Fostering Green Development Practices - Roles of the Public Sector
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Introduction

A growing number of local governments are seeing that environmentally sensitive or "green" development in their communities, including green buildings and sustainable sites and neighborhoods, can bring considerable environmental, social and economic benefits. Federal and State officials are similarly recognizing where development/redevelopment occurs and how sites are planned and built will have broad and substantial impacts on the environment, natural resources, the economy, and social well-being.

Among the many benefits that green development can provide, as compared to traditional or conventional development, are the following:

- Water Quality - Green roofs, cistern systems, rain gardens, and other green infrastructure site features can reduce stormwater runoff volumes and pollutant discharges to lakes and rivers.

- Water Conservation - Green building features, cistern systems, and landscaping with native plants can significantly reduce use of treated public drinking water, conserving water and reducing utility costs.

- Energy Savings - Green building features and green infrastructure reduce consumption of energy resources, including in particular gas and electrical power used to heat and cool buildings.

- Air Quality - Increased energy efficiency helps reduce emissions associated with generating electrical power. Trees can remove gaseous air pollution by uptake via leaf stomata.

- Urban Heat Island effects - Trees and other green infrastructure features reduce heat island effects in urban areas, which can experience significantly higher temperatures in summer months as compared to outlying areas due to the pavements and rooftops which absorb and radiate heat. Transpiration and tree canopies affect air temperature, radiation absorption, heat storage, and surface albedo. Reducing urban heat island effects reduces demand for energy to cool indoor environments in summer months.

- Materials Management - Recycling materials as buildings are demolished and using recycled building materials in new construction and rehabilitation projects reduces disposal

volumes and reduces consumption of raw materials such as timber products.

- Ecosystems - Trees, native plants, and other features of sustainable sites provide valuable habitat for birds, butterflies, and a variety of other species.

- Economic Effects - Research conducted by the University of Pennsylvania found after some unsightly abandoned lots were transformed to "clean and green" landscapes, surrounding housing values increased by as much as 30%.

- Public Health - Green buildings can provide more healthy indoor environments, and green infrastructure and walkable communities can provide significant public health benefits.

- Social Impacts - Research conducted by the University of Illinois found relationships between green sites and neighborhoods and various social phenomena:
    - Buildings with high levels of greenery had 52% fewer crimes as compared with areas that had little or no vegetation.
    - Inner city families with trees and greenery in their immediate outdoor surroundings have safer domestic environments than families who live in buildings barren of nature.
    - Symptoms of children with Attention Deficit Disorder are relieved after contact with nature - the greener the setting, the greater the relief.

Given the very significant environmental, economic, and social benefits that can accrue to governmental units, business enterprises, and the public, fostering sustainable/green development practices is a legitimate and important role for public sector organizations. Following are descriptions of roles public sector organizations can play to promote greener/more sustainable development practices. The roles are described within four general categories -- Pilots, Practices, Policies, and Promotion -- which were conceived by the City of Chicago to communicate about its initiatives to foster greening of the City.

Pilots

Pilot projects are incubators for testing approaches for creating more sustainable buildings and communities. Pilots also provide data and experience which inform policy decisions. Pilot projects can be directly managed by public organizations, or can be carried out in partnership with not-for-profit or private sector organizations. Pilot projects demonstrate public sector leadership and generate valuable information/data to inform decisions as to whether or not to roll out an initiative more widely. Following are some examples of successful pilots:

- The City of Chicago constructed a green roof on its City Hall building, a site with high civic visibility, to demonstrate the feasibility and benefits of green roofs. The site is monitored to assess stormwater, habitat, and temperature-related effects of the green roof. The City of Minneapolis similarly constructed a green roof on its new central library. The City of Milwaukee constructed a green roof on the Highland Gardens housing building (photo at right --this is the largest residential green roof in the country) and on the Department of City

Development building.

- The City of Chicago restored a building on a Brownfield site and incorporated extensive green building features -- the building is rated LEED Platinum under the US Green Building Council rating system.

- The City of Milwaukee, working with the Menomonee Valley Partnership, redeveloped a 1,200 acre brownfield site along the Menominee River. The new industrial park includes open space and a 70-acre regional stormwater park. Development in the Menomonee Valley is required to follow green design guidelines.

- The State of Illinois supported at project at the Morton Arboretum in Lisle, Illinois to install permeable pavers and bioswales in the parking lot. The site is being monitored to assess the durability of the pavement and the performance of the site in managing stormwater. The State also supported a new green police station for the Village of Villa Park.

Governmental organizations may often want to select pilots that can be compared to existing, conventionally designed buildings. For example, the operating and cost performance of a new green library might be readily benchmarked against existing library buildings in the portfolio. Pilots should be monitored to maximize learning. Ideally, pilots generate knowledge and enthusiasm, and catalyze a series of changes.

Practices

Governmental bodies can use lessons learned from pilot projects to determine what should become standard City practices. This helps address sustainability in urban and suburban environments, as municipalities may own and operate many properties. But perhaps equally importantly, building sustainability into City and State practices shows the governmental body "walks the walk" and does not just "talk the talk."   This then gives the public sector organization more credibility when requiring or encouraging others to implement green development practices.

The City of Chicago, after some successful pilots, adopted the practice that new civic buildings, e.g., police stations, branch libraries would be green buildings. The photo at left is the Oriole Park Branch Library, which is rated LEED Silver under the USGBC green building rating system.

The City of Milwaukee, to ensure City buildings are as green as possible, has implemented a program to audit energy use and building operation with a goal of reducing energy use by 15% by 2015.

To plan sustainable governmental practices, an organization may want to:

- Set up a working group: consider establishing a working group made up of current staff — who already are (or could potentially be) champions of green building — recruited from public works and related departments.

- Establish an advisory group. Such a group might consist of private sector building industry representatives and other stakeholders.

- Establish governmental environmental commitments. Cities for example can:
    - Adopt United States Conference of Mayor's Climate Protection Resolution
    - Join the Cool Cities campaign
    - Use metrics to track and report on sustainability-related goals
    - Track green building/green redevelopment activity and the performance of green features

By championing green development practices, the public sector is helping to set the standard for others to follow. Through operating efficiencies that reduce water, fossil fuel, and material resource use, public sector entities can save public funds and reduce environmental and natural resource impacts. By building green through the use of appropriate materials, increased daylighting, and ensuring investments in good indoor air quality, governments can foster healthy and supportive places of work, thus reducing absenteeism, employee turnover and improving worker performance. Governments can also use their purchasing power to expand the markets for green building products, including clean and renewable energy technologies.
Policies

Private sector building design and development features are typically guided by local ordinances and state regulations. Governmental units can use regulatory tools and authorities to encourage green buildings. Much of what is learned from pilot projects and governmental practices may form a basis for establishing requirements.

Developing polices which effective foster green development often involves removing policies that constrain green development, and creating new policies or standards to support green development. For example, the City of Chicago adopted an energy code and a new stormwater ordinance which cultivate green development practices. The City has also used PUD authorities to require green roofs and/or LEED buildings for new "big box" stores being built in Chicago.

The City of Milwaukee is modifying its ordinances to reduce barriers to good stormwater management. Pervious pavement and paving blocks are now allowed as outright uses. Requirements for parking spaces and street-width are being modified to reduce the amount of impervious surface.

The State of California has issued stormwater discharge permits which require consideration and implementation of Low Impact Development/Green Infrastructure practices.

Performance standards vs. conventional regulations may oftentimes be helpful to provide developers with flexibility to support greater learning and lead to more innovation.

Promotion

As a complement to regulatory approaches, governmental bodies can undertake a variety of other programs/initiatives to promote green development practices. One key set of actions can be in the areas of education and outreach. Governmental organizations can share information about:

- The performance and reliability of green development practices. Developers and property owners may have uncertainty about how well these practices will work, and providing information -- including information from pilots and governmental practices -- about performance and reliability can help reduce this uncertainty.

- The environmental and social benefits of green development practices.

- Cost savings (capital and/or operational) that can be achieved through green development practices.

- Economic and social benefits that can accrue to the community from green development practices.

Through education and outreach, public sector organizations can get others excited, expand the ranges of options being considered, and showcase success stories so that others can apply the ideas. Governmental units can establish partnerships and networks to help with planning, implementation and knowledge transfer. A closely related role that public sector organizations can play is technical assistance provider. For example, the

City of Chicago has helped neighborhood groups with rain garden projects, and maintains a green building resource center at the Chicago Center for Green Technology. State and local governments can also implement award/recognition programs to publicly recognize exemplary sites or projects and private sector or not-for-profit leadership in green development. For example, in Minnesota among the categories for which a Governor's Award for Excellence in Waste and Pollution Prevention can be conferred are Sustainable Community Development, Green Building, and Low Impact Development.

Public sector organizations can also implement incentive programs to encourage sustainable development practices. Incentive programs can take a variety of forms, but commonly are in the form of either process incentives or financial incentives. An example of a process incentive intended to foster green development practices is the City of Chicago's green permits program. Building permits are expedited for projects that will be certified under the USGBC's LEED rating systems -- the higher the green building rating, the faster you get your permit. Permit applicants can save significant increments of time if they have green building projects, and since "time is money" the green permits program is a significant incentive for developers and property owners to consider building green.

Another incentive communities can consider is allowing for variations to standard code requirements for green development projects. An example of this would be granting additional floor area ratio (a FAR bonus) for projects meeting certain green development criteria. Fee systems can be set up to create incentives for green practices. For example, the City of Minneapolis's Stormwater Credit Program gives people incentives to implement effective stormwater management practices on their properties. The program offers customers a way to reduce their monthly stormwater utility fee by putting in place stormwater practices or tools that manage their property's stormwater quality or quantity.

Public sector organizations can also consider offering direct financial incentives to encourage green development practices. For example, the City of Chicago implements a green roof grant program, and the City of Tallahassee implements a rain garden grant program. Tallahassee offers grants as reimbursement for the purchase of plants, compost and mulch for rain gardens on private property.

Many developers and property owners may feel there are higher costs or increased risks associated with green development practices, (a sense there could be increased risks may be due to a lack of familiarity or a lack of certainty as to how the green features will perform, or how durable they will be over time). Financial incentives may help reduce the sense of risk and overcome market barriers associated with new practices. The need for incentives may dissipate over time, as costs for green features come down and confidence in green features goes up.

Conclusion

The following diagram, from the Playbook for Green Buildings + Neighborhoods illustrates how changes to building and development practices may occur over time. In the early stages of change, public sector organizations and other champions of green practices may undertake pilot projects and engage in education and outreach about the importance/value of the new practices. As time moves on, governmental bodies and non-governmental leaders adopt green development practices. Information is shared about pilots and practices, and confidence in the performance and benefits of green practices grows. Financial and/or process incentives are offered to directly encourage green practices. Eventually green development becomes the norm. Governmental bodies do not necessarily need to sequence their actions in this order, but this schema may help decision-makers determine what roles may be most suitable for their organizations at what points in time.

Market Transformation to Green Development
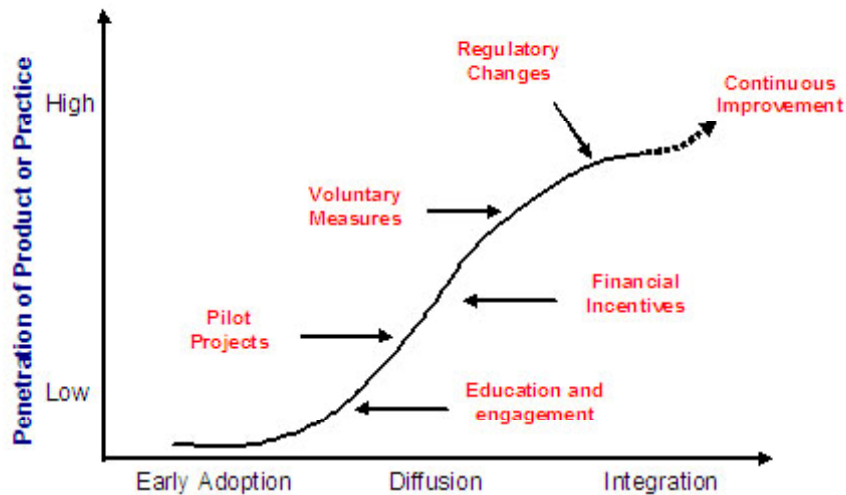
Source: The Green Playbook. www.greenplaybook.org

Moving toward increased green development practices can provide significant public benefits, including environmental, economic, and social benefits. By effectively fostering sustainable/ green development practices, public sector organizations can help communities and citizens enjoy these considerable benefits.

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