories, warehouses, and other job-creating businesses were a distant third (Greenberg & Lewis, 2000).

Neglected brownfields thus are a “wasted” resource and underutilized land parcels that can be used to prevent flight of low-income population from distressed neighborhoods.

### **Why Housing?**

The housing market currently in the United States is on the upswing and recent migration and population trends have show that the demand for housing will only increase even amongst low-income population (Belsky, 2002). Homeownership is also increasing but the rental market continues to dominate the choice of immigrants and young professionals. More specifically, it has been observed that minority population especially within the city cores are pushing up the demand for housing; rental or ownership (Masnick, 2002). New immigrants tend to concentrate in the gateway cities, like New York, Chicago, Los Angeles, Boston, Houston, Atlanta, etc. which also have a higher concentration of brownfield properties due to departing industries from the city center. Most of the new immigrants tend to settle in these big cities before dispersing elsewhere in the country. Such large concentrations of population with limited credit history and affordability problems in city centers generate housing demand within the city i.e. close to their jobs and small business.

From a broader perspective of urban planning and public policy, all – house builders, planners, developer, and the government – share a responsibility for framing a balanced connection between the market mechanism and state control to fulfill housing demand (Adams & Watkins, 2002). However, too much of either can skew the demand and result in status quo of brownfields condition. Emphasis on using existing resources without putting too much burden on the city might prove to be a better solution. Tax increment financing (TIF) districts although a popular measure to spur economic

development and largely favored by the government, it involves aggregating parcels of land into a cohesive whole. This can be time-consuming and often not preferred by the resident since they fear gentrification. If the level of contamination in the brownfield sites is different then it further complicates the process.

The location of brownfields is perhaps the best justification for locating housing since they are located in erstwhile industrial belts that are now inhabited by mostly low-income population. “80 percent of the brownfields were within a quarter-mile of the nearest residence, and many were in residential neighborhoods” (Greenberg et al, 2001). The presence of brownfields and low-income neighborhoods in conjunction with each other is almost causal and in order to solve one urban problem, it might be pertinent to examine the other at the same time. The brownfields have also been known to increase the propensity for crime in the neighborhood (Greenberg & Lewis, 2000) and thus redeveloping the site to fulfill the community need might help integrate the sites. As mentioned earlier, the size of the brownfield plots is too small and disjointed to site any commercial or retail uses unless it is for small retail shops. In a field investigation of over 100 brownfield sites in 12 New Jersey municipalities, 28 percent of the plots covered less than half an acre (Greenberg et al, 2001). A nationwide study showed that in 100+ cities clean-up could produce as much as half a billion dollars in taxes and 236,000 jobs (Pierce, 1998). However, citizens and community leaders did not agree with the elected officials and planner and preferred other uses (cultural & recreational amenities, housing, etc) for redevelopment purposes (Greenberg & Lewis, 2000).

Changing trends in urban development also push the case for affordable housing. Young professionals with high income and empty nesters – older adults with grown children – now prefer to reside within the city to enjoy the urban life (Wyly & Hammel, 1999). This new demand is pushing up rents and property value causing low-income people to move out of their neighborhood, causing social and economical tensions. Further, the National Housing Conference reports that in 2000, over 14 million families either spent more than 50 percent of their income on housing or lived in a seriously substandard unit. Such people are in serious danger of increasing their share on rent vis-à-vis their income, if affordable housing demands are not met within city centers.

Also, adaptive reuse is a growing trend in developer circles and provision of housing within existing structures on brownfields also help preserve the historic character of the neighborhood that makes it more attractive to the residing population.

Such measures are unlikely to meet with opposition regards redevelopment as long as provision of affordable housing is guaranteed to prevent drastic gentrification. According to a Brookings Institution study of the Northeast region, cities report an average of 7.47 abandoned structures per 1000 inhabitants (Pagano & Bowman, 2000). Development of such properties has also found support among real estate developers and provides ample opportunity for housing while maintaining a community's identity.

More importantly, the process of eliminating blight from a neighborhood by redeveloping brownfields for housing signifies a step in improving a community. This is often considered as an acceptance of their opinion and sends out positive signals within the community. This could further lead to increasing community participation and incorporating their preferences and sweat equity to develop the neighborhood. Thus, by tackling the biggest and visually unaesthetic problem of brownfields, the process can start a chain reaction of future development projects in the neighborhood.

### **Brownfield redevelopment versus Greenfield development**

It is widely perceived that greenfield development is more cost-effective than redeveloping brownfields due to high costs of contamination cleanup. This perception has been further reinforced due to increasing suburbanization that leads developers to build housing, mostly higher-income subdivisions on the urban fringes instead of developing inner-city neighborhoods.

However, the government has been encouraging development of brownfields using a variety of incentive programs and remediation program. Cleanup of Superfund sites – where contaminants have exceeded the legal limit – are governed by the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and individual state environmental protection laws. These superfund laws also entail assigning responsibility for the costs associated with the cleanup. In case of immediate threat, the USEPA or state EPA performs the remediation and seeks reimbursement from the responsible parties. However, a majority of brownfields are not heavily contaminated and thus the cost of remediation is within economic feasibility limits. Every state has different programs designed to assist local governments, businesses, and individuals in cleaning up brownfields so that the site is suitable for redevelopment purposes (Cairney, 1995).

In spite of the abundance of government programs, there is a perceived resistance toward brownfield properties. The resistance stems from lack of information

regarding environmental impact, actual contamination of the land, liability issues, government funding and technical assistance, and implementation of seemingly complex scientific standards governing cleanup (NRTEE, 1997). Hence, the primary issue concerns information gap between the developers, businesses, and individuals who otherwise wouldn't mind redeveloping brownfields. The attractiveness of a property to the investor is hampered by the additional direct costs of remediation and technical consulting making it imperative for the government to offer public incentives (Pepper, 1997). The government on its part, in its Federal Brownfields Action Agenda (1995) has been trying to reduce the regulatory overlaps to encourage private development and provide funds for pilot programs and providing tax breaks, grants and other financial incentives. The stated high costs of cleanup on brownfield sites are unfairly compared to even higher costs of infrastructure expansion and negative externalities of development such as longer commute times and increased pollution (due to automobile-dependency) in greenfields development (Ellis et al, 2002).

In a survey conducted in Toronto, the liability issue was considered as the biggest obstacle against brownfield redevelopment when compared to greenfield development. Other perceived obstacles like lack of government financing, property status perception, and information regarding remediation requirements ranked far below. Community opposition surprisingly, did not prove to be a significant obstacle (De Sousa, 2000). Also, the impact of government assistance was significant and respondents identified tax incentives such as tax abatement, tax increment financing, and development charge credits as factors that would remove obstacles associated with brownfield redevelopment. But still respondents feel that not enough is being done by the government to "stimulate redevelopment through the implementation of cost/risk reduction measures" and perceived cost-effectiveness of brownfields compared to greenfields. However, the higher real-estate value in the city and inner suburbs as compared to the suburban greenfields tend to compensate for the higher cost of cleanup. Residential redevelopment is clearly favored by developers and businesses alike as compared to other industrial and commercial uses of the redeveloped land (Bartsch, 1996). The growing popularity of living in urban areas has made residential real estate potentially feasible. Further deals of creating mixed-income housing to incorporate affordable housing in private development projects then can be explored.

The availability of federal subsidies, as mentioned before for brownfields redevelopment tilts the balance against greenfield development. Also, most of the

population that is most likely to occupy affordable housing tends to work in the city core and locating their housing within the city limits greatly reduces commute times and increases efficiency.

### **Risk Perceptions and Uncertainty for Brownfields Redevelopment**

Since brownfields redevelopment primarily concerns dealing with contaminated properties, perception of risk and health concerns to site housing are obvious; especially so if the proposals are for affordable housing. Questions regarding suitability for residential housing on erstwhile contaminated properties may raise social inequity issues and accusations of trying to “palm off unwanted land” to lower-income group of people are not uncommon. Apart from health concerns, other reasons for concern are the perceived prohibitive costs for cleanup and remediation.

It is generally believed that a neighborhood with brownfields would be typically unattractive and redeveloping brownfields would actually raise the perception of livability in the neighborhood. But widely cited cases of people refusing to buy lands because of “concern about the effects of adjacent manufacturing operations residual ground water contamination” are detrimental to brownfield redevelopment for housing purposes. However, it was evident after examining the specific case that the buyer backed out of a \$200,000 deal only because of insufficient information provided by the government (Wells, 2000). Housing on redeveloped brownfields can become more widespread as contamination cleanup issues are better understood.

Almost two-thirds of Americans polled by Gallup were “very concerned” about hazardous wastes (Matterson-Allen & Brown, 1990) and concern for the protection of the environment as well as enforcing regulations on possible contamination has been high since early 70s. According to Global Stewards, 85% worry about the “contamination of soil and water by toxic waste.” This concern however, has transferred also to the propensity of moving toward or on a contaminated property. But this concern is not uniform and gender, age, race/ethnicity, socioeconomic status are associated with sensitivity to environmental hazards. More educated and more affluent people are more concerned (Douglas, 1985; Hamilton, 1985). Women, younger people, and people with young children are more worried about environmental hazards than men, older people, and those without families (Blocker & Eckberg, 1989). However, these general beliefs are countered by trust expressed in mayors and elected officials (due to repeated success in local elections) who advocate housing on remediated brownfield lands. Also,

in distressed neighborhoods people do not want to move to the suburbs and actually view redevelopment of brownfields as a positive step since it brings with it reduced crime, improved infrastructure, removal of dilapidated structures, and remediation of land (Greenberg & Lewis, 2000). Thus minorities and low-income people would tend to view redevelopment of brownfields positively and not feel threatened by perceived aftereffects of contamination following remediation. The low-income residents are already locating in brownfield neighborhoods especially and Section 8 households in Cleveland are more than two times as likely to locate near a remediated household (Coffin, 2002).

Residential reuse often does not generate as much income as commercial or industrial reuse would. This potentially debilitating economic factor often is cited as the case against brownfield redevelopment. Additionally, cleanup standards for housing use may be more stringent than commercial or industrial reuse, thus raising the costs. However, these costs according to recent studies may seem to be exaggerated. Cleanup costs averaged only 8 percent of the total project cost (Council for Urban Economic Development, 1999). In addition, many government programs both at the federal and state level have assisted brownfield redevelopment programs. The Federal Interagency Working group responsible for brownfields redevelopment involves almost fifteen different federal government agencies (Meyer & VanLandingham, 2000). Programs like, Brownfields Cleanup Revolving Loan funds provide assistance to close the financial gap brought on by uncertainty of commercial lenders and Brownfields Tax Incentive allow developers to expense brownfield mitigation costs on income taxes. Although only 14 states have initiated brownfield cleanup programs, 47 states have introduced Voluntary Cleanup Program (VCP) to help stimulate brownfields investment (Meyer & VanLandingham, 2000).

Another aspect often cited as a concern for locating housing on redeveloped brownfields is the issue of social stigma. Property owners are concerned with existence of specific contaminants but are not entirely averse to buying cleaned up properties but there are concerns that not many people are aware or made aware of contamination before purchasing property (Winson-Geideman, 2005). But assurances on the safety of the land by relevant authorities and proximity and view to parks and water contributed in favor of locating housing on remediated land. In a 2001 survey of New Jersey residents of a brownfield pilot community, of the 280 people who said they are likely to move in the next five years, 171 said they would be willing to live in a house on a remediated brownfield (Greenberg et al, 2001).

Lastly, the legal liability for cleanup and remediation remain one of the biggest barriers for locating housing. Unattractive sites located in inner city neighborhoods often face the brunt of these shortcomings. Since FHA insurance cannot be secured before cleanup is complete, the developer is responsible for the cleanup before obtaining the title for the land. This proves to be a stumbling block as developers do not want to take the risk of legal liability for cleanup especially before owning the land.

Most of the perceived risks and concerns with remediated brownfields are associated with information asymmetry and can be ameliorated with better transparency and provision of information by the government regards status of the land and extent of contamination. It is also seen that low-income neighborhoods in fact view brownfield redevelopment as a positive step and are not averse to the perceived risk of living on remediated land as long as they receive assurance from relevant authorities. The cost of remediating brownfields is also seen to be highly exaggerated and with the support of the government, it can be significantly reduced. The only valid concern remaining is that of legal liability for developers and that concern can be directly addressed by making FHA policies more flexible for residential redevelopment especially in inner cities. Engineering and institutional control to demonstrate elimination of human exposure to contaminants and inclusion of remediation costs in financing packages can hasten the reuse of redeveloped brownfields as sites for affordable housing (Schoop, 2003).

## **Conclusion**

Presence of brownfields has not only resulted in deteriorating health of the community residents but has also given rise to crime and dilapidating social conditions. These effects have had negative implications on the community's property values. On one hand, various federal programs focus on the marketability of the brownfield site i.e. redeveloping the site that has maximum chances of financial regain, thus causing brownfields located in dilapidated areas to remain undeveloped and on the other hand, government programs for low-cost or affordable housing encourage residents to move away from the afflicted areas (Coffin, 2002). This incongruity of individually efficient market-based solutions leads to failure in redeveloping brownfields that cause most harm to neighborhoods. Section 8 households continue living near existing brownfield areas that depress property value and make the option of homeownership irrelevant.

The focus of this paper has been to highlight disconnect between such brownfields sites that need immediate redevelopment. Implementing the reuse of such

brownfields for affordable housing, preferably mixed-income can prove to be a double-edged sword in solving not only the brownfield problem but also revitalizing the community at large. Concerns regarding environmental hazards and post-remediation occupancy have declined with increase in awareness and provision of information by the relevant authorities. Supplementary strategies like town hall meetings and design charettes for redevelopment plans can further close the information asymmetry gap.

The lack of financial assistance, cited as another concern, has been overcome on many occasions by public-private partnerships to develop the remediated land although uncertainty in liability issues pertaining to cleanup operations still is a major deterrent for property developers. The suitability of housing as an appropriate reuse for abandoned brownfield lands in spite of stricter environmental laws has been reinforced in the literature primarily due to preferences of primarily low-income population near such sites and the incompatibility of other commercial and industrial uses due to size and location mismatch. Also, in spite of tremendous growth in provision of affordable housing, more than five million families still need housing assistance (U.S.HUD, 1999) and the recent shift in urban housing policies toward market-based choices has greatly disadvantaged the poorest residents (Smith, 1999).

The recent incident of mass homelessness in New Orleans brought on by Hurricane Katrina has further exacerbated the housing problem for the low-income population. It has also impressed upon us the need to immediately remediate large tracts of land that are contaminated due to flooding. The Brookings Institution, in their report titled *Katrina's Window: Confronting Concentrated Poverty across America*, have proposed creation of communities based on choice and connection:

"The guiding principle must be to create new neighborhoods of *choice* and *connection*. Neighborhoods of *choice* are communities in which people of lower incomes can find a place to start, and as their incomes rise, a place to stay. They are also communities to which people of higher incomes can move, for their amenities, location, and housing value. Neighborhoods of *connection* link families to opportunity, wherever it may be located. It recognizes the success of recent efforts to expand opportunities for low-income families beyond high-poverty neighborhoods, and to transform the nation's worst-off public housing into vibrant new mixed income communities."

Although it has been cited as a solution to create mixed-income communities, a similar strategy in combining choice and connection can be applied to redeveloping

brownfields for affordable housing. This strategy is rooted in keeping people within their existing neighborhood while bringing about change from within.

In conclusion, affordable housing fulfills the most basic requirement of a disadvantaged community. Using existing community resources like remediated brownfields and partnering with community development corporations and local government authorities to provide housing can prove to be the first step in overall community development.

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