

**Brownfields and the Urban Commons:
Common Property Frameworks in
Urban Environmental Quality**

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Working Paper, 2000

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Common Property Frameworks in Urban Environmental Quality:

Environmental, social and economic impacts and benefits can be seen as the shared resources of an urban commons. The institutions that protect and enhance this commons can be seen as common property institutions. Common property concepts offer useful frameworks through which to analyze the dimensions of brownfield redevelopment in neighborhood and metropolitan contexts. This analogy allows us to analyze the appropriateness of institutional design and scale for the regulation and protection of these commons, and to reconsider the distribution of the private and public costs and benefits of development.

Using the terms of 'common property regimes' and 'commons,' we are reminded of two things. First, the commons framework allows us to treat different institutional actors differently; some represent one common resource and not another. Unlike the more hygienic 'public interest,' a 'common property regime,' places the focus on which actors, at which scale, are making what kinds of decisions? As well, using the common property framework for environmental commons reminds us of our shared claims to "the things that are naturally everybody's" (Ingram and Oggins 1992).¹

¹ In Roman law, the "things that are naturally everybody's are the air, flowing water, the sea and the seashore..." (quoted in Ingram and Oggins 1997).

Brownfields involve commons of both environmental goods and environmental bads. Brownfields have environmental and economic impacts that are broader than individual sites. The increase or decrease in value that a property gains from its location, adjacencies, or neighborhood is a largely relational value. As well, the development potential of brownfields is dependent on the statutory and policy framework of environmental liability and the perception of the costs of environmental risks. In recent redevelopment strategies, state and local governments have begun to shoulder environmental liability, lowering transaction costs and shifting the practical cost of liability and risk from inner cities to wider public bodies. The liabilities and cost distributions established through Superfund could not be said to be fair or efficient. While the new distribution is more efficient and may reduce the share of costs borne by inner city communities, the fairness of the distribution of public liability shares remains problematic.

Area-wide strategies are able to combine attention to environmental rehabilitation, economic development and land redevelopment, usually through multi-agency participation, with local governments playing important roles. As publics at various scales bear a greater proportion of the costs of environmental risk and liability, state and local governments can invest strategically in areas where brownfield developments can provide the greatest benefit to a wider community.

Community interests - such as the distribution of environmental risk and liability, economic vitality, and infrastructure quality - give urban property its common aspect and imply a right to common control. They share the key economic criteria of common goods

- which is that others' use or abuse of these resources affects others with claims to them.

The key connection in this context is that distributional choices must be made and managed politically. In judicial traditions, this strand or layer of common value has been reflected in such doctrines as nuisance and public trust. This right to control of the commons has also been incorporated into the police power of local governments, at much lower transaction costs. Governments can act as common property institutions. Like less formalized common property institutions, this may reduce transaction costs and lower the costs of risk and variability (Bromley 1991).

Brownfield abandonment or redevelopment also has impacts at the metropolitan scale, although these are both more difficult to quantify and to represent institutionally. Brownfields abandonment has incurred public costs, and increased the relative advantage for many businesses of suburban greenfield locations over central city brownfields. Large tracts of abandoned land and smaller disused sites disrupt the urban fabric; as abandoned land they push other development outward. If brownfield reuse is seen as an alternative to scattered, greenfield development at the suburban fringe, there may also be net impacts to clean air and infrastructure spending.

Using urban brownfield abandonment and redevelopment as an example we will demonstrate the applicability of common property concepts, from economic and legal literature, to urban environmental quality problems. An institutional analysis using norms and measures from common property institutions emphasizes the common property claim embodied in legislation. Common property claims to environmental

quality offer the potential for a counterclaim to the move to expand private property rights, and a claim to a say in decisions that affect urban quality of life.

Defining the Urban Commons: Rights and Responsibilities

Like many urban and environmental issues, brownfields issues are not site specific in impact. Brownfields policy affects neighborhood health and economic development and the common and private distribution of environmental risk and liability. At the metropolitan scale, brownfield policy affects urban development, infrastructure maintenance and the urban spatial fabric. The distribution of costs and benefits in the urban commons takes place through many existing institutions at different scales, including land markets, regulatory structures, and state and local government policies. We employ concepts from the literature of commons management to evaluate what institutional arrangements are most likely to incorporate sustainable commons management.

While urban land is sometimes argued to be an inherently and normatively private good, the neighborhood and regional effects of land use and land use patterns limit private property rights. At the most basic level, an unlimited scope of private rights to control would interfere with the private rights to control of adjacent and neighboring

landowners (Buck 1993; Epstein 1996; Rose 1994; Sagoff 1997). Commons management requires that the problem of distribution be solved politically, at least in part.

From the perspective of economics, common goods are usually conceptually categorized by two qualities: non-excludability and subtractibility. It is characteristic of common goods that it is difficult to exclude others from access or advantage; the right to exclude is considered to be a fundamental right of private property. Subtractibility means that when one individual uses a common good, it subtracts from the total amount of this good available for others to use (Berkes et al 1989). The difficulty in exclusion can imply disincentives to further investment or to conservation, as well as ineffective or absent pricing mechanisms. Combined with subtractibility, this disincentive to conserve or reinvest can create an incentive to consume at a higher rate. The future is highly discounted due to the expectation that others will overconsume and neglect to invest or conserve (Bruggink 1992).

These categories are used in economics to distinguish common goods from private goods and public goods. Private goods are, by implication, those to which an individual secures control over access, exclusion and use. The definition also implies the existence of public goods that are not subtractible, where one person's use does not impinge on the use of others.

As inherent qualities of resources, these qualities are abstractions. It becomes ever more clear that these qualities are relative to the scale of consideration and to the legal context. At one time, the avatar of a public good was air, a non-subtractible public good; now we are aware that both air and the atmosphere are subtractible at a global scale; they

have become part of the 'global commons.' As well, air may be treated in different contexts as any of the three types: public, common or private. Similarly, in the complexity of urban polities, resources such as infrastructure, land use patterns, and aspects of the financial, regulatory, physical and political context may be treated as private, common or public goods at different times for different purposes.

The consequences of urban land use patterns are not internalized in the private property market, and yet not all external either. The value of many common goods is internalized in private market values, as these are importantly dependent on neighborhood, proximities and levels of services and amenities.

As an urban commons problem, the problem of brownfields regulation and redevelopment becomes in part a problem of ensuring that effective common property institutions are in place. In the current context, distributional problems are solved not in a dichotomous choice between either the market or government, but in the combination of market structure, legal and regulatory institutions, and policy choices. Political distributions of common resources should meet our criteria for both procedural fairness and distributional equity. To date, our urban institutions have favored the suburbs. In order to address the causes of sprawl, we must also address the abandonment of the inner cities. The institutions of the urban commons should enable communities to protect themselves from harm and to develop viable economies.

Common goods are those goods that should be managed politically rather than left to the free market. A simplistic duality in approaches to control and distribution - private market or centralized state - was publicized by Hardin (1968) and remains influential. In

Hardin's narrative, the existence of common resources creates an inevitable tragedy through a relentless and contradictory calculation of immediate economic self-interest. In this narrative, the users of the commons were presumably unable to establish norms or engage in cooperative effort (Epstein 1996; Hardin 1968). In reality, there are many institutions for managing environmental and resource commons.

The concepts developed in the literature of common pool resources have political and analytical application to the urban commons. Much of the common property literature examines and explains collective management regimes applied to single resource commons in traditional societies. However, there is a growing body of literature that applies these concepts both to modern institutions and to more abstract resources (Berkes et al 1989; Feeny et al 1990; Ostrom 1990; Steelman and Carmin 1998). Common property regimes are more likely to be developed where the costs of private transactions would be high (Bromley 1991), for which the costs of risk or variability are high (Nugent and Sanchez 1998; Wilson and Thompson 1993; Thompson and Wilson 1994), or for which the total resource value is relatively low (Bromley 1991).

In the history of legal concepts and practices involving land, a variety of concepts have developed that describe those aspects and rights that have been privately held and those that are subject to common interest and control. In legal scholarship, it is commonplace to refer to environmental goods as common goods (Echeverria 1997; Freyfogle 1999; Rose 1994; Rose 1998; Trachtenberg 1997), whether these are also privately owned, held in trust by the state, or regulated as externalities. Private and common property frameworks are seen not as fixed categories of resources, but as sets of social

norms applicable to aspects of different resources. Property frameworks and the resources to which they can or should be applied are mutable over time.

Historically, common property regimes developed through a combination of usage and claims. In stable social frameworks, communities have been able to develop a variety of solutions to shared resources (Berkes et al 1989; Ostrom 1990). When new users or new claims have threatened these regimes, the survival of traditional common property regimes has depended on the support of some level of government; some common property regimes have been formalized. Others have been dismantled and privatized, through a combination of legislative enactment and enforcement as in the history of the English enclosures (Berkes et al 1989; Denman 1959; Neeson 1993). In still others, common property regimes have been replaced by public property regimes, as in the case of North American wildlife. On occasion, a common resource system is not recognized until some threat arises (Steelman and Carmin 1998).

Common property regimes have developed through an interrelationship of the nature of the community of users and with resources. The transaction costs associated with any regime depend on community norms; where custom and membership is stable, or political control is relatively strong, common property regimes are inexpensive. When communities have been less stable and norms more variable, transaction costs have risen. A common property regime should solve the problem of distribution through norms or rights that are exercisable at an appropriate scale (Ostrom 1990).

Claims to common ownership, where no explicit recognition of such claims existed previously, can be based on existing regimes, changing circumstances, or both. Changing

circumstances can give rise to the need to develop a formalized common property regime, as may occur once scarcity is found to present of a problem for some resource (since, prior to determination of scarcity, there was no perceived need to have formal control over its management). Similarly, a claim might develop out of new understandings of the risks posed by toxic or other kinds of pollution, since new findings can demonstrate the need for new forms of common control over negative effects on the commons. For many environmental goods, regimes and management institutions have not been necessary. When such goods as air and water could be considered practically infinite, no regular institutions for their management were required. Now that these goods are not infinite relative to our usage of them, it is necessary to manage them.

Environmental laws can be seen as property regimes protecting the rights of political communities at various spatial scales to common resources. The relationship between concepts of shared property and environmental law has a long history, at least from Roman times (Ingram and Oggins 1992). For shared resources, legal norms of stewardship and trusteeship have developed. The most articulated set of principles was developed into a doctrine of public trust. Originally the public trust applied primarily to navigable waters, although in the context of feudal lands it also applied to roads. Applied to navigable waters, the public trust doctrine held that the state held property rights over goods in the public trust. As a trust, this ownership requires prudence and includes limits on the ability to transfer these goods and rights over them. In the United States, the public trust has expanded from navigable waters to include a range of resources that the state is held liable as a public trustee for a trust-like standard of care. As a trustee, the state must

act to ensure that the trust continues to provide 'income' in perpetuity. A public trust gives the state great responsibility as owner, but limits the right to dispose and exclude (Ingram and Oggins 1992).

In the common law of property, both private and public nuisance developed as a way for private landowners and the state to limit land uses that negatively affected neighboring land owners and the public at large (Green 1997). In property law, norms that have developed in shared property traditions include stewardship, obligation, prudence, thrift and carefulness and maintenance of the common stock (Rose 1994).

Originally, nuisance provided a high level of protection for owners of private property from other landowners; primarily the right to peace and enjoyment. Nuisance was decided on the basis of the existence of injury to this right, and was not excused nor balanced by the legitimacy, lawfulness or socioeconomic benefit of the offending land use. In the United States, the doctrine of nuisance evolved to consider social value explicitly; in the late 1800s the Supreme Court incorporated social value as a weighing consideration in nuisance, and saw the value of industrial development as social value (Green 1997). While the court later retreated from this innovation, common law nuisance is of more value in principle than in practice.

The doctrine of nuisance is of limited value in the modern urban environment; it embodies an absolute principle that no interference with the right to enjoyment of one property owner by another is acceptable. This is a powerful 'environmental principle' that protected wealthy landowners; as a rule for the urban environment it is probably more strict than is desirable. The transaction costs of private rights to sue are high, and the

remedies available under nuisance were limited and only available after an injury. Limits to standing in nuisance usually require that one is a landowner that is directly affected by the activity and can demonstrate injury to the enjoyment of his property.

Public nuisance had more applicability to environmental hazards, that may be diffuse in effect and that may affect those that are not property owners. The principles of public nuisance have been incorporated through statutory law into environmental regulation (Green 1997). In the urban context, statutory land use regulation has taken the place of the common law doctrine of nuisance. This allows the 'balancing' of social benefit and private protection to be done through local governments and through administrative decisions, including planners. Statutory land use regulation is better able to balance injury with social value and lower social and private costs.

The regulatory approach can provide greater certainty and lower transaction costs to the urban development framework than could private actions, restrictive deeds and small individual costs and liabilities. Local government authority to regulate land through zoning met with Supreme Court approval in 1928, as a legitimate interest in the health, safety and morals of a local government under the police power (Jacobs and Ohm 1995; Sagoff 1997). In the current context, these rights to control over land uses and activities are held at various levels of government to varying degrees. This institutional complexity reflects, among other things, the importance of scale in political determinations of distribution.

While the focus of brownfields policies began as concern over individual sites, in recent years local governments, states, and the federal government have sought to

represent common interests that are relevant to brownfield creation, abandonment and redevelopment. The environmental commons that are affected by brownfields and decisions about their use include urban land, air and water, community vitality and community economic development, privately and publicly owned land and the urban transportation, infrastructure and service fabric. The resource that is key to the brownfields problem as it is distinct from a more general problem of urban redevelopment is not an environmental good but an environmental bad - environmental liability.

Brownfields Risk and Liability as an Urban Commons

The legacy of environmental risk from the industrial age is a commons of an environmental 'bad.' Efforts to privatize the risks and liabilities of brownfield redevelopment have not proved successful. Not only have these attempts been expensive and unwieldy, but they have slowed environmental cleanup that would otherwise have occurred. The privatization of environmental liability was intended to ensure that the public would not have to pay for past private actions. As well, it is unclear that private liability is fair; not only is it retroactive, but the relationship between environmental liability and the title to a contaminated site does not necessarily ensure that the actual polluters responsible are forced to pay. As well, the high transaction costs and high risks

of this attempted privatization have been borne by a wider community than past polluters and current landowners and bankers.

Brownfields neighborhoods bear two costs directly from the effort to privatize environmental liability. First, as the process is slow and litigious, neighborhoods are exposed to higher levels of health risk than from existing sites that have been abandoned or in which cleanup awaits the resolution of legal proceedings. Abandonment or disuse of sites has a multiplier effect in the local spatial community, decreasing their overall attractiveness for development even on uncontaminated sites. In the last decade, local and state programs have begun to shift some environmental liability costs back to the public. This is a net reduction in transaction costs, however the resultant distribution of the cost of environmental liability is problematic.

Firstly, the group of people who benefited from the ability to pollute in the past is larger than the group of actual polluters; a social benefit in the form of lower prices or more rapid development would have accrued to a wider group in society. While the scale of federal or state government may be an appropriate proxy for the subsidization of some environmental liability, local governments that assume this liability or risk are assuming an unfair share of the costs.

Brownfield abandonment and redevelopment has become an important urban issue in the last two decades (Bartsch, Collaton and Pepper 1996; Urban Institute 1998).

Brownfields are defined as "abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination" (EPA 2000).

There are many brownfield sites in urban areas, particularly in older urban areas.

Estimates of the number of brownfield sites range from 130,000 to 600,000 sites nationwide (GAO 1995; Meyer, Williams and Yount 1995). Many brownfield sites are small scale sites such as abandoned gas stations, some are large industrial sites. While not all contaminated sites are urban, the urban brownfields problem is made up of those sites that may affect human or ecological health and that slow redevelopment, affecting the pattern of urban development and community economic development in the inner cities.

While the contamination of urban land and groundwater by private industry has been commonplace for some time, it is only in the last few decades that the 'brownfields problem' has taken its current form. In the prior industrial age, pollution was legally tolerated as a necessary aspect of the social benefit of industry (Green 1997). With environmental activism, the issue of hazardous contamination of land was brought to public consciousness. Uncertainty and suspicion concerning the potential harms from new toxic chemicals has been combined with increased criticism of the idea that a corporate benefit is a public one (Hays 1989; Shabecoff 1993). The brownfields problem is related both to the creation of specific kinds of corporate environmental liability and changes in the amount and kinds of pollution tolerated in the legal and social framework.

In 1980, federal environmental legislation was enacted that created private corporate liability for environmental contamination; this liability was retroactive and also could be carried forward in time to new owners of contaminated land. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Superfund Law provided broad federal authority to respond to the presence or new

releases of hazardous substances that could endanger public health or the environment. CERCLA included provisions through which toxic sites could be identified and listed for priority attention. As well, a tax on chemical industries was established to create a cleanup fund for those cases where a private party could not be found and forced to pay for cleanup, this fund was called Superfund. CERCLA was reauthorized through amendments in 1986, and renamed SARA (the Superfund Amendments Reauthorization Act). The power to control environmental contamination and order its mitigation continued from CERCLA to SARA; however SARA included greater attention to prioritizing cleanup of contamination posing the most danger to human health. Also encouraged greater citizen participation in decisions on site clean up (EPA 2000; Meyer, Williams and Yount 1995).

The main innovation in the Superfund legislation was the creation of private environmental liability for contamination. CERCLA established private liability for pollutant mitigation at contaminated sites, imposing retroactive strict liability through statute on all parties involved with ownership, occupancy, or management of polluted properties. Previously, and while most of the pollution was occurring, these liabilities were an externality to the generators and to the consumers that benefited from this externality. By assigning liability for contamination that was retroactive, the Superfund legislation attempted to implement a 'polluter pays' policy that would force industry to pay, rather than bearing the contamination as a social cost of ignorance. Superfund attempted to privatize the costs of the environmental "bads."

The attempt to privatize environmental liability has engendered massive transaction costs in the form of endless litigation and delay, and the difficulty in establishing particular private responsibility for particular contamination. As well, since the liability carries with the land title whether known or unknown, environmental risk presents highly variable site risks to private developers. This variable and uncertain risk cost acts as an additional barrier to the redevelopment of used sites.

There is a sense in which brownfields as abandoned sites were created through the creation of environmental liability. On one hand, the Superfund legislation has produced great attention to the prevention of toxic contamination and to insurance against the possibility of corporate environmental harm. On the other hand, the Superfund legislation, in creating extensive private liabilities, acted as an additional barrier to the redevelopment of inner city properties. The high private liability barriers to individual site development have imposed costs on communities.

The redevelopment of urban brownfields is complicated by a number of factors in addition to soil and water contamination, including older infrastructure and the current stigma of inner-city locations (Urban Institute 1998; Wright 1997). While there are some limitations on the size of older parcels in relation to current industrial and commercial footprint demands, inner-city locations are often thought to be additionally contaminated by older infrastructure, crime and social location - higher concentrations of poverty and minority populations. Additionally, suburban greenfield sites with new infrastructure or other inducements to development are typically made available by suburban localities in a

metropolis, eager to increase and diversify their tax bases (Cooney et al 1991; Ng and Cook 1997).

Over time, the community impacts of the attempt to retroactively privatize brownfields liability became an economic development issue for inner cities and older suburbs. Over the course of the 1990s, many states instituted their own brownfields programs. These programs were intended to enable the reuse of urban land; as such they focused primarily on easing the burden of meeting regulatory requirements. Key program elements have included:

- 1) streamlined regulatory processes or imposition of decision deadlines,
- 2) newly flexible cleanup or pollution containment standards appropriate to uses that did not require completely clean land,
- 3) acceptance of engineering or land use restrictions as “solutions” to remaining contamination, and, most important,
- 4) some state assurance of relief of liability for further mitigation or damage done by remaining pollution after a state “approval” of a completed remediation action.

Most of these programs, in easing the burdens of compliance (GAO 1995), incorporate provisions that limit a developer's exposure to environmental liability. For example, many state brownfields programs provide a signoff at which point the state will assume liability for any further cleanup that may be required in the future if the case is reopened. Most have instituted flexible standards of cleanup, appropriate for the specific intended use. These flexible standards and intended use restrictions are then incorporated into the property deed as a use restriction.

The local and state approaches shift environmental liability back from private developers to the commons, usually at the municipal scale. The measures also decrease the cost of uncertainty to the developer, the government assumes this cost as well. As well, states have addressed cleanup requirements, shifting more of the liability cost burden onto public shoulders. Through lower cleanup standards, we have accepted some degradation of the land quality as permanent, and permanent limitations on possible land uses, but have provided greater certainty to developers in estimating the costs of cleanups and increased the likelihood that cleanup will be attempted.

Treating the burden of past liability and environmental risk as in part a common cost responds to the recognition of the costs of the private liability framework on inner city communities. While this shift makes sense given the existing spatial distribution of the legacy of industrial contamination, the distribution of this cost remains problematic. The scale at which environmental liability should be 'commoned' should be at least as broad as the state and likely as broad as the federal government, to provide the best practicable proxy for ensuring that those who benefited from past pollution are those who pay for its cleanup. However, local governments are likely to be the most interested in ensuring that constraints on redevelopment are lowered.

The first environmental commons is that of environmental liability and environmental risk. Exclusion from environmental risk is difficult, and the distribution of the costs of risks and liability, while subtractible, must be achieved politically. Strict and retroactive private liability has increased the barriers to the economic development of the inner city. Given the high transaction costs of the attempt to privatize risk and liability, it

makes sense for communities to treat past environmental contamination as a commons of environmental liability. The public shares in the cost of environmental liability, in expectation of a public benefit. However, to the extent possible, brownfields programs should incorporate measures and strategies that increase the public benefit of redevelopment.

Brownfield Commons and Economic Development

Shifting the context of environmental liability to a common property regime means that part or all of the cost of the environmental risk is incorporated as a cost borne by the state or locality. The potential to leverage this investment in a focused strategy that includes the neighborhood scale commons of infrastructure maintenance and community economic development should be included in a public sector brownfields strategy. Area-based approaches to brownfield redevelopment allow a community to assess the opportunities and to use resources strategically, as site-based approaches do not. Area-based approaches allow for a range of criteria and investments directed to improving the quality of life and economic opportunities of central city residents while they constrain the potential negative environmental and economic effects of abandonment and sprawl.

Much brownfield policy discussion in the United States continues to revolve around concerns for individual sites and individual property values (Bartsch 1999; Urban Land Institute ND; US GAO 1997). The initial focus of CERCLA was on site-level

contamination problems and remediation activities. This focus continues to be reflected in the brownfield literature, characterized by case studies of individual development efforts and changes in land value and land use on a single site, with minimal attention paid to community efforts. This approach is retained in recent contributions that frame the brownfield problem as one of finding the "highest and best use" for individual sites (e.g. Simons 1998).

In Europe there has not been an equivalently strong effort to privatize the current costs of dealing with historical contamination. Accordingly, there has been no comparable site-specificity in cleanup planning or stress on the 'polluter pays' principle in retroactive claims. Broad, area-based approaches have addressed environmental, economic and perceived social problems simultaneously. This approach is evident in Germany's iron and coal region, the Ruhrgebiet (Kunzmann and Hennings 1993), the heavily public-sector-led national development plans in the Netherlands (Netherlands Ministry of Housing 1994; 1996), and even the pro-private-market approaches used by the British Urban Development Corporations (Imrie and Thomas 1993).

In the United States, as states have become involved in brownfields programs, more regional and area-based concerns have emerged than those developed initially in federal programs. A comparison between site- and area-based programs is made in Table 1. The focus of these programs is more likely to reflect the states' vital interest in the economic and community dimensions of brownfields (Meyer, Williams and Yount 1995). At the state level, geographically targeted economic development programs emerged first in the explosion of state enterprise zones, although these seem to have symbolic rather

than economic value to developers (Meyer 1991). More recently, broader state programs have supported individual investments in targeted economic areas that are often linked to zones of known brownfield concentrations (Bartsch, Collaton and Pepper 1996).

Working with state governments, the federal Environmental Protection Agency (EPA) has come to recognize that the brownfield problem has important community and economic dimensions; the redevelopment of land requires the promise of some future viable use. At the site-based level, the EPA attempted to stimulate brownfields cleanup through its “Brownfield Pilot Project” grants program. The EPA would give grants to municipalities to demonstrate the success of brownfields cleanups, in actual cost and viability. As well, the EPA has made some effort recently to ease fears of the extent of liability enforcement (EPA 2000).

Table1: Approach and Evaluative Criteria for Site Specific and Area-Based Regeneration		
Approach	Site Specific	- Area Based
Lead Actor(s)	Private Developers	Public Agencies Quasi Public Authorities
Public Site Assembly, Preparation	Minimal	Extensive
General Environmental Objectives	- Local Health Risk - Ecosystem Damage Avoidance	- Improvement in Regional Environmental Conditions
General Community Objectives	- Tax Base Increase - Job Creation On-Site - Removal of Eyesores - Occupation of Abandoned Land - Possible Preference for - Local Ownership, or Reduction - in Absentee Landlord Control	- Improved Area Attractiveness to Capital - Reduced Community Disamenities, e.g. crime, delinquency, overcrowding, noise - Specific Economic Improvements e.g. housing stock, neighborhood shopping, community amenities
Consultation on Local Community Objectives	Minimal - - as required by law with respect to community notice and consultation	Potentially extensive
- Evaluative Criteria		
Policy Efficacy	- site mitigations and/or sales for cleanup and reuse generated - new active land use - impact on individual, adjacent site values	- new capital flows into area, possibly regardless of intent or types of new economic activity - increase in area property values
Policy Efficiency	- Minimum public sector expenditure	- Maximum leverage on public funds
Policy Effectiveness	- Rate at which private landowners market contaminated sites for reuse successfully	- Increase in area economic activities and household incomes - Reduction in area disamenities

To broaden its programs, the EPA has begun to develop a network of partnerships to draw on agencies involved with urban economic issues such as the Economic Development Authority (EDA) and Housing and Urban Development (HUD) (EPA 2000). Area-based brownfields programs are consistent with other recent federal efforts in urban

redevelopment, such as the Clinton Administration's Empowerment Zone/Enterprise Community program (Pepper 1997; Porter 1985).

If the objectives of public brownfield policies incorporates a broad economic development mission in addition to contamination removal, then selection criteria for public sector funding need to go account for the impacts of developments on neighborhoods (Foxen and Knauerhase 1995). In contrast to European programs, these criteria are not reflected in most current brownfields policy in the United States. Neither the EPA's Brownfield Pilot Projects, now numbering close to 300, nor its growing number of Brownfield Cleanup Revolving Loan Funds required consideration of off-site economic impacts in the municipal grant applications. In addition, the EPA has tried to allay fears of punitive enforcement of good faith cleanup efforts.

Area-based brownfields development strategies have the potential to produce higher levels of economic and social benefits to neighborhoods than site based approaches, because the common goods and bads can be incorporated into the decision. A local government can prioritize areas and development strategies, and assume a greater share of the liability cost, in areas that the benefit to the community will be the greatest. Site-based brownfields programs depend on private developers as lead actors in prioritizing the redevelopment of sites. A private developer is unlikely to consider the effects of her decisions on other properties or on the area in which they invest.

The indirect effects of a coherent area-based approach may, however, provide the greatest gains to both private investors and the public as a whole. The key to these gains lies in the ability of an area-wide perspective to overcome the tendencies towards a

disjunction between brownfield policy and broader economic development efforts.

Infrastructure investments thus may be considered in terms of effects on brownfield redevelopment project viability, not just as indirect subsidies to new economic activity.

Non-brownfield redevelopment efforts, such as rehabilitation of public housing and other central city public sector real estate investments can be re-evaluated for their positive spillovers to brownfields and changes in their market value.

Changes in nearby land uses and public investments that are oriented toward area regeneration, even if these are not specific to brownfield re-use, can add value to brownfield sites. A site-specific brownfield program would tend to overlook such effects. Movement toward an area-based approach, therefore, will increase recognition of the spillovers to brownfields of other forms of public sector development efforts. Improved accounting for these benefits will, in turn, increase the willingness of the public sector to make these investments in central cities. When the positive external effects on brownfields are included in the calculations new investment in central cities may the public sector.

For private investors, the direct effects of area-based programs may include greater willingness of the public sector to provide some forms of subsidy - or greater subsidies - to projects on individual sites with potentially broad public benefits. Since these benefits cannot be included in the private, profit-oriented investment decision, recognition of the potential gains may induce support that makes otherwise not profitable projects financially viable undertakings. Where area-based, thus public, criteria constrain development to particular forms of new land uses, there is an arguably strong case for increased subsidies. The public interest in constraining development options may justify

provision of a sufficient subsidy to a project to permit the net private return on investment to be as high as it would have been had the private highest and best use been permitted.

The public sector direct benefits follow the same logic: an area-based perspective allows the local government to combine net revenue increases with public health impacts and social benefits, as shown in Table 1. The utilization of the longer time horizon associated with an area-based approach permits the consideration of the secondary and tertiary effects of a single development. This should facilitate more effective utilization of the public sector funds and regulatory powers harnessed to the tasks of brownfield cleanup and redevelopment, as well as those of neighborhood, or broader urban, regeneration.

The implementation of an area-based strategy requires the measurement and accounting for benefits to the common stock, including the change in environmental risk and the cost of liability as well as the net, or net to the area, benefits of possible economic development. It is difficult to measure either the negative or the positive spillovers of any particular redevelopment decision. Gross assessments may be possible but actual dollar findings on financial returns for an area of development alternatives are virtually unattainable. Measurement of community social and other non-financial impacts that might be shaped by an area-based approach presumes some consensus on the types of effects that are important to the area - and on the value to be placed on alternative effects. However, a larger difference in assessment is likely to result from a difference in the interests and scale of the government or agency measuring the impact.

Measurement of effects will vary depending on the scale at which effects are measured. One example of this is provided by the concept of 'additionality;' a net increase in economic activity. From a public sector perspective, the value of new economic activity on any one site should be balanced by the consideration of potential declines in similar businesses on other sites. Retail provides a good example of economic activity that may represent additionality or that may not. For example, a new shopping center may earn the developer a substantial positive return but may hurt existing retail businesses and provide no net gain for the area. As a result, Pennsylvania, to cite one example, limits many of its economic development subsidy programs to manufacturing business and is extremely reluctant to provide any state aid to retail projects, based on the presumption that sales volume will simply migrate from one location to another. However, relocations may be seen as new investment if a business relocates from outside the area of interest to the public agency involved. As well, as many inner city areas are underserved by retail and services, better retail services may well provide a net gain to inner city consumers in the form of lower prices or better service. While sales cannot be expected to increase without a net increase in local income, the 'additionality' of retail depends both on distributive questions of quality of service and on the prior location (inside or outside) of the retailer. The difficulty of judging additionality as well as its reliance on both scale and perspective is familiar to economic development agencies; as a problem of institutional design in the urban commons it reflects the need for both local and broader perspectives in program implementation.

Brownfields in the Metropolitan Commons

Brownfield issues are related to issues of sprawl. Efforts to constrain sprawl at the suburban fringe need to be supplemented by a parallel effort to address the barriers and constraints to inner city and inner suburb redevelopment. Metropolitan land supply framework, regional economic development and transportation subsidies have favored suburban over inner city and inner suburb locations. Equitable cost sharing of the legacy of environmental liability, along with a more responsible approach to the balance between infrastructure maintenance and new infrastructure construction, should begin to favor inner city and inner suburb locations relative to greenfield locations. However, metropolitan common resources and metropolitan interests are difficult to measure and difficult to represent institutionally.

As concerns over sprawl increase due to issues of air quality and quality of living, the context of land supply in the U.S. should be expected to change. Changes to the decision context of developers, increasing costs and uncertainty in greenfield development, as less of the costs in greenfield development, and more of the costs of brownfield redevelopment, are borne by the public.

The availability and desirability of developable greenfield sites is dependent on the legislative framework that allows and encourages such development. The regulatory context of land supply in the United States increases the relative advantage of greenfield sites. For example, the subsidy to highways provides a public infrastructure for trucking,

rather than the private infrastructure of rail. Combined with relatively lower land area prices, Industrial process design now reflects this cost context including a requirement for lower land area prices and the availability of relatively cheap trucking. Central city locations are at a disadvantage in a commercial and industrial real estate market that has incorporated larger lots and freeway access into manufacturing designs.

In Europe, the absolute level of supply of greenfield sites is lower. European countries do have far greater pressure for dense urban development due to their relatively small quantity of land per capital, in combination with their overall land policies and the political imperative for maintaining and protecting farmland. Land supply is clearly a constraint in the Netherlands (de Roo 1997). Reuse was also a necessity for massive central city brownfield zones such as London's Docklands (Brownhill 1990). In light of the European experience, one would expect that land supply constraints might play some role in generating public interest in promoting brownfield redevelopment. This presumption appears to be warranted: New Jersey was the first of the U.S. states to implement state-level brownfield cleanup programs – and it is one of the most densely populated of the U.S. states to its population.

In partnership with the EPA, some cities are attempting to quantify the effect of brownfield redevelopment on urban air quality. Many central cities and metropolitan regions find themselves in "non-compliance" with the Clean Air Act, and require more comprehensive approaches to reducing pollution. Theoretically, more concentrated development should reduce the length of commuter trips, and should also result in urban densities more appropriate for public transportation and other alternatives to the car (c.f.:

City of Minneapolis 1994; Environment and Development Seminar 1994; City of Chicago 1995). Assessing the effect of these development efforts on air qualities will be difficult. The effect that is expected is based on large scale patterns of land use, not single initiatives or test cases.

One argument against brownfield redevelopment as an air quality strategy is the traffic congestion factor of increased central city densities. Concentrated land use patterns produce a higher volume of trips per area. If automobile remains the dominant choice even with improved transit service and reduced trip lengths, then congestion will result, with lower overall traffic speeds and reduced fuel efficiencies. In this scenario, increased central city densities worsen air quality (Bae and Richardson 1994). New partnerships with the EPA, and new research into quantifying the air quality effects of brownfield redevelopment, does offer the potential that metropolitan areas might receive air quality planning credits to the extent that they are able to redevelop their brownfields.

Local governments are well placed to represent the interests of the spatial communities currently bearing the cost of brownfield abandonment. They have the capacity to use planning tools and work with state and federal agencies to take on some of the liability or other risk factors constraining redevelopment. Local governments may have the power to constrain greenfield development, although the commercial/industrial land market is competitive between localities; this power is limited.

The federal government is best positioned to review the distributional impact of its policies, although a recent report failed to establish a clear effect when each policy was reviewed in isolation (GAO 1999). Federal agencies can work with local governments to

protect health standards, and to support some redistributive efforts to benefit inner cities. As the problems of urban growth and sprawl affect the felt quality of life of residents, more partnerships between local governments and metropolitan planning areas with the federal government may develop.

At the metropolitan level, both kinds of resources - environmental liability from contaminated land, and common benefits from brownfield redevelopment - are less well represented. Institutions might be developed that enabled cost sharing across the metropolitan region for land use and land policy decisions. It seems unlikely that several small localities would agree to share in the environmental liability burden currently being assumed by older communities; this cost spreading must be done at the state level. However, metropolitan institutions are limited in authority, and in the extent to which they work as effective mediators of distributive resource allotments. There have been calls for metropolitan institutions that are more effective and broader in scale (e.g. Rusk 1995); this seems appropriate also for many environmental commons such as air and water quality.

However, there is resistance to larger scale local governments from communities, especially minority communities, who see larger units of government as less likely to be responsive to their interests. The call for single large local governments on the promise of greater efficiency and less expensive government does recall progressivism, with its unitary view of the public interest. Progressivism got into trouble through its efficient implementation of singular view. For metropolitan scale institutions to be more effective, a parallel move would have to be made to accomplish more effective community

representation in the metropolitan context. At the neighborhood level, opportunities are constrained for effective local citizen brownfields activism.

Rights to property are layered, nested and complex. Common property frameworks provide useful insights to the management of environmental goods in the urban commons. Importantly, the use of common property as a term for what we have called the public interest, or the public good, highlights the property dimension of the traditional common right to control of environmental values.

In the light of moves to increase the scope of rights included in the concept of private property, reclaiming the property dimension in the institutions of the urban environmental commons provides a valuable counterclaim. In private property activism, adjacent and neighborhood impacts and claims have been discounted, and regulation is seen as an affront to exclusively private values (Jacobs and Ohm 1995; Sagoff 1997). The rhetoric of 'takings' needs to be more explicitly countered by a rhetoric of common ownership and of public 'givings' (Taylor 1992).

State and local governments are beginning to institute area-based approaches to brownfields redevelopment. This reduces the high transaction costs involved in privatizing a commons, and allows better management of 'urban fabric' issues of brownfields. This area, or commons approach, allows for greater recognition of the effects of abandonment and of redevelopment on neighborhoods and community vitality. Metropolitan issues are more difficult to isolate and assess. However, local governments are responsible for making difficult assessments about uncertain situations, lost opportunities and imagined alternatives. There are constituencies that promote high

quality urban fabric and efficient infrastructure provision and maintenance at the metropolitan scale. Institutions of the metropolitan commons need to be strengthened.

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