Large Landscape Initiatives | Scenario Planning | Land-Based Financing | State Fiscal Recovery | New Publications

OCTOBER 2011

Land Lines

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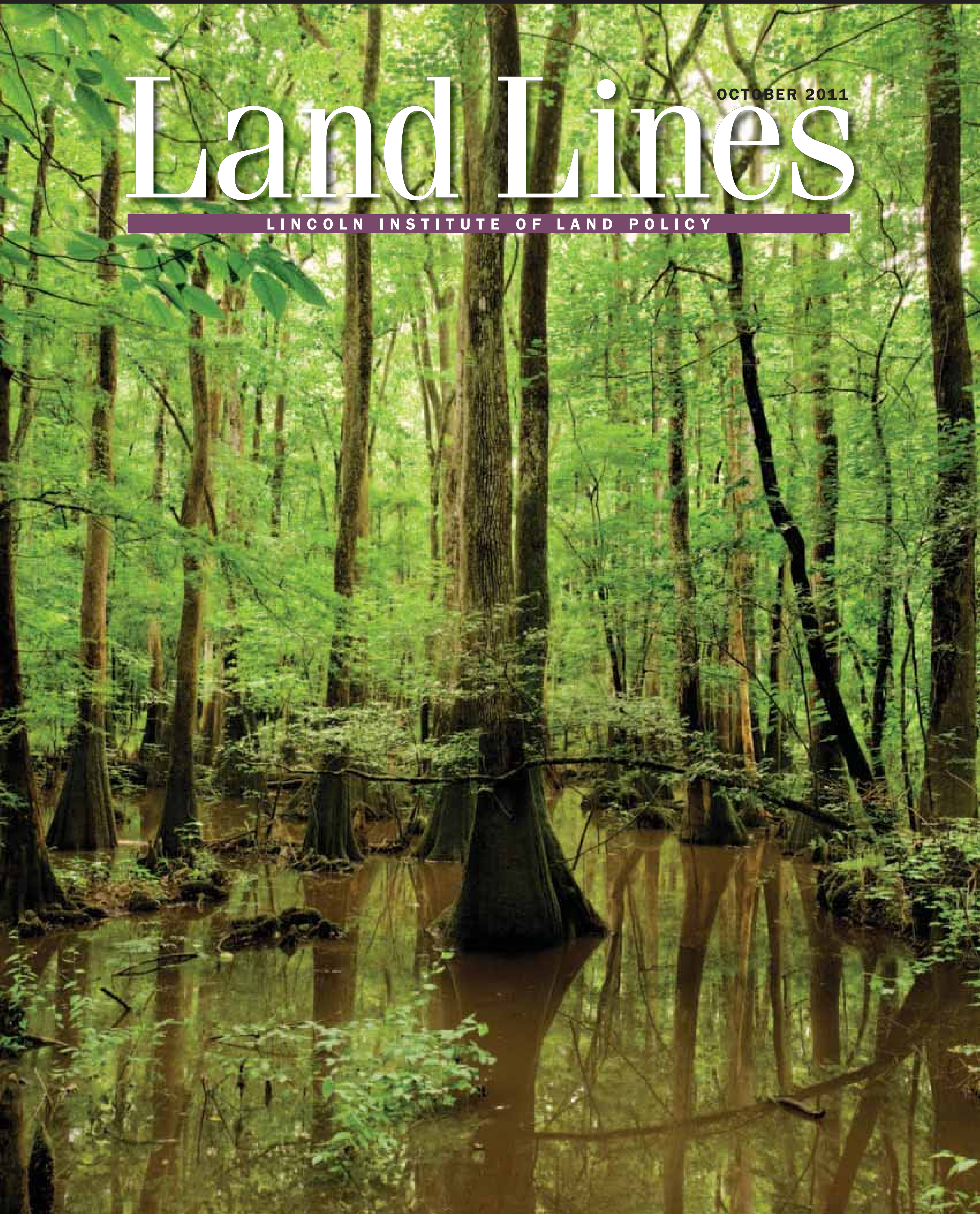

Land Lines

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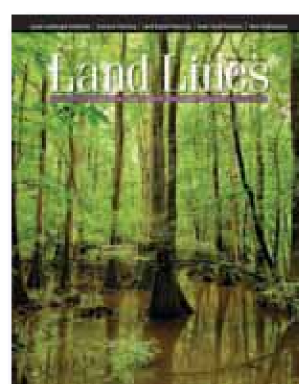

Cypress swamp in South Carolina
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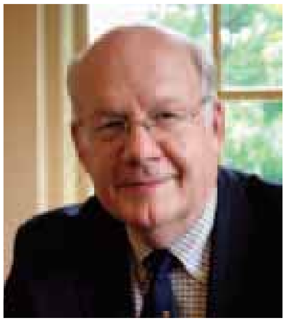
A Global View of Infrastructure and Its Financing



Gregory K. Ingram

Infrastructure (comprising energy, telecommunications, transportation, water supply, and sanitation) plays an important role in urban land development, and it influences city and country productivity. Data on the amount of infrastructure stocks at the national (but, alas, not the metropolitan) level are available for many developing and high-income countries and support several results summarized here.

The amount of infrastructure stocks per capita across countries is strongly related to per capita income levels—when country incomes double, infrastructure stocks nearly double as well. However, country infrastructure stocks have essentially no association with a country's level of urbanization once country income is taken into account. This seems surprising because cities have large amounts of infrastructure. But they also have dense populations that use the infrastructure intensively, so per capita urban infrastructure stocks are similar to national levels.

The composition of infrastructure stocks also varies systematically with per capita income. Roads have the largest share of infrastructure stocks in the lowest income countries, with water systems second and electric power systems a close third. As country incomes increase, the infrastructure related to electric power systems increases more rapidly than income levels. Infrastructure for water and sewer systems increases less rapidly, and for roads the change is in proportion to income. As a result, in high-income countries electric power systems are the largest component of infrastructure, followed by roads, whereas water, sanitation, and telephone systems comprise only a modest share of their infrastructure.

Based on recent rates of economic growth, and using the existing relations between infrastructure and per capita income, developing countries are likely to need to spend about 5 percent of their GDP on infrastructure (3 percent for expansion and 2 percent for maintenance)—currently about $750 billion annually—to maintain existing ratios between infrastructure and GDP. For high-income countries, total spending would be lower, at 1.7 percent of GDP (about evenly divided between investment and maintenance)—currently about $700 billion annually. Countries growing faster than average need to invest a higher share of their GDP so that infrastructure stocks can keep up with economic growth.

In some countries, improving the efficiency of service production from existing infrastructure is an alternative to new investment. For example, average electricity losses across countries range as high as 25 percent, and leakage and unbilled water can exceed 30 percent. Reducing such high losses can forestall the need for additional capacity. Somewhat surprisingly, performance within countries across sectors varies greatly—efficient performance by a country in one infrastructure sector is uncorrelated with performance in other sectors.

What sources will provide these investment funds, particularly for developing countries? Foreign assistance and development bank financing of infrastructure in developing countries currently total about $40 billion annually, and that figure has more than tripled since 1990 in current dollars. Private investment in infrastructure in developing countries has recently reached $160 billion annually and has grown eight-fold since 1990, also in current dollars. Foreign assistance is directed mainly at energy, transport, and water and sanitation systems, with virtually no funding for telecommunications.

In contrast, more than half of private funding goes to telecommunications (particularly mobile telephony), followed by energy. Telecommunications and energy draw more private investment in developing countries because their tariff revenues cover a large share of operating costs, whereas tariff revenues and user fees cover a much smaller share of costs for transport and water and sanitation. Private investment in infrastructure was concentrated in Latin America and East Asia in the 1990s but has spread more evenly across global regions in the 2000s.

Despite the growth in international funding, large and growing metropolitan areas in developing countries still need to raise significant sums to finance infrastructure investments. This will involve raising tariffs charged to users, increasing taxes (particularly property taxes) on properties whose value is enhanced by infrastructure investments, and establishing municipal bond markets such as the one being developed in South Africa.

Exploring the Future of Large Landscape Conservation

© iStockphoto/Denis Tangney, Jr.

White Mountain National Forest near the Town of Berlin, New Hampshire

James N. Levitt

In the tradition of previous conservation dialogues, a cross-sectoral, geographically diverse group of conservationists convened to seek a path forward—in concert with the Obama administration's recently released report on *America's Great Outdoors* (Council on Environmental Quality 2011), as well as myriad initiatives at the state and local level. Their goals were to advance collaboration on a large landscape scale among landowners, land managers, and citizens from the public, private, nonprofit, and academic sectors. They also sought to understand and expand on the example set by large landscape initiatives that are achieving measurable, durable conservation outcomes that will provide benefits for generations to come.

Just as we can now appreciate the revival of the White Mountains of New Hampshire from their barren, moonscape-like conditions around 1900 to their majestic, verdant stature today, twenty-second century Americans ought to be able to appreciate how our foresight in working across property, jurisdictional, and even national boundaries has become a key element in the nation's multigenerational effort to preserve essential sources of clean water, sustainably produced forest products, and expansive recreational opportunities.

Speakers' Comments

The conference speakers emphasized the importance of sustained cooperation across many organizations and sectors to achieve lasting results. Proudly recounting how some two million acres of Maine forestland has been conserved over the past dozen years, Senator Susan Collins, Republican of Maine, reported that "we have done this by building a partnership among government at all levels, the forest products industry, environmental, forestry and recreation groups, and landowners. Through this partnership, we have been able to maintain or increase productivity for wood and harvest levels, supporting a diverse and robust forest products industry that employs tens of thousands of workers who produce paper, other wood products, and renewable energy. At the same time, we have been able to protect biodiversity, old growth and late succession forest, and public access to recreation, and also increase opportunities for tourism" (Levitt and Chester 2011, 72).

Representatives Peter Welch, Democrat of Vermont, and Rush Holt, Democrat of New Jersey, each stressed the importance of perseverance in such efforts. Welch remarked on the value of sustaining land conservation budgets during the current round of budget negotiations. He reminded the audience that in 1864 President Abraham Lincoln took his attention off a monumental crisis —the Civil War—in order to sign a bill deeding the area of Yosemite to the state of California for public use and recreation. If Lincoln could create Yosemite in the midst of the Civil War, Welch asserted, we can do our part in a time of tight budgets and economic volatility.

Holt focused his remarks on achieving a longstanding promise to fully fund the federal and stateside portions of the Land and Water Conservation Fund (LWCF), as well as a number of other legislative initiatives such as the Wildlife Corridors Conservation Act. Holt was emphatic in urging the conservation community to respond to the need for urgent action for our own sake, and for the sake of future generations. He reminded the audience of the admonition of President Lyndon Johnson, signer of the original LWCF legislation and the Wilderness Act in 1964: "If future generations are to remember us more with gratitude than sorrow," said Johnson, "we must achieve more than just the miracles of technology. We must also leave them a glimpse of the world as it was created, not just as it looked when we got through with it" (Henry and Armstrong 2004, 123).

It was evident from the discussions that leaders from every sector stand ready to help implement the cooperative conservation aspirations of Collins, Welch, and Holt. Bob Bendick, director of U.S. government relations at The Nature Conservancy, stated that "the overall objective of AGO [America's Great Outdoors] should be to create and sustain a national network of large areas of restored and conserved land, water, and coastlines around which Americans can build productive and healthy lives" (Levitt and Chester 2011, 74). Accordingly, Bendick shared with the assembled group his personal dream that someday his young granddaughters might, as adults, look out from the arch at the gateway to Yellowstone National Park and note that "all across America, 400 million people have been able to arrange themselves and their activities across this remarkable country in a way that reconciles their lives with the power, grace, beauty and productivity of the land and water that ultimately sustain us all" (Levitt and Chester 2011, 75).

Will Shafroth, acting assistant secretary for Fish and Wildlife and Parks of the U.S. Department of Interior, and Harris Sherman, undersecretary for Natural Resources and Environment at the U.S. Department of Agriculture, shared their frank assessments of the current situation. Shafroth described the hard work and extensive comments that helped shape the *America's Great Outdoors* report. While this work serves as a good foundation for the effort ahead, Shafroth noted that it takes considerable creativity and proactive thinking to sustain conservation momentum in these times of sharp budgetary constraints.

Sherman added that the whole idea of landscape-scale conservation implies that we need to move from performing random acts of conservation to more comprehensive and collaborative large-scale initiatives that engage many agencies and ownership types. Of particular importance, he noted, will be the outcome of the debate on the 2012 Farm Bill, because its conservation provisions will be critically important to the success of large-scale conservation efforts.

The enthusiasm for large landscape conservation on the part of speakers from large public and

Conservation Leadership Dialogue

On March 1, 2011, the Lincoln Institute of Land Policy hosted its tenth annual Conservation Leadership Dialogue with a focus on *The Future of Large Landscape Conservation in America.* The session was organized by James N. Levitt, a fellow at the Lincoln Institute, with support from Armando Carbonell, senior fellow and chair of the Department of Planning and Urban Form. Held in the Members of Congress Room of the Library of Congress, across the street from the U.S. Capitol in Washington, DC, the meeting took place on the 100th anniversary, to the day, of President William Howard Taft's signing of the landmark legislation that allowed for creation of national forests in the eastern part of the country. The Weeks Act of 1911, named for Congressman (later Senator) John Wingate Weeks of Massachusetts, changed the nature of cooperative conservation involving citizens active in the public, private, nonprofit, academic, and research sectors in the United States.

nonprofit organizations was strongly reinforced by Jim Stone, a private landowner and ranch operator in Montana's Blackfoot Valley. Stone helped to start the Blackfoot Challenge, a grassroots organization that has yielded impressive, measurable results over the last three decades using a landscape-scale approach.

Stone's colleague Jamie Williams of The Nature Conservancy explained that the Blackfoot Challenge has achieved remarkable success over the years because it has taken the time to engage so many landowners and partners in consensus-based approaches to conservation. Initial small successes were critical to building the foundation of trust that led to larger successes later (Williams 2011). In the area of stream restoration alone, the Blackfoot Challenge has helped to engage more than 200 landowners in some 680 projects involving 42 streams and 600 stream-miles that have contributed directly to an 800 percent increase in fish populations in the 1.5 million acre valley. Stone is emphatic in saying that, with the right people in the right places, what has been done in the Blackfoot region could be done across the nation.

Complementing the program was a panel of researchers and academic officials representing universities, colleges, and research institutions that are helping to catalyze large landscape initiatives. Matthew McKinney of the University of Montana moderated a dialogue with David Foster of Harvard Forest and Harvard University, Perry Brown of the University of Montana, and Karl Flessa of the University of Arizona. They explored how institutions, within their own walls and beyond, can use their analytic and convening capacities to advance initiatives with extensive impacts.

Perry Brown pointed out that those universities that will play a role in real-world conservation initiatives will not be insular, but rather will cherish their relationships with nonacademic partners such as Indian tribes, state and federal government agencies, and large national and small local nonprofits. David Foster reinforced that idea by describing the Harvard Forest's outreach efforts to develop and disseminate its recent report on *Wildlands and Woodlands New England* (Foster et al. 2009).

Large Landscape Cases

There are many exemplary cases of on-the-ground progress in large landscape conservation across the country from Maine to Montana and from Southern Arizona to Northern Florida. One of the longest operating and most important cases is in the ACE Basin in South Carolina's celebrated Lowcountry. The ACE Basin, comprised of some 350,000 acres that drain into the Ashepoo, Combahee, and South Edisto Rivers between Charleston and Beaufort, is one of the largest undeveloped estuaries along the U.S. Atlantic seaboard (figure 1).

In the late 1980s, a group of public, private, and nonprofit organizations banded together to form a partnership that would protect the remarkable scenic, wildlife, and water resources in the region. Among members of the ACE Basin Partnership are federal agencies such as the Fish and Wildlife Service and the National Oceanic and Atmospheric Administration; state agencies including the South Carolina Department of Natural Resources; national nonprofits including The Nature Conservancy and Ducks Unlimited; local nonprofits including the Coastal Conservation League and the Lowcountry Open Land Trust; philanthropic organizations and individuals including the Gaylord and Dorothy Donnelley Foundation; and private interests such as MeadWestvaco Corporation.

Partnership members have conserved more than 134,000 acres, covering a contiguous core in the heart of the ACE Basin that stitches together easements on private land, a National Wildlife Refuge, South Carolina Wildlife Management Areas, and a Charleston County natural and historical interpretive center, among other properties.

As a large landscape initiative, the ACE Basin truly stands out from other efforts. Mark Robertson, the executive director of The Nature Conservancy in South Carolina, has noted that the effort "set a standard of how to get conservation done on a large scale using collaboration between private landowners, conservation groups and government agencies." Asked about the significance of the progress in the ACE Basin to date, Dana Beach, director of the Coastal Conservation League, is emphatic: "It's real importance is that it has given many people for the first time hope that a place of great importance is not inevitably going to be developed" (Holleman 2008).

Next Steps

The leadership dialogue concluded with general agreement that there is a great deal of work to be done, as well as an historic opportunity to expand on initial progress in the field of large landscape conservation. The discussion of next steps was organized to focus on four types of initiatives.

Policy Dialogues

There is a need for ongoing policy dialogue, both among conservationists in the public, private, nonprofit and academic sectors and between the conservation community and local, state and federal decision makers, regarding the very timely opportunities to realize landscape-scale conservation initiatives across the nation. The dialogue should celebrate existing success stories about both cultural and nature-oriented properties (both being highly valued by the public), consider ongoing regional conservation efforts, and envision new ones.

In the political sphere, these dialogues should connect with conservation caucuses at multiple layers of government (local, county, state, federal, and international). In nonprofit and academic contexts, the dialogue should reach across disciplines and institutional boundaries. Such intersectoral, interdisciplinary discussions are most likely to come up with creative solutions and novel ideas. While the dialogues may be able to take advantage of the socially neutral nature of universities as conveners, they nevertheless need to be responsive to the practical, on-the-ground issues of vital concern to field practitioners and landowners.

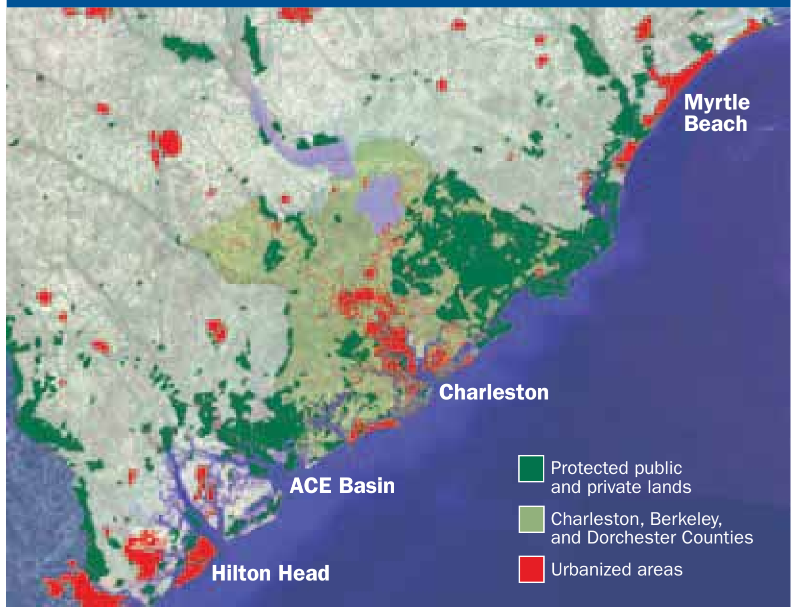
Research

Another immediate need is to build on existing maps and inventories (e.g., the Regional Plan Association's Northeast Landscape Partnership database) to offer a more comprehensive picture of existing public, private, and nonprofit initiatives. A more comprehensive overview of nationwide efforts should be of particular use to groups and networks working to advance the practice of large landscape conservation, including the Large Landscape Practitioners Network, a program of the Lincoln Institute, and the U.S. Fish and Wildlife Service's Landscape Conservation Cooperatives (LCCs).

Such research efforts should be more regionally relevant and cost-effective if they involve cooperation among a wide assemblage of public and private organizations. They might also serve to augment environmental education initiatives that already are spread thin.

Additional research is also needed to measure the impacts, performance over time, and conservation outcomes of landscape-scale initiatives, and to identify the key factors of success for initiatives that are able to show significant measureable results. Of particular importance is research that is able to identify where, when, and how certain efforts are able to yield measurably improved ecosystem services, such as improved water quality, increased wildlife populations, and enhanced sustainable production of forest products.

FIGURE 1
The ACE Basin and Coastal South Carolina



Source: South Carolina Coastal Conservation League.

Networking

A number of large landscape networks have been created recently or are now emerging, including the Large Landscape Practitioners Network and the LCCs mentioned above. As they evolve, the networks are likely to nest within one another at larger and larger geographic scales, but they will also need to focus on sharing knowledge and building capacity at the local level to yield lasting results. Notwithstanding the need to be grounded in local realities, the networks have an opportunity to reach out to international partners with lessons to share. Within their own territories, large landscape conservation networks need to be linked to diverse constituencies, including philanthropists interested in landscape-scale conservation, university faculty and students, a range of public agencies, and, most importantly, property owners and land managers.

ABOUT THE AUTHOR

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Demonstration and Implementation

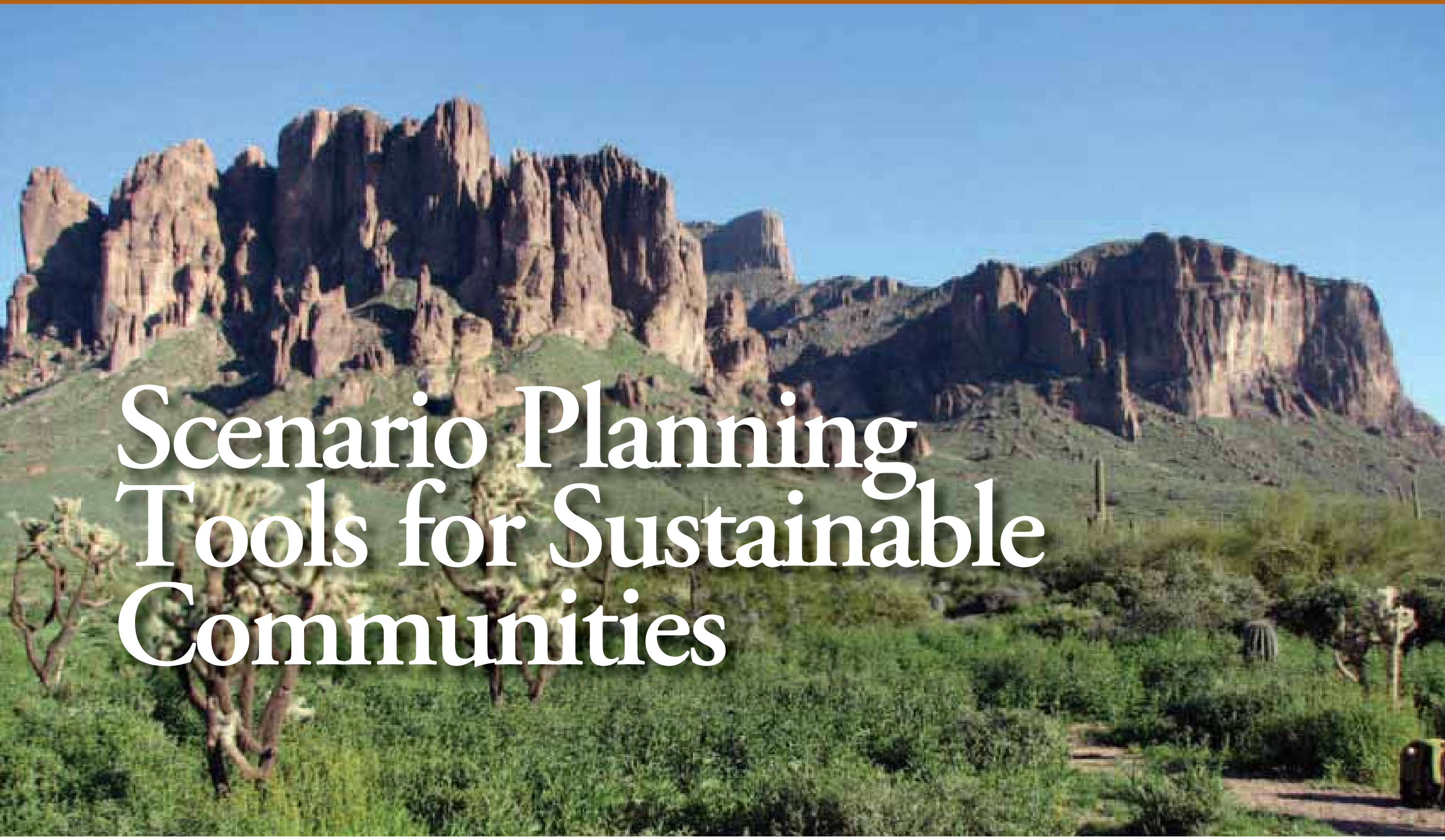
Given what are expected to be very tight constraints on new conservation programs at the federal, state, and local levels over the next few years, participants focused much of their attention on the creative use of existing budgets for landscape-scale conservation purposes. One noted the significant role that is already being played by the Department of Defense to conserve (and limit development on) lands adjacent to active military reservations. Such programs are now being used effectively to protect habitats and working lands from development and to limit landscape fragmentation. They also may be used in the future to address water supply protection issues. Another participant noted the potential significance of state and federal transportation budgets that could be used to mitigate the disruptive impact of new roads and highways.

Particularly enthusiastic support came from several participants for public-private-nonprofit partnerships that have a proven track record for protecting and enhancing locally valued natural and cultural resources to form the backbone for a regional green infrastructure. Examples include Santa Fe, New Mexico; the Chattahoochee/Apalachicola basin in Georgia, Mississippi, and Florida; the Crown of the Continent in Montana, Alberta, and British Columbia; and the New Jersey Highlands.

Additional opportunities for funding large landscape conservation initiatives include state incentives for private land protection that can be used to match selected federal programs (e.g., the matching monies required by funds provided by the North American Wetlands Conservation Act); community forest programs that are now gaining momentum around the nation; selected opportunities for foundation Program-Related Investments (PRIs); and emerging ecosystem service markets assisted by federal policy and public-private partnerships, including mitigation banking and statewide markets for carbon credits, such as those in California.

Conclusion

Notwithstanding evident federal budget constraints, myriad opportunities are available to pursue conservation projects that are expansive in scale, extensive in scope, able to achieve measureable conservation outcomes, and enduring. The conference participants themselves offered clear evidence that the concept of large landscape conservation has spread to initiatives across the continent. These individuals and their colleagues at home and abroad are now and will continue to be at the forefront of initiatives that protect nature in the context of human values at a scale commensurate with the conservation challenges they face.



Scenario Planning Tools for Sustainable Communities

Courtesy of Superstition Vistas Steering Committee

Foothills of the Superstition Mountains in the northeastern corner of the Superstition Vistas parcel.

Jim Holway

Sustaining local communities will require mechanisms to envision and plan for the future and to engage residents in the process. Scenario planning is an increasingly effective way to address these efforts, and Western Lands and Communities, the Lincoln Institute of Land Policy's joint venture with the Sonoran Institute, is working to advance the necessary tools.

Scenario Planning to Address Uncertainty

Land use decisions and planning efforts are critical as communities look 20 to 50 years into the future to guide policy choices and public investments that are sustainable across economic, social, and environmental dimensions. As uncertainty increases and available resources decrease, it becomes ever more important to consider the full range of emerging conditions and to strive to ensure our ability to respond to those changes, adopt policies, and pursue investments that will be resilient across a variety of potential futures.

Key areas of uncertainty include population and demographic changes, economic trends, climatic variability and change, resource costs and availability, land markets, housing preferences, housing affordability, and the fiscal health of local governments. Simultaneous with increasing uncertainty and decreasing resources, or perhaps in part because of them, decision makers face conflicting perspectives on desired futures and on the role of government in providing services and infrastructure as well as regulation and planning.

Increased polarization means that more civic engagement and an informed and supportive public are needed to ensure stable policies and adequate investments in a community's future. Scenario planning offers a mechanism to address these needs and issues of potential uncertainty and conflict. Fortunately, as the scope and complexity of planning and the demand for broader engagement have increased, advances in computing power and public access to technology are making new and more powerful tools available.

The Lincoln Institute has a long history of supporting the development of planning tools and publishing the results (Hopkins and Zapata 2007; Campoli and MacLean 2007; Brail 2008; Kwartler and Longo 2008; Condon, Cavens, and Miller 2009). This article covers lessons learned from the use of scenario planning tools in several projects undertaken by Western Lands and Communities (WLC), as well as mechanisms to expand their application.

Superstition Vistas

Superstition Vistas is a 275-square-mile expanse of vacant state-owned trust land on the urbanizing edge of the Phoenix metropolitan area (figure 1). State trust lands such as this site in Arizona are key to future growth patterns because the state owns 60 percent of the available land in the path of development. Colorado and New Mexico to a lesser degree face similar opportunities with their state trust lands (Culp, Laurenzi, and Tuell 2006). Creative thinking about the future of Superstition Vistas began to gain momentum in 2003, and the Lincoln Institute, through the WLC joint venture, was an early proponent of these efforts (Propst 2008).

FIGURE 1
The Superstition Vistas Site near Phoenix, Arizona

Source: Fregonese Associates.

Initial WLC objectives for Superstition Vistas scenario planning included capacity building, tool development, and opportunities to catalyze a planning process. More specifically, we sought to:

- look at the land in a bold, holistic, and comprehensive manner;
- advance the Arizona State Land Department's capacity to conduct large-scale planning and establish an example for other state land agencies facing urban growth opportunities;
- design a model sustainable development;
- advance scenario planning tools and illustrate their use;
- catalyze and inform debates about modernizing state trust land planning and development management; and
- stimulate a larger discussion about the Arizona Sun Corridor megaregion.

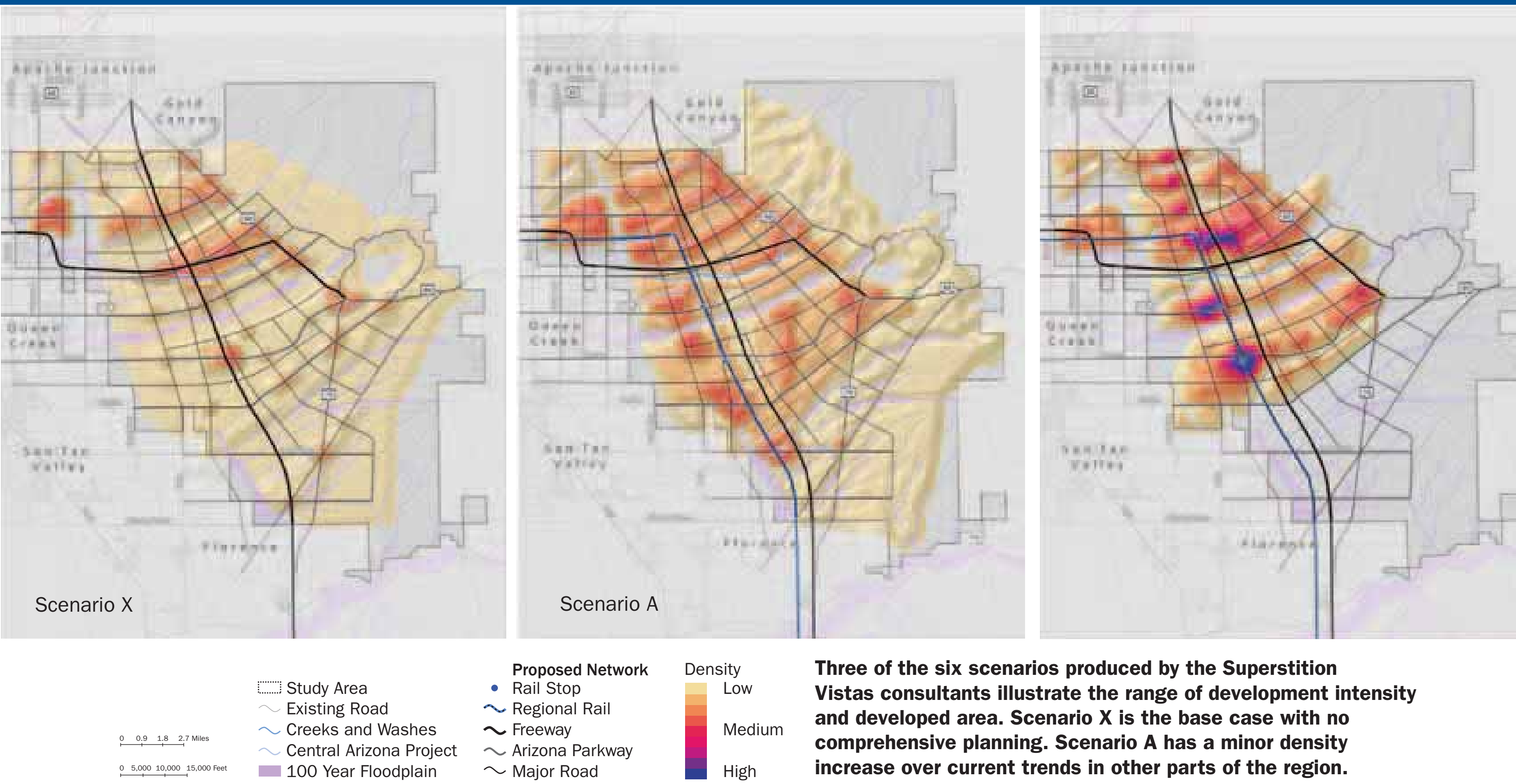
WLC, along with regional partnerships, neighboring jurisdictions, the regional electric and water utility, two private hospital providers, and a local mining company, formed the Superstition Vistas (SV) Steering Committee to advance the planning effort, secure funding, and hire a consulting team. The consultants, working with the committee over a three-year period, conducted extensive public outreach and values research, assembled data on Superstition Vistas, developed and refined a series of alternative land use scenarios for the development of a community of 1 million residents, evaluated the impacts of the different scenarios, and produced a composite scenario for the site.

The Arizona State Land Department (the landowner) adapted the consultants' work to prepare a draft conceptual plan for Superstition Vistas in May 2011 and submitted a proposed comprehensive plan amendment to Pinal County. The county is now considering the proposed amendment and its Board of Supervisors is expected to act in late 2011.

Sustainability Lessons

The scenario analysis, utilizing enhancements supported by WLC, identified the most important factors in shaping development patterns and potential conflicts among desired outcomes (figure 2). The inclusion of individual building and infrastructure costs for the alternative scenarios facilitated examining the sensitivity of varying these key factors and the cost effectiveness of four increasing

FIGURE 2
Three Possible Scenarios for the Development of Superstition Vistas



Three of the six scenarios produced by the Superstition Vistas consultants illustrate the range of development intensity and developed area. Scenario X is the base case with no comprehensive planning. Scenario A has a minor density increase over current trends in other parts of the region. Scenario D focuses on high-density urban centers.

Source: Superstition Vistas Consulting Team (2011).

levels of energy and water efficiency in each building type.

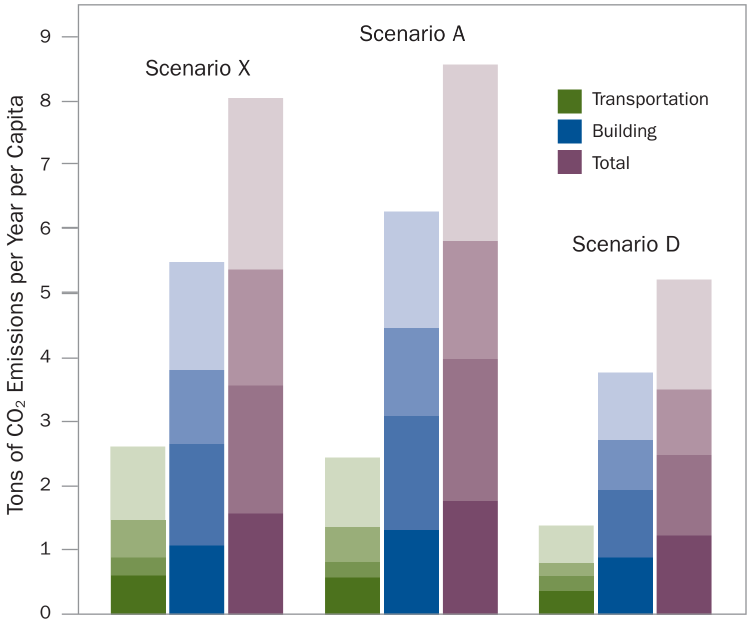
The scenarios also examined the impact of urban form on vehicle miles traveled (VMT). Scenario model outputs included land use indicators, energy and water use, VMT, carbon emissions, and construction costs. This analysis revealed the “low-hanging fruit” for sustainability improvements. The consulting team, working with the Steering Committee, identified a number of lessons that illustrate the value of scenario planning tools and can be applied to other efforts to design more sustainable and efficient urban areas (Superstition Vistas Consulting Team 2011).

1. Create mixed-use centers to reduce travel times, energy use, and the carbon footprint. Mixed-use centers along public transportation routes and close to homes and neighborhoods are one of the most effective ways to reduce travel times, energy use, and the resulting carbon footprint. Smaller homes, more compact forms of urban development, and multimodal transportation systems all create similar benefits (figure 3). However, the scenario modeling for Superstition Vistas demonstrated that mixed-use centers would be substantially more important than increased density in affecting transportation choices, energy use, and the carbon footprint.

2. Foster upfront investments and high-quality jobs to catalyze economic success. A strong local economy and a diverse balance of nearby jobs, housing, and shops are critical for a sustainable community, especially when high-quality jobs are provided at the beginning of development. Significant upfront public investment and public-private partnerships can supply critical infrastructure and have an enormous impact on shaping development and increasing the value of state trust land. State owned trust land could also provide unique opportunities for patient capital, with enhanced trust land management authorities providing access to resources for upfront capital investment and the ability to recapture these investments when the land is sold or leased later at a higher value.

FIGURE 3

Carbon Footprint of Transportation and Building Emissions



Baseline	2.59	5.47	8.06	2.38	6.28	8.66	1.39	3.82	5.21
Good	1.50	3.84	5.34	1.38	4.45	5.83	0.80	2,71	3.51
Better	0.95	2.65	3.61	0.87	3.13	4.00	0.51	1.98	2.49
Best	0.58	1.04	1.63	0.54	1.32	1.85	0.31	0.93	1.25

Source: Fregonese Associates.

Transportation fuel and building energy use (baseline, with good, better, and best improvements) impact carbon emissions differently in three of six Superstition Vistas scenarios.

3. Provide multimodal transportation infrastructure and regional connections to facilitate efficient growth. Another critical step is determining how to phase transportation improvements as the region grows and the market can support increased services. Phased components may include buses first, then Bus Rapid Transit (BRT), with rights-of-way set aside for eventual commuter or light-rail corridors. Identifying and building multimodal transportation corridors and infrastructure prior to sales for residential and commercial development should establish the cohesiveness of the entire area and enable the evolution to more capital-intensive transportation infrastructure as the community matures.

4. Design efficient buildings that save water and energy resources and reduce the community's carbon footprint. Incorporating construction costs and return on investment (ROI) data in resource planning allows for financial feasibility and cost-benefit calculations. The consulting team modeled four levels of water and energy use (baseline, good, better, best) for each scenario and building type. Results demonstrated that investments in energy efficiency would be better spent on residential than commercial and industrial buildings. An additional finding showed that building centralized renewable power generation may be a better investment than extreme conservation.

5. Offer housing choices that meet the needs of a diverse population. Ensuring a viable community means meeting the needs of all potential residents with a broad variety of development types and prices that local workers can afford and that allow for adjustments under future market conditions.

6. Incorporate flexibility to respond to changing circumstances. A challenge for large-scale master plans that will take shape in multiple phases over 50 years or more is how to plan so the development itself can evolve and even redevelop over time. Plan implementation needs to include mechanisms to limit future NIMBY (not in my back yard) problems for necessary infill and redevelopment projects.

Procedural Lessons

The visioning process for Superstition Vistas involved planning a completely new city or region of communities in a vacant area with a single public landowner and no existing population. Given the recent economic downturn, as well as the limited capacity of the state agency to bring land to market, development of this area will likely be postponed for a number of years. Despite these particular conditions, procedural lessons learned in the project to date are relevant to other long-term and large-scale efforts, and to the expanded use of scenario planning for community decision making in general.

Agreed-upon procedures and planning processes become increasingly important as the planning and development time period grows and the number of stakeholders increases. Significant changes in participants, perspectives, and external factors, such as the recent collapse of the development economy, should be expected in any long-term, multiparty project. Such challenges need to be considered and incorporated into project tasks.

1. Design for change. Long-term projects need to accommodate changes in stakeholders, decision makers, and even political perspectives during the course of planning and implementation. Projects would benefit enormously from anticipating such changes, agreeing on mechanisms to transfer knowledge to new participants, establishing certain criteria and decisions that new stakeholders would be expected to follow, understanding how to deal with political or market conditions that will change, and building resiliency for such factors into the alternative scenarios themselves.

2. Consider governance. This is an issue for planning and implementation efforts and for the political decision-making structure of a new community. In building a new city it is important to consider how to create a governance system capable of implementing a consistent, comprehensive vision for a community that does not yet exist.

3. Incorporate new community designs into local and regional comprehensive plans. It is also critical to consider how a project at the scale of Superstition Vistas, with up to 1 million residents and a buildout plan of 50 years or more, can be incorporated into the framework of a typical county comprehensive plan. Scenarios and visions must reflect ideas and plans that local jurisdictions will be politically willing and administratively able to incorporate into their planning processes.

4. Phase development. Communities need to establish mechanisms that allow the adoption of a long-term buildout vision and then incorporate a series of flexible and adaptable phased plans to implement that vision in appropriate stages.

5. Plan for market changes. Market conditions, housing preferences, and employment opportunities will evolve, and large-scale projects with creative and compelling visions may even create their own demand. No one knows what future markets may offer, so consideration of alternative markets and adaptable community designs are critical. Projected housing mixes and estimates of development absorption need to be flexible and not based only on current preferences and trends.

6. Connect to common values. Demonstrating how development proposals connect to common visions and values that are shared and stable over time is also important. For Superstition Vistas, values such as an opportunity for healthy lifestyles and choices for residents across the socioeconomic spectrum were found to be broadly accepted. Planners also need to recognize values that are more controversial or may be transient and likely to change.

Challenges and Opportunities

The WLC experience in planning for Superstition Vistas has been successful in several respects. The community came together through the Steering Committee to develop a consensus vision that represented multijurisdictional cooperation around sustainable "smart" growth. Neighboring communities, at the request of the state land commissioner, deferred any consideration of annexation. In addition, the Arizona State Land Department developed a plan for a geographic scale, time horizon, and level of comprehensiveness well beyond anything attempted previously. However, the proposed comprehensive plan amendment for Superstition Vistas is at best a first step toward a vision for a community of up to 1 million people.

The Arizona State Land Department has been unable, at least so far, to push the envelope very far on new and more creative ways to conceptualize large-scale developments that could enhance the economic value of state trust lands and improve regional urban form. The recent collapse of land and housing markets throughout the country has also impacted this project and local perceptions of future growth potential. Since the overall effort to conceptualize and implement development plans for Superstition Vistas is just beginning, initial on-the-ground development is not expected for at least a decade. There will be multiple opportunities to build on these planning efforts to bring bolder and more comprehensive visions forward as the real estate economy recovers and the land becomes ripe for development.

Scenario planning and effective visualizations become both more important and more challenging to achieve when conducting larger and longer-term visioning exercises. Visualizations that provide compelling depictions of activity centers and higher-density, mixed-use neighborhoods can help to gain public acceptance. Effective mechanisms are also needed to convey to current participants that the planning process is imagining community characteristics and housing and lifestyle preferences for their grandchildren or great-grandchildren many years in the future.

As noted earlier, upfront investments in transportation, economic development, education, and utility services can significantly shape a community, serve as a catalyst for higher-level employment, and earn high returns. To achieve this potential, mechanisms are needed to facilitate these investments, whether on private lands or state trust lands. Continued work on the contributory value of land conservation, infrastructure investment, planning, and ecosystem services, as well as the integration of this information into scenario planning, would greatly aid efforts to address uncertainty and advance community sustainability.

FIGURE 4
Alternative Visions for Downtown Rifle, Colorado

Figure 4a

Figure 4b

Figure 4c

Figure 4a shows the current condition of a site in downtown Rifle, Colorado. Figures 4b and 4c are computer-generated visualizations of redevelopment options for that site.

Source: Fregonese Associates.

Other Projects and Lessons Learned

WLC conducted three additional demonstration projects to further enhance scenario planning tools and apply them in different situations.

Gallatin County, Montana

Sonoran Institute staff worked with Montana State University (MSU) to engage local stakeholders in a workshop where each of four teams produced scenarios for concentrating projected growth within the currently developed "triangle" region of Bozeman, Belgrade, and Four Corners. This effort successfully integrated Envision Tomorrow scenario planning with housing unit projections from the Sonoran Institute's Growth Model and demonstrated the value of ROI tools as a reality check on proposed land use and building types. The project also demonstrated the value of scenario planning to local experts.

Lessons learned include recognizing that (1) for many participants working with paper maps was more intuitive that the touch screen technology we had employed; (2) additional information on land characteristics, such as soil productivity and habitat values, should be used in preparing growth scenarios; and (3) more effective techniques are needed to visualize the density and design of different land use types, as well as to incorporate political and market realities that are not typically captured with scenario planning tools.

Products from this Montana project will include the creation of a library of regionally appropriate building types for use with ROI and scenario modeling and a report examining the costs and benefits, including sustainability impacts, of directing future growth to the triangle area of Gallatin Valley. With WLC support MSU has been able to incorporate the use of scenario planning tools in its graduate program.

Garfield County, Colorado

Sonoran Institute's Western Colorado Legacy Area office, with support from the Lincoln Institute, U.S. Environmental Protection Agency, and other local contributors, utilized the Envision Tomorrow tool in a new way to advance implementation of previously adopted plans calling for mixed-use infill and redevelopment in target growth areas. This project focused on stakeholder education regarding the mechanisms necessary to implement recently adopted comprehensive plans calling for town-centered development, rather than on scenario generation for a comprehensive plan.

Examination of policy and market feasibility for redevelopment in downtown Rifle, Colorado, was one of three separate efforts undertaken. The City of Rifle project successfully utilized an ROI tool to identify financial and regulatory factors that could impact revitalization efforts and engaged the key parties necessary for implementation, including property owners, developers, realtors, planning commissioners, local officials, state transportation representatives, and local staff.

Among the lessons learned from this project was the importance of grounding bold visions with market reality. For example, previous planning efforts in Rifle had focused on six-to-eight-story mixed-use buildings, but in the current market even three-to-four-story projects are not considered feasible (figure 4c). Most attention now is given to two-story mixed-use projects and townhomes. Visualizations for an underutilized parcel in the center of town illustrated the type of one-story option that may be most feasible for initial commercial development (figure 4b). Constraints related to parking requirements and high minimum lot coverage requirements were also identified as limits on investment. In addition to pinpointing changes in Rifle's building code, these findings spurred discussion about the role of public-private partnerships in catalyzing downtown development.

Morongo Basin, California

This area of high open space and wildlife habitat values between Joshua Tree National Park and the Marine Corps Air Ground Combat Center in Southern California may be impacted by spillover from regional growth. This project with the Morongo Basin Open Space Group involves an innovative effort to link results from the ongoing conservation priority-setting efforts with both a GIS tool to analyze and predict how land use patterns impact wildlife habitat and the scenario planning capability of Envision Tomorrow.

We are evaluating the environmental impacts of the current and potential alternative development patterns and location-specific planning and land use options. The tools being developed for this effort will be useful to land trusts throughout the country that are interested in engaging partners on local and regional planning issues and incorporating larger landscape conservation and wildlife habitat goals into their projects.

Open Source Planning Tools

Western Lands and Communities has recently been focusing on efforts to develop open source planning tools as a mechanism to increase the use of scenario planning. Key factors that hinder their use include: (1) the cost and complexity of the tools themselves; (2) the cost and availability of data; (3) a lack of standardization, making integration of tools and data difficult; and (4) proprietary tools that may be difficult to adapt to local conditions and may impede innovation.

Proponents of open source modeling tools believe open and standardized coding will facilitate increased transparency and interoperability between models, ultimately resulting in faster innovation and greater utilization. As a result of our work with Envision Tomorrow on the Superstition Vistas project, WLC and other members of an open source planning tools group are continuing to advance scenario planning tools and pursue the promise of open source tools that can foster sustainable communities in many more locations.

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Land-Based Financing for Brazil's Municipalities

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Infrastructure investments are improving roadways in Curitiba, Brazil.

David Michael Vetter and Marcia Vetter

Brazil's chronically low level of public sector investment has resulted in serious infrastructure deficits that are often cited as an impediment to its economic development. Brazil's municipalities face an urgent need to invest in infrastructure, but lack the "fiscal space to do so due to the fiscal constraints in the country's macroeconomic program. Backlog in municipal infrastructure is estimated at about $40 billion over the next 10 years" (World Bank 2006, xix). Heller (2005, 1) defines fiscal space as "room in a government's budget that allows it to provide resources for a desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy."

Although public capital formation among countries varies due to their respective public-private divisions of expenditure responsibilities, Brazil's average gross formation of public capital (GKP) as a percentage of gross domestic product (GDP) was only 1.8 percent in 2006–2007, ranking second from the bottom for 28 emerging countries and last among the BRIC countries: 20.8 percent for China, 7.3 percent for India, and 4.5 percent for Russia (Afonso and Junqueira 2009b). The rise of private financing for infrastructure in Brazil in the 1990s was not enough to compensate for the public decline (World Bank 2007). Brazil needs to increase infrastructure investment in order to further improve its economic and social performance.

This article explores how Brazil can provide funding for much-needed infrastructure investment while controlling the consolidated national and subnational public sector deficits and debt as required to maintain price stability and an investment grade sovereign rating.

The Potential of Land-Based Instruments

Traditionally Brazil's municipalities have been considered more often a potential source of fiscal problems than of fiscal space. To maintain financial sustainability and economic stability, Brazil has controlled the consolidated public sector debt of states and municipalities through a complex web of restrictions on borrowing by them or lending to them, including the Fiscal Responsibility Law of 2000. Within this framework of tight fiscal controls and fiscal discipline, could Brazil's municipalities generate fiscal space for investment and provision of social needs by increased use of land-based financing? One indication of the potential for creating such fiscal space is that municipal investments already are quite substantial, constituting

40.3 percent of Brazil's total public sector investment in 2008 (Afonso and Junqueira 2009a).

Municipalities could further increase their fiscal space for investment by (1) increasing expenditure efficiency; (2) increasing revenue through more effective administration of the real estate property and transfer taxes and fees, as well as other own-source revenues; and (3) using other land-based instruments that would not involve municipal borrowing, such as the sale of development rights and underutilized land. In other words, land-based financing could create fiscal space for investment without increasing municipal deficits or debt.

According to Peterson (2009), land-based financing is not a practical or desirable way to pay for the entire capital budget, but it has significant advantages as part of the mix of capital financing, especially when the revenues accrue before the investment is made. In this case they add flexibility to financing decisions and reduce the need for long-term credit, which is often difficult to obtain in developing countries.

In Brazil, these land-based instruments include:

- real estate property and transfer taxes;
- impact fees for new developments;
- betterment levies;
- sale of development rights;
- sale of underused public land and buildings;
- land readjustment (e.g., *consórios urbanos*); and
- urban concessions (*concessão urbana*), a new instrument being used to revitalize the Nova Luz neighborhood in São Paulo.

None of these instruments involve public sector borrowing and therefore would not increase the public sector debt or be covered by the restrictions on borrowing by or lending to municipalities. Brazil's Federal Constitution of 1988 grants municipalities the power to define and use such land-based instruments. The guidelines were subsequently regulated by Federal Law No. 10,257 of 2001, known as Urban Development Act or City Statute (*Estatuto da Cidade*).

Incentives to Generate Fiscal Space

The municipal development strategy recommended by the World Bank (2006) gives priority to establishing a sustainable market-based subnational credit system and providing assistance to municipalities to become creditworthy within a framework of continued fiscal discipline. A first step in developing such a strategy could be to change the way the national credit allowances for different municipal programs are distributed among municipalities by the federal government.

To lay the foundation for modern credit markets, a modified national credit program could provide incentives to create fiscal space by imposing performance conditions. For instance, credit would be granted to those municipalities that

- are most creditworthy, as this would provide incentives to further improve or at least maintain their financial performance;
- prepare efficient and equitable investment plans and capital budgets; and
- leverage borrowing by using the land-based instruments so the total fiscal space created per R$ (Brazilian currency=*real*) of borrowing is high.

To assess the feasibility of such a strategy, we ask: How many Brazilian municipalities would be judged creditworthy by national and international creditworthiness standards? How fully are they using their real estate taxes and fees? What are their investment levels? Have they passed the legislation necessary to fully utilize the land-based instruments that help create and capture real estate value? In other words, what is the potential of these municipalities to create fiscal space to finance infrastructure and other needed investments?

Methodology and Analysis

To address these questions, we generated a municipal database that includes the indicators typically used by credit rating agencies and other financial institutions to assess municipal creditworthiness. This database enables us to rank municipalities by their performance on any of the indicators and to analyze relationships among variables using correlation analysis or other methods. For more details on the methodology, data, indicators, and analysis, see Vetter and Vetter (2011).

Table 1 shows the indicators and the methods used to generate them, including our composite indicators (OECD 2008). The municipalities selected for study are those with at least 50,000 inhabitants in 2008, because cities of that size are more likely to have the will and administrative capacity to increase their fiscal effort. In 2008, the 584 municipalities with populations of 50,000 or more held over 65 percent of Brazil's total population. We excluded 66 municipalities due

TABLE 1
Financial Performance and Other Indicators Used in Analyzing Brazil's Municipalities

Type	Normalization of Criteria	Basic Indicators Used	Indicator/ Aggregation
Creditworthiness			
Financial Performance Score	Benchmark	Meets 5 different financial performance indicators (if yes=1, if no= 0)	Sum of 5 binary variables
Financial Performance Rank	Ranking	Ranks on 5 financial performance indicators	Average ranking
Economic Potential	Ranking	Ranks on 4 economic indicators: Total size of municipal GDP 2007; absolute change in GDP 2002–2007; relative change of GDP 2002–2007; and GDP per capita 2007	Average ranking on the 4 indicators
Creditworthiness	Ranking	Defined in the text using the financial performance and economic potential indicators	Ranking
Financial Performance Indicators			
Total Debt Service/Net Current Revenue (NCR)	< 11.5%	Estimated with financial data from STN data	None
Total Debt Stock/NCR	< 75.0%	Same as above	None
Operating Surplus/NCR	> 10.0%	Same as above	None
Total Debt Service/ Operating Surplus	< 30.0%	Same as above	None
Personnel Expenditures/NCR	< 54.0%	Same as above	None
Other Indicators			
Investment	Ranking	Municipal investment in plant and equipment as a percentage of municipal GDP	Ranking
Total Real Estate Taxes and Fees (TRE)	Ranking	Total revenue from the urban real estate property and transfer taxes (IPTU and ITBI) and betterment fees.	Ranking
Passage of Land-Based legislation	Benchmark	Passage of 8 laws needed to use the land- based instruments of the Statute of the City (if yes=1, if no= 0)	Sum of 8 binary variables
Municipal Human Development Index (IFDM)	Ranking	Annual indicator of municipal human development (IFDM) that is similar to the UNDP's Human Development Index (HDI). IFDM varies between 0 and 1.0, in which 1.0 would be the highest development level.	Based on employment, income, education, and health indicators
Population below the Poverty Line	Percentage	% of populations in households with income per capita of one quarter of a minimum salary or less. This is the definition of extreme poverty (*indigente*).	% of population

to incomplete financial data, leaving a final sample of 518 municipalities. The first part of the analysis deals with this sample and the second part focuses on 130 municipalities that ranked in the top quartile on the Creditworthiness Indicator.

Municipal Financial Performance Indicators

We developed two composite indicators of municipal financial performance using data from the National Secretary of the Treasury (*Secretaria do Tesouro Nacional*, STN 2008): Financial Performance Score and Financial Performance Rank. These indicators are used to judge municipal capacity to generate fiscal surpluses and service additional debt, but do not, of course, show how effectively or efficiently the resources are employed.

Most of the 518 municipalities in the sample (68 percent) meet all five financial performance criteria. The best overall performance is shown in the Total Debt Service/Net Current Revenue (NCR) Indicator, where 99.8 percent of municipalities spent less than 11.5 percent of NCR on debt service. The worst overall performance was on Personnel Expenditures/NCR, where only 83.4 percent of the municipalities met the criteria. Among the municipalities meeting all five criteria, some are much more creditworthy than others.

To generate the Financial Performance Rank, we ranked them on the average of all five criteria, with the most favorable performance receiving a rank of 518 and the least favorable a rank of 1.

Creditworthiness

We developed the municipal Creditworthiness Indicator in two steps. First, we selected municipalities in the top three quartiles on the Economic Potential Indicator with a Financial Performance Score of five (i.e., meet all five financial criteria). Then we calculated the average rank of the two scores. Figure 1 shows that even the municipalities ranking in the second quartile on creditworthiness demonstrate relatively good performance on all five financial performance indicators by national and international standards.

Municipal Human Development Index and Creditworthiness

Figure 2 shows a low correlation between the Creditworthiness Indicator and Municipal Human Development Index (IFDM). In fact, this scattergram shows that many municipalities ranking in the bottom half in terms of the human development index rank in the top half in terms of their creditworthiness. The wide dispersion of observations shows that there is a great deal of diversity (i.e., low correlation and high variance) among Brazil's municipalities with regard to creditworthiness and human development. As the Creditworthiness Indicator is not as highly correlated with the IFDM as might be expected, a program initially focusing on the most creditworthy municipalities would not be as regressive as it might seem.

Analysis of Top Ranking Municipalities

To develop a national program that would provide incentives in the form of access to credit for creation of fiscal space, we wanted to identify municipalities ranking in the top quartile on the Creditworthiness Indicator. Such a program would stimulate investment in municipalities with a relatively high potential for future economic development and superior financial performance, thereby rewarding responsible financial performance. Brazil's fiscal federal system already includes many automatic transfers to municipalities that are based on population and other criteria rather than on financial performance or creditworthiness.

The total 2008 population and 2007 GDP of the 130 municipalities in the top quartile were 32.3 million and US$346 billion, respectively. These municipalities held 27.7 percent of the total

FIGURE 1

Financial Performance Indicators for Municipalities Ranked in the Top Two Quartiles on Creditworthiness

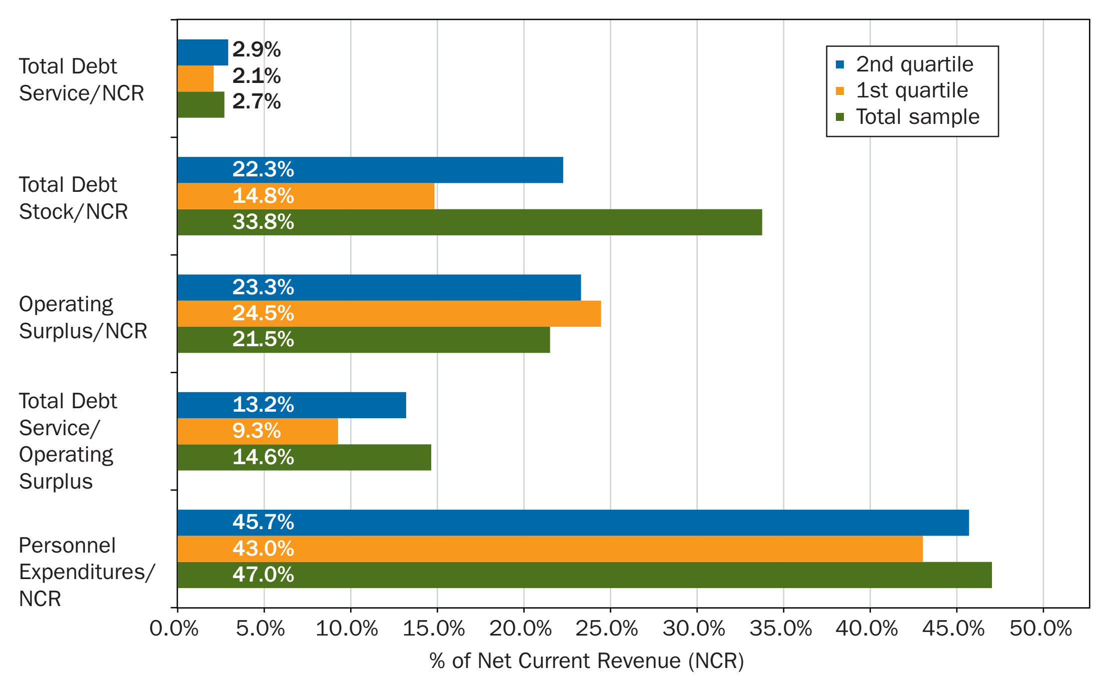
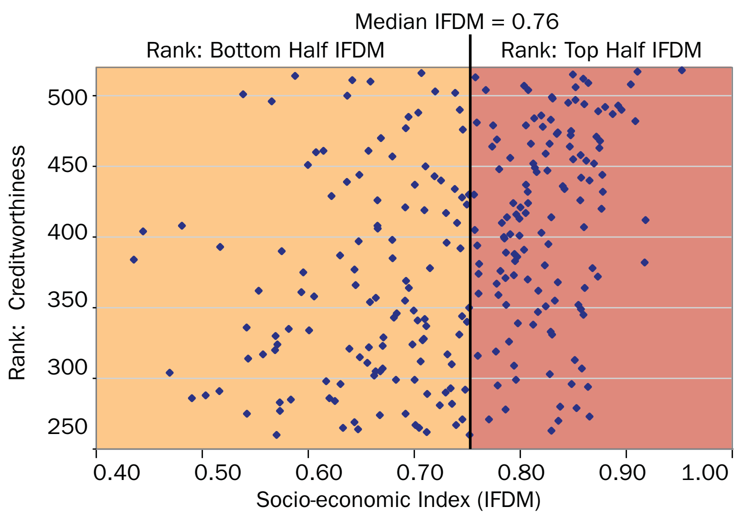


FIGURE 2

Relationship Between the Creditworthiness Rank and Municipal Human Development Indicator (IFDM) for Municipalities Ranking in the Top Half on Creditworthiness



population in the full sample, 31.7 percent of its GDP, and 21.9 percent of the total population living below the poverty line.

Municipal Investment and Performance on the Real Estate Taxes and Fees

For the top ranked municipalities, median investment as a percentage of municipal GDP is 1.03 percent and is not correlated with the Creditworthiness Indicator (Spearman correlation = -0.01). Bringing all municipalities now below the median up to 1 percent of municipal GDP would increase total annual municipal investment by US$750 million for this top quartile, that is about a 20 percent increase over this median investment level.

Bahl and Martinez-Vazquez (2007) estimated the average real estate property tax (TRE)/GDP ratio for developing countries in their sample to be 0.6 percent in 2000. Half of the municipalities in this top creditworthiness quartile had TRE/GDP median ratios below the observed low 0.34 percent level indicating how much additional fiscal space might be available.

Our simulation shows that raising TRE/GDP to 0.6 percent for all municipalities in the top quartile would increase total annual municipal revenue by over US$700 million. Bringing all the municipalities below 0.6 percent up to this level would involve an average annual per capita TRE increase of only about US$24. Obviously, municipalities with TRE revenues above this 0.6 percent level could also increase their fiscal effort. Based on these results, one could argue that there is room for more fiscal effort with respect to real estate taxes and fees by municipalities in this top quartile.

Betterment levies account for only 0.4 percent of TRE for all of the municipalities in the sample. However, the top 20 municipalities ranked by total revenue from betterment levies had collected between US$473,000 and US$2.6 million in 2008, with an average collection of US$928,000. For these 20 municipalities, these levies represented on average more than 10 percent of total municipal investment, but the average levy as a percent of GDP was only 0.18 percent. It would be interesting to analyze why these few municipalities were willing and able to use betterment levies so much more effectively than most others in the sample.

Enactment of Land-Based Legislation

According to the annual survey of municipalities by the Brazilian Institute of Geography and Statistics (IBGE 2009), only 32 of the 130 municipalities (24.6 percent) passed all eight laws needed to fully utilize the land-based fiscal instruments permitted by the Statute of the City, and 43 municipalities (33 percent) had passed four or fewer laws. Since passage of such legislation could create additional fiscal space for municipal investment without increasing municipal debt or deficits, there seems to be much room for increased use of these instruments.

Sandroni (2011) estimated the total revenue for the City of São Paulo from the single law that allows charges for the sale of additional development rights *(Outoga Onerosa do Direito de Construir–OODC)* to be over US$300 million for the 2006–2010 period. This total excludes the more than US$1 billion from the municipality's 13 urban development operations financed by selling development rights (e.g., Faria Lima and Água Espraiada).

Summary and Policy Implications

This analysis of municipalities ranking in the top quartile by the Creditworthiness Indicator shows that they often invest at low levels, demonstrate low fiscal effort on real estate taxes and fees, and have not passed all of the legislation necessary to use the land-based instruments. Simulations also indicate that relatively small increases in fiscal effort on real estate taxes and fees could generate significant fiscal space for municipal investment or other priorities.

Additional real estate value will be created in future years as Brazil's municipalities grow and provide new infrastructure. For example, the development plan for the new beltway in Rio de Janeiro includes major strategic public and private sector investments of more than US$30 billion, including major petrochemical (COMPERJ) and steel facilities already being implemented. Such projects are likely to generate value that could be captured in part by the land-based instruments to help finance infrastructure, and they could provide subsidies for housing lower-income families.

Based on these findings, we argue that a national program allocating at least part of the annual allotment of municipal credit based on performance criteria could provide incentives for increased generation of municipal fiscal space while maintaining fiscal discipline.

Such a program could be open to all municipalities that meet the creditworthiness criteria and have an acceptable capital budget (i.e., attain the benchmarks discussed above). To help all municipalities become eligible, technical assistance could be available within the program, including help to improve collection of real estate taxes and fees (e.g., better cadastres, collection systems, and improved valuations), prepare and execute effective capital budgets, and put the land-based instruments into operation.

This research demonstrates the utility of a database combining municipal financial and socioeconomic indicators to improve municipal financial performance. Periodic publication of such a database could complement the information that STN currently provides and facilitate future research and policy analysis. Continuing the estimates of residential capital at the municipal level for this database using the hedonic price method with the 2010 Census data would be most useful.

In summary, a national program could provide incentives for municipalities to increase their fiscal space for investment and other priorities. The program also could encourage municipalities to recognize that effectively planning interventions (public works and land use regulations) can significantly increase land values that then can be captured in part by using the available land-base instruments. In short, such a program could help finance a brighter future for Brazil's municipalities.

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The Long Road to State Fiscal Recovery

Donald Boyd

The recent recession has been recognized as the worst in memory, and its effects are still being felt. Less well understood is the fact that this recession has been far worse for state governments than the drop in gross domestic product (GDP) would suggest. While state government finances have stopped falling off a cliff, they are closer to the bottom of that cliff than the top. Tax receipts have not returned to their pre-recession levels, and new revenue demands may overwhelm any interim improvements in collections. Even if states can avoid these challenges, it will be a long, slow road to fiscal recovery, with several large risks along the way.

State and local governments play a major role in the economy and in our daily lives. They finance more than 90 percent of K-12 education and deliver virtually all of it. Public colleges and universities educate three-quarters of students enrolled in degree-granting institutions. State and local governments oversee, design, and build more than 90 percent of the nation's public infrastructure. They finance much of the nation's social safety net and implement much of it as well. In fact, state and local governments spend more on direct implementation of domestic policy than does the federal government.

The services financed and delivered by state and local governments tend to have stable and generally rising demand. When a recession hits, there is no reduction in the numbers of children in school or elderly people in nursing homes—two of the most important spending areas for state and local governments—or in the numbers of fires or crimes. For programs such as Medicaid and higher education, for example, demand for the kinds of services that state and local governments provide typically rises during recessions. Unless and until states can fix their revenue structures or develop adequate reserves, public policy will continue to gyrate with every turn in the economy.

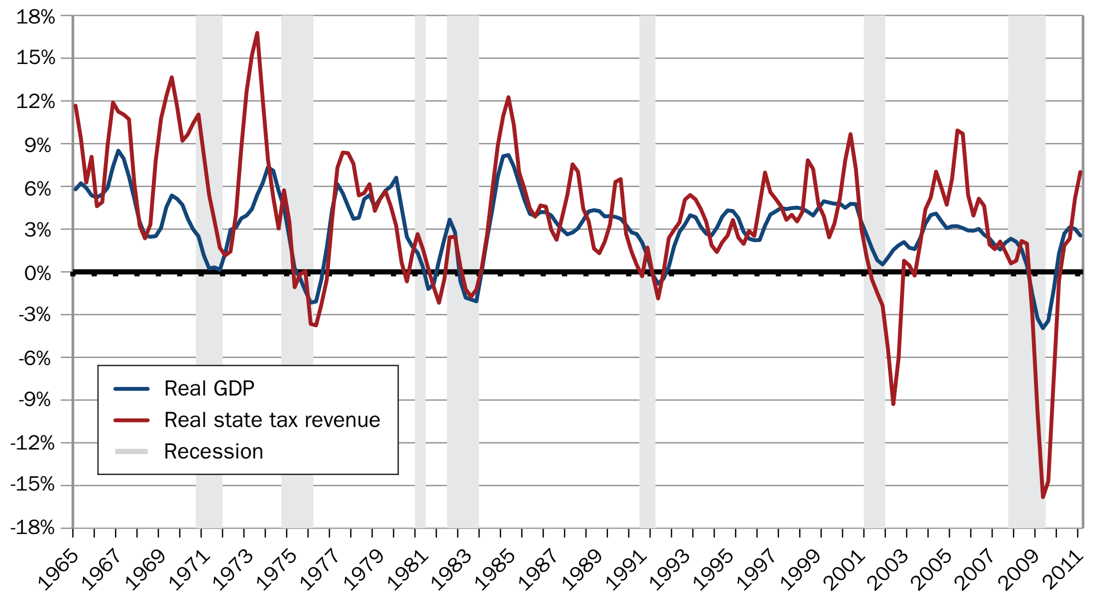
Decline in State Tax Collections

The Great Recession that started in December 2007 was the deepest and longest recession since the Great Depression of the 1930s. The unemployment rate rose to 10.1 percent and has remained stubbornly high, falling only to 9.1 percent after two years of recovery. State tax collections plummeted, falling for five consecutive quarters beginning in the fourth quarter of 2008 and continuing through 2009. Tax revenue fell by a dizzying 16.8 percent in the second quarter of 2009, and over the next several years it declined further and more sharply than it had in any other recession since World War II (figure 1).

The recent drop in GDP has been significant in comparison to past recessions, but the declines in taxable consumption and personal income, two components that typically constitute the tax bases of state and local government, have been far worse. Taxable consumption fell by about 11 percent, while GDP fell by about 5 percent. Taxable components of personal income also fell much more sharply than the overall economy and still languish more than 5 percent below the pre-recession peak, reflecting the jobless recovery.

Even though this has been the worst post-war recession by traditional economic measures, these measures do not tell the whole story. Capital gains, an important component of state tax bases, are not included in personal income as measured in the nation's economic accounts. These gains have increased in importance and are a major cause of increased volatility in state finances. Capital gains fell by more than 55 percent, driving down tax collections in the final quarter of the 2009 fiscal year, when tax returns reflecting the 2008 stock market collapse were filed.

FIGURE 1
Percent Changes in State Tax Revenue and GDP, 1965–2011



Source: Prepared by the author using data from the U.S. Census Bureau and U.S. Bureau of Economic Analysis.

The net result of these and other forces was huge declines in state income, sales, and corporate taxes. Figure 2 shows that annual income taxes fell by more than 15 percent in inflation-adjusted terms, sales taxes fell by more than 10 percent, and corporate income taxes fell by more than 25 percent. Property taxes, which are crucial to local governments but generally not a significant revenue source for states, remained quite stable through much of the period, although they are beginning to weaken and in some parts of the country have fallen significantly.

A Slow Recovery

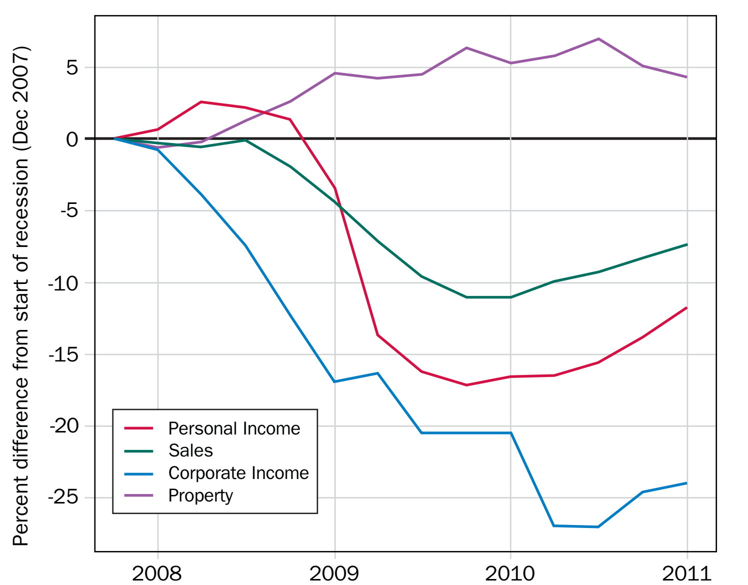
The recession ended in June 2009 and the economy has been recovering slowly. State tax collections grew in each quarter of calendar year 2010, and the character of that growth has improved over time. In the first two quarters of 2010, increased tax rates more than offset declines caused by the weak underlying economy, but in the last two quarters tax revenue growth was driven primarily by the improving economy. By the fourth quarter, tax revenue grew by 7.8 percent, but even without tax rate increases it would have grown by 7.0 percent. Tax revenue in the January–March 2011 quarter grew 9.3 percent compared to the previous year, and 21 states had double-digit growth. Preliminary data for the April–June quarter show tax revenue up 11.4 percent.

Inflation-adjusted state tax revenue for the nation as a whole in the latest four quarters (ending in the first quarter of calendar year 2011) was 7.7 percent below the peak attained in 2007. The heady growth in the first two quarters of 2011 probably cannot be sustained because much of it appears to have been driven by stock market gains in tax year 2010, boosting income tax returns in the second quarter. Those gains almost certainly will not be repeated in 2011.

In addition, turmoil in European debt markets and the recent Standard & Poor's downgrade of U.S. long-term debt have contributed to fears of a double-dip recession. There are indications that economic growth will be slower than most states have assumed in their current budgets. States are closer to the bottom of the cliff than the top, and are at risk of falling back down. Meanwhile, there are some signs that local government tax revenue also is beginning to weaken.

While tax revenues are now growing in most states compared to the last year's low collection rates, they have not reached the levels prior to the recession. After adjusting for inflation, tax revenues for the latest four quarters are below the calendar year 2007 level in 43 states, and revenues

FIGURE 2
Varying Trends in Personal Income, Sales, Corporate Income, and Property Taxes During and After the Recession



Source: Prepared by the author using data from the U.S. Census Bureau and U.S. Bureau of Economic Analysis.

are 10 percent or more below that level in 20 of those states. Among the seven states showing a positive shift in revenue collection, only Oregon (8.9 percent), Delaware (13 percent), and North Dakota (62.9 percent) are at levels above 2 percent.

State and Local Government Responses

States hit by falling revenue also face rising entitlement costs driven in large part by Medicaid enrollment, which typically increases after unemployed workers exhaust health insurance benefits. According to the National Association of State Budget Officers (2011, ix), Medicaid enrollment rose by 8.1 percent in fiscal year 2010, and by an estimated 5.4 percent in fiscal year 2011; states project a further increase of 3.8 percent in fiscal year 2012. These and other types of required expenditures cause further stress in the day-to-day operations of state and local governments.

It is difficult to measure the impact of spending cuts on state and local programs, but changes in state and local government employment can be tracked. Although private sector employment fell sharply from the beginning of the recession, state and local government employment continued to rise modestly for about a year and a half. Shortly before private sector employment reached its nadir, state and local government employment began to decline, and states and localities have been cutting employment aggressively. Local government employment is now about 3 percent below its peak, and state government employment is about 2 percent below its peak.

Education employment in most states is related primarily to higher education—community colleges, four-year colleges, and universities—although some is related to the administrative bureaucracy for elementary and secondary education, and in some states it includes part of the K-12 workforce. State government education employment has continued to rise significantly throughout the recession and recovery, reflecting in part the increased demand for higher education that usually comes with recessions (figure 3). When jobs are hard to find, many people choose to build skills and knowledge by entering an education program or extending their time in school (Betts and McFarland 1995).

Meanwhile, state governments have been cutting noneducation employment at an accelerating pace, so that it is now down almost 5 percent from its mid-2008 peak, nearly comparable to the current, slightly recovered condition for private sector employment. In each of the nine previous recessions, state government noneducation employment either did not decline at all or it declined by much less, as was the case in the 2001 recession.

Figure 4 shows the same employment data for local governments, which are being hit increasingly hard by slowing property taxes and cuts in state aid. Education employment is now down about 3.5 percent from its late-2008 peak, and the noneducation sector is down about the same percentage from its peak. There are no signs that these cuts are slowing, and little reason to believe they will abate in the near term.

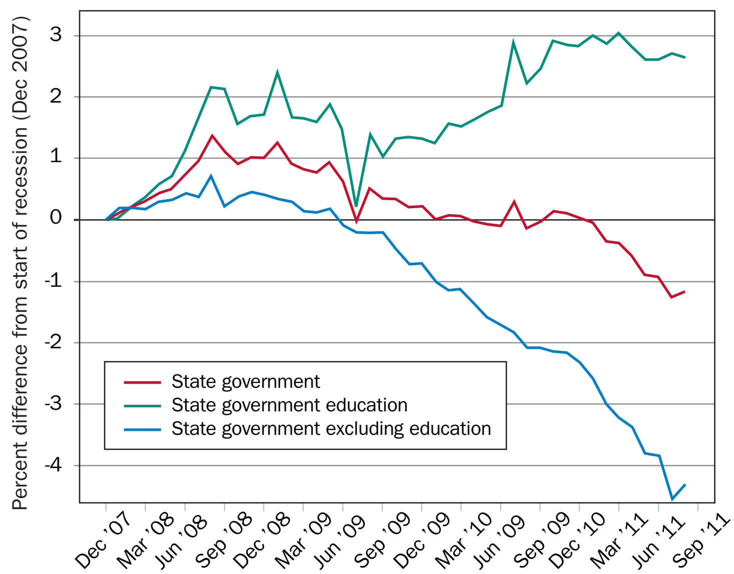
Continuing Fiscal Pressures

The recent improvement in state tax revenue is welcome, but many challenges remain. States still face fiscal trouble for four main reasons. First, total revenue remains well below its peak. Second, the recession has had lagged fiscal effects, driving up the demand for many government services, especially Medicaid, other safety net programs, and higher education. The recession also has created other pressures and problems for states by depleting unemployment insurance trust funds, which may lead to higher unemployment insurances taxes in order to repay federal loans.

Third, state cyclical adjustments are not yet complete because they must contend with losses in both federal stimulus aid of more than $50 billion in fiscal year 2011–12 and the fact that temporary revenue measures put in place in response to the recession will expire soon. Fourth, even after this cycle is fully stabilized, states will have to contend with large increases in pension contributions and payments for retiree health care—a pressure that is likely to build for years to come for several reasons, including: increasing numbers of retirements by an aging workforce; the likelihood that health care costs will continue to rise more quickly than the overall rate of economic growth (Keehan et al. 2011); and, in the case of some pension systems and most retiree health plans, years of chronic underfunding.

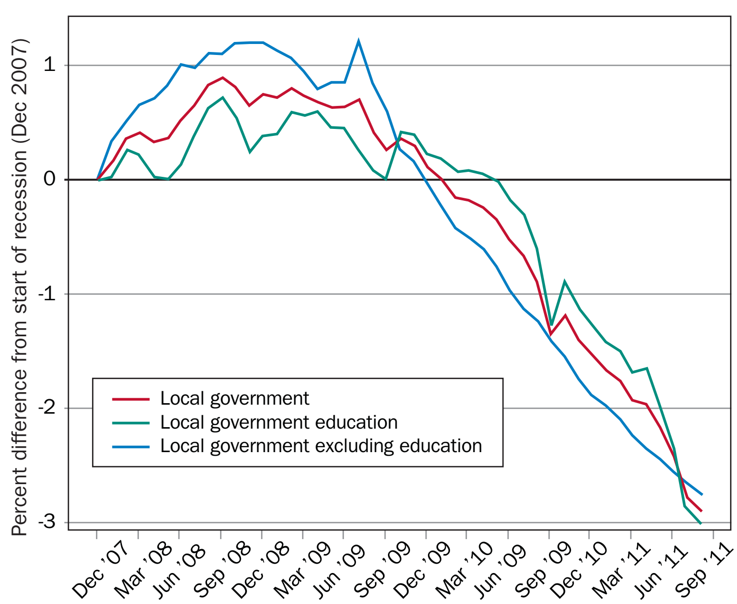
States finance these services with unstable revenue sources, and tax revenue has become much less dependable over the last two decades, reflecting in large part the increasing role of volatile capital gains taxes. Unless and until states broaden their tax bases to make their revenue structures less volatile, or develop adequate reserves, public policy will continue to gyrate with every turn in the economy.

FIGURE 3
State Government Employment Trends During and After the Recession



Source: Prepared by the author using data from the U.S. Bureau of Labor Statistics.

FIGURE 4
Local Government Employment Trends During and After the Recession



Source: Prepared by the author using data from the U.S. Bureau of Labor Statistics.

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James Follain is an economist with extensive experience in the analysis of housing and mortgage markets. He is currently the principal of James R. Follain LLC, whose recent contracts have been with the U.S. Department of Housing and Urban Development, the Massachusetts Attorney General's Office, and the Lincoln Institute of Land Policy. Follain is also a senior fellow at the Nelson A. Rockefeller Institute of Government at the University of Albany/SUNY, and an advisor to FI Consulting, a financial services firm headed by his son, Tom, and a former student, Roman Iwachiw.

Prior to the establishment of the LLC and his move to the Capital Region of Albany, Follain was a tenured professor of economics at Syracuse University from 1988 to 1998 and also worked with various business, government, and policy-oriented organizations. He has conducted research on the risks of mortgage lending, the tax treatment of housing, mortgage choice, suburbanization, property and land taxes, and the current mortgage crisis. He has authored and coauthored numerous publications for academic and broader audiences and served as the president of the American Real Estate and Urban Economics Association (AREUEA) in 1988. He received his Ph.D. in economics from the University of California at Davis and his B.A. from the University of San Francisco. Contact: jfollain@nycap.rr.com.

James R. Follain

LAND LINES: *How were you introduced to the Lincoln Institute?*

JAMES FOLLAIN: My involvement with the Lincoln Institute has spanned 30 years and has provided me with the opportunity to meet many top people in the field of public finance. Roy Bahl, now a Regents Professor of Economics and Founding Dean of the Andrew Young School of Policy Studies at Georgia State University, introduced me to the Institute in the early 1980s, when we were both on the faculty of the Maxwell School of Citizenship and Public Affairs at Syracuse University in New York.

We worked together on a major study of tax reform in Jamaica, and I was fortunate to participate in a study of the country's land tax with Professor Daniel Holland of Massachusetts Institute of Technology, who also has a long affiliation with the Lincoln Institute. One of the outputs of that larger research project was a book, *The Jamaican Tax Reform*, edited by Roy Bahl and published by the Institute in 1991. The book is now out of print, but some information is available at the GSU Web site.

LAND LINES: *What are some other highlights of your work with the Institute?*

JAMES FOLLAIN: In 1988 I participated in the annual TRED Conference that for many years was held at the Institute's offices in Cambridge and focused on various aspects of taxation, resources, and economic development. Professor Edwin S. Mills and I later coedited a special issue of the *AREUEA Journal* (1989) based on the six papers and discussant comments presented at that conference, which was titled "Interactions between Finance and Urban Development." The participants included many public finance economists including Karl Case, Patric Hendershott, John Kain, Rudolph Penner, John Quigley, Kerry Vandell, and William Wheaton, as well as people relatively new to the profession who have gone on to become leaders such as David Geltner and Dan Quan.

LAND LINES: *I understand you also have worked with Gregory K. Ingram, the Institute's current president and CEO.*

JAMES FOLLAIN: Yes, that's correct. Early in my career I had the opportunity to work closely with Greg when he led the World Bank City Study project in Bogotá, Colombia. Greg and his team collected data that were used in a number of studies that I coauthored with Emmanuel Jimenez, Steve Malpezzi, and others. In a paper on housing characteristics in developing countries (Follain and Jimenez 1985), we used the data set assembled by Greg's team. I remember, for example, having access to data with geo-coded locational coordinates, which was quite unusual at that time for the kinds of hedonic price index studies we were doing in the United States or elsewhere. The broad topic of the work and the project was also at the frontier and dealt with ways in which squatter settlements could be improved to become better homes for their residents.

LAND LINES: *How did you become involved with the Lincoln Institute more recently?*

JAMES FOLLAIN: I reconnected with Greg at the 2010 meetings of the Weimer School when he was honored as a Halbert C. Smith Honorary Fellow at the Weimer School/Homer Hoyt Institute in Florida. Established in 1982, the Weimer School is a unique and effective forum for fostering academic work that improves the quality of decision making in real estate and land economics. I became a Weimer Fellow in 1991 and currently serve on the faculty. We host two meetings per year to discuss recent research by new and current fellows and to recognize others who are working on related topics. During that 2010 meeting Greg and I initiated a conversation about our common interest in investigating what is different and important about the most recent house price bubble-bust. This discussion continued for some time and led to my involvement in a research project sponsored by the Lincoln Institute.

LAND LINES: *What research are you working on currently?*

JAMES FOLLAIN: This has been a most interesting year for me. It began with publication of a paper supported by the Research Institute for Housing America entitled "A Study of Real Estate Markets in Declining Cities." A second paper, coauthored with Seth Giertz of the University of Nebraska, entitled "Using Monte Carlo Simulations to Establish a New House Price Stress Test," was just published in the *Journal of Housing Economics*.

My most recent assignment with the Lincoln Institute of Land Policy has resulted in a Lincoln Institute working paper, also coauthored with Seth Giertz, entitled "A Look at U.S. House Price Bubbles from 1980–2010 and the Role of Local Market Conditions." We explored a variety of models to explain house price growth at the MSA level over the three decades since 1980. Our findings support and champion a theme quite consistent with those supported by the Lincoln Institute over the years—the importance of recognizing the wide variability of housing markets and the role of local conditions. We are currently moving forward on two new projects sponsored by the Lincoln Institute that focus on the most recent house price bubble and bust period, using data from the past decade.

LAND LINES: *What are some of the potential policy implications of this research on housing bubbles?*

JAMES FOLLAIN: One has to do with the development of policies by the Federal Reserve Board and other agencies to combat house price bubbles before they bust. My sense is that the Fed understands the limits of standard monetary policy for this purpose, as evidenced by the growing literature on this topic. It is in the process of considering a wider array of macroprudential tools that might be used for this purpose. The tool that I have in mind is one that I have written about and championed in earlier times—geographical variations in the pricing of mortgage credit risk that take account of local housing market conditions.

LAND LINES: *Is this work likely to be useful and relevant to housing market policy in other countries?*

JAMES FOLLAIN: I think so. The literature on house price bubbles is enormous and includes many recent papers about conditions in China and Europe. In addition, one of the key results of empirical work on urban economics over the past few decades is the similarity of findings across large cities in different regions. The spatial distribution of development, decentralization of employment and residences, declining central densities, and determinants of travel and mode choice show consistent results across large cities in the world. These similarities carry over to many housing market outcomes, indicating that one country can learn from another's housing policy experiences.

LAND LINES: *How does your work at the Rockefeller Institute relate to these investigations?*

JAMES FOLLAIN: My current focus there is on the impact of the Great Recession and the house price bubble-bust cycle on local property taxes. My concerns are twofold. First, property values have declined in many areas and reduced the value of the tax base. Second, the number of sales available that can be used to value properties is greatly diminished, which can reduce the precision of assessments and increase horizontal inequities. I have written a couple of case studies using data from New York State and I am in the process of developing a larger project on the topic.

LAND LINES: *What prompted you to move from academia to policy making, and can you share some experiences as a housing policy analyst in Washington?*

JAMES FOLLAIN: I was attracted by the possibility of working within an institution, Freddie Mac, with a dual mission to expand the securitization of mortgages and access to credit to low- and moderate-income households. The first part of my time with Freddie focused on the affordable housing goals it was mandated to achieve. The latter part focused on the development of capital rules for the credit risk embodied in the mortgages included in its securities. I moved to the Federal Reserve Board in 2003 to continue work on capital adequacy for large financial banks that invest in residential mortgages. I testified before Congress in late 2005 and have written about some of these experiences. One key insight has to do with the challenges faced by both individuals and corporations, especially large financial institutions, in coming to grips with the risk of extreme and difficult-to-predict events.

LAND LINES: *What is your view about the likely pace and character of the housing market recovery after the recent decline in prices and construction activity?*

JAMES FOLLAIN: I emphasize in my recent research that house prices have declined dramatically during the past five years in many parts of the country, wiping out massive amounts of wealth among homeowners and lenders. These declines may well be justifiable for those areas particularly hard hit by the crisis such as Arizona, California, Florida, and Nevada. In my article about declining cities, I discuss what I refer to as "emerging declining cities" because the current housing stock may exceed what future demand will support. Full recovery in these places will take many years since house price levels at their peak reflected wildly exaggerated expectations of future growth. L

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High-Speed Rail: International Lessons for U.S. Policy Makers

High-speed rail has been adopted throughout the world, and is now being planned and developed in the United States. Over the past 50 years, U.S. transportation spending has favored the development of interstate highway and aviation systems. In the meantime, countries such as China, Japan, Spain, France, and Germany have been investing in modern high-speed rail systems to satisfy the travel demands of current and future generations. As the United States embarks on the High-Speed Intercity Passenger Rail (HSIPR) Program begun in 2009, it can learn from the experiences of other countries in planning, constructing, and operating high-speed rail.

Decades of international experiences with high-speed rail suggests that it could create similar transportation, economic, environmental, and safety benefits in American cities and regions. While it requires high upfront investment, high-speed rail promotes economic growth by improving market access, boosting productivity of knowledge workers, expanding labor markets, and attracting visitor spending. When planned thoughtfully with complementary investments in the public realm, high-speed rail can promote urban regeneration and attract commercial development, as shown in several European examples. High-speed rail has greater operating energy efficiency than competing modes and takes up less land than highways.

The initial investment of $10.1 billion in the HSIPR Program, after years of minimal federal investment, required that the federal government and participating states quickly scale up to the challenge of laying the groundwork for a foundational program and implementing it at the same time. Those states that had the staff capacity, expertise, and experience in rail planning, such as Illinois, North Carolina, and Washington, were successful in securing high-speed rail grants. However, carrying the momentum of this initial investment forward has proven to be a struggle in a difficult fiscal environment, and California is currently the only federally funded Core Express high-speed rail project moving forward. In 2011, Congress voted to strip funding from the program. The expiration of the legislation authorizing the high-speed rail program in 2013 may provide an opportunity to consider policy changes.

This report describes several funding strategies that have proven to be successful in other countries, and makes specific policy recommendations to better position the federal high-speed rail program for success.

High-Speed Rail: International Lessons for U.S. Policy Makers
Petra Todorovich, Daniel Schned, and Robert Lane
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- **Strengthen the federal policy and management framework** by expanding the federal role in planning and prioritizing high-speed rail corridors and working with the states to secure rights-of-way.
- **Prioritize corridors that meet investment criteria** by clarifying the objectives and desired outcomes of the federal program and promoting investments in those corridors that exhibit the characteristics that are indicative of success.
- **Establish new mechanisms for corridor management** by developing legislation that enables the creation of public infrastructure corporations that can operate across state and national borders and attract private investment.
- **Plan for maximum land development benefits** by coupling high-speed rail station investments with policies that encourage land development around station areas. In general, well-connected stations in center-city locations offer the greatest potential for urban revitalization.
- **Focus initially on the Northeast Corridor and California**, which offer the best opportunities for Core Express high-speed rail service in the United States, by addressing the management and financing challenges each region faces.
- **Secure adequate and reliable funding** by drawing on a full complement of potential federal, state, and private sources. Such sources could include increasing existing transportation-related fees (such as a portion of the gas tax or ticket surcharges), creating an infrastructure bank, forging public-private partnerships, and expanding existing credit assistance programs.

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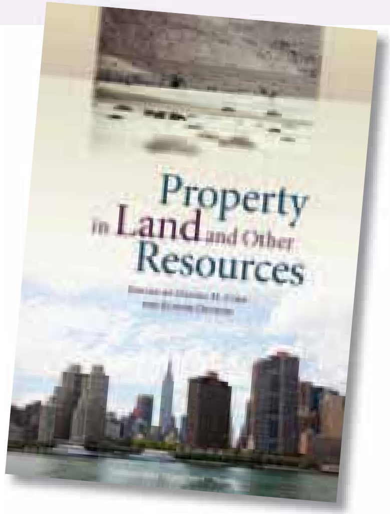
Robert Lane is senior fellow for urban design at Regional Plan Association and a founding principal of Plan & Process LLP. Contact: *Lane@rpa.org*

Property in Land and Other Resources

Over the past several years, much has been written about property rights in land and natural resources by scholars in many disciplines including economics, political science, history, and law. This book, based on a 2010 Lincoln Institute conference, addresses the tendency in social science literature to oversimplify the concept of property rights by assuming that only two or three forms of property rights are appropriate for the effective use and conservation of resources. Instead it focuses on recent developments in our understanding of how various property systems are applied to and affect the use of scarce natural resources.

The chapters explore the multiple aspects of diverse resources in the design and implementation of property rights systems. The volume also includes a foreword by Douglass C. North and a keynote chapter by Thráinn Eggertsson, who discusses issues related to property rights institutions and the environment using six case studies from his native Iceland, where relatively simple and transparent institutions are ideal for identifying social regularities with general applicability.

The topics addressed in the other chapters and accompanying commentaries include: the nature and variety of existing property systems; new thinking about the California gold rush; the role of psychological entitlement in property allocation; evolving property regimes governing fisheries; the evolution of zoning; attributes of property regimes governing water resources; the nature of property rights in tradable pollution permits; how regulations sometimes create property; and mechanisms for ameliorating property conflicts that arise from the presence of endangered species on privately owned lands.



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WORKING *papers*

More than 730 working papers are currently available, including the results of Institute-sponsored research, course-related materials, and occasional reports or papers cosponsored with other organizations. Some papers by associates affiliated with the Institute's Latin America and China programs are also available in Spanish, Portuguese, or Chinese. Listed below are the papers that have been posted since June 2011 at *www.lincolninst.edu/pubs.*

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The Economic Implications of House Price Capitalization: A Survey of an Emerging Literature

Emily Thaden
Stable Home Ownership in a Turbulent Economy: Delinquencies and Foreclosures Remain Low in Community Land Trusts

Paul Waldhart
The Effect of Increasing the Number of Property Tax Payment Installments on the Rate of Property Tax Delinquency

Latin America Programs

Danilo Igliori, Ricardo Abramovay, and Sergio Castelani
Urban Evolution in São Paulo: Employment Growth and Industrial Location
(also available in Spanish)
Evolución urbana en São Paulo: Crecimiento del empleo y ubicación industrial

Martím Smolka and Ciro Biderman
Housing Informality: An Economist's Perspective on Urban Planning

Durfari Janive Velandia Naranjo and Oscar Sanora Quintero
Effects of Urban Density Regu- lation on Land Prices: The Case of Bando2 in Mexico City

PROGRAM *calendar*

Courses and Conferences

The education programs listed here are offered as open enrollment courses for diverse audiences of elected and appointed officials, policy advisers and analysts, taxation and assessing officers, planning and development practitioners, business and community leaders, scholars and advanced students, and concerned citizens.

For more information about the agenda, faculty, and registration procedures, visit the Lincoln Institute Web site at *www.lincolninst.edu/education/courses.asp.*

United States Programs

MONDAY–THURSDAY, OCTOBER 24–27
Seattle, Washington
National Community Land Trust Conference
The National CLT Academy is a joint venture of the Lincoln Institute of Land Policy and the National Community Land Trust Network, providing comprehensive training on theories and practices unique to community land trusts. Numerous courses and other programs will be presented during the national conference. For more information, contact the CLT Network at *www.cltnetwork.org.*

FRIDAY, DECEMBER 2
Boston, Massachusetts
New England Smart Growth Leadership Forum
Armando Carbonell, Lincoln Institute of Land Policy; Carl Dierker and Rosemary Monahan, U.S. Environmental Protection Agency, Boston; and David Parish, Federal Home Loan Bank of Boston

This forum brings together leaders from government agencies, nonprofit organizations, and the private sector who play a critical role in shaping growth in New England.

Latin America Programs

MONDAY–FRIDAY, NOVEMBER 7–11
Caracas, Venezuela
Management of Metropolitan Areas: The Case of Caracas
Martim Smolka, Lincoln Institute of Land Policy; and Zulma Bolivar, Mayor's Office of the Metropolitan Area and Central University of Venezuela

Topics include international experiences in the management of metropolitan areas, coordination among different levels of government, decentralization, and the impact of informal settlements.

MONDAY-FRIDAY, DECEMBER 5–9
Montevideo, Uruguay
Informal Land Markets and Regularization in Latin America
Martim Smolka, Lincoln Institute of Land Policy; and Claudio Acioly, United Nations Human Settlements Program, UN-Habitat, Nairobi, Kenya
This course will examine informality and the land tenure regularization process through the analysis of Latin American and other international cases.

Lincoln Lecture Series

The annual lecture series highlights the work of scholars and practitioners who are involved in research and education programs sponsored by the Lincoln Institute. The lectures are presented at Lincoln House, 113 Brattle Street, Cambridge, Massachusetts, beginning at 12 p.m. (lunch is provided). Consult the Lincoln Institute Web site (*www.lincolninst.edu/news/lectures.asp*) for information about other dates, speakers, and lecture topics. The programs are free, but preregistration is required at the Web site.

TUESDAY, OCTOBER 11
The Urban Gauge: Measuring the Public Interest
George Thrush, Dean, School of Architecture, Northeastern University, Boston, Massachusetts

WEDNESDAY, NOVEMBER 2
Housing Bubbles and Busts
James R. Follain, Principal, James R. Follain LLC, and Senior Fellow, Nelson A. Rockefeller Institute of Government, University of Albany, New York

THURSDAY, DECEMBER 1
Effective Practice in Funding Land Conservation for Impact
Jay Espy, Kingsbury Browne Fellow, Lincoln Institute of Land Policy, and Executive Director, Elmina B. Sewall Foundation, Brunswick, Maine

WEDNESDAY, DECEMBER 14
Property Tax Abatements and Land Value Taxation
John E. Anderson, Visiting Fellow, Lincoln Institute of Land Policy, and Baird Family Professor of Economics, University of Nebraska–Lincoln

What's New on the Web

Become a Fan on Facebook

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Enhancements at the Lincoln Institute of Land Policy's Facebook page provide easy access to exclusive content and regular updates on a wide range of issues related to land policy, including news on the use, regulation, and taxation of land.

Fans can view original short videos, share posts with friends, and learn about research and other information that is continually updated on the Lincoln Institute Web site.

A new special feature highlights publications and programs associated with the Program on Latin America and the Caribbean. This section includes access to Spanish translations of *Land Lines,* starting with the July 2011 issue, and selected books, including *Perspectivas urbanas: Temas críticos en políticas de suelo en América Latina (Urban Perspectives: Critical Land Policy Themes in Latin America)* and a series of publications collected as *Catastro e información territorial en América Latina (Cadastres and Land Use Information in Latin America).*

The recently published policy focus report, *Regularization of Informal Settlements in Latin America,* is also available in both Spanish *(Regularización de asentamientos informales en América Latina)* and Portuguese *(Regularização de Assentamentos Informais na América Latina).*

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Land Lines

OCTOBER 2011

2011–2012 Program

The Lincoln Institute's annual Program for 2011–2012 presents a comprehensive overview of the Institute's mission and its diverse programs for the new academic year. It includes department descriptions; courses, seminars, conferences, and online education programs; research, demonstration, and evaluation projects; publications and multimedia products; Web-based resources and tools; and lists of fellows and faculty.

The complete Program catalog is posted on the Lincoln Institute Web site for free downloading. To request a print copy, *contact help@lincolninst.edu.*