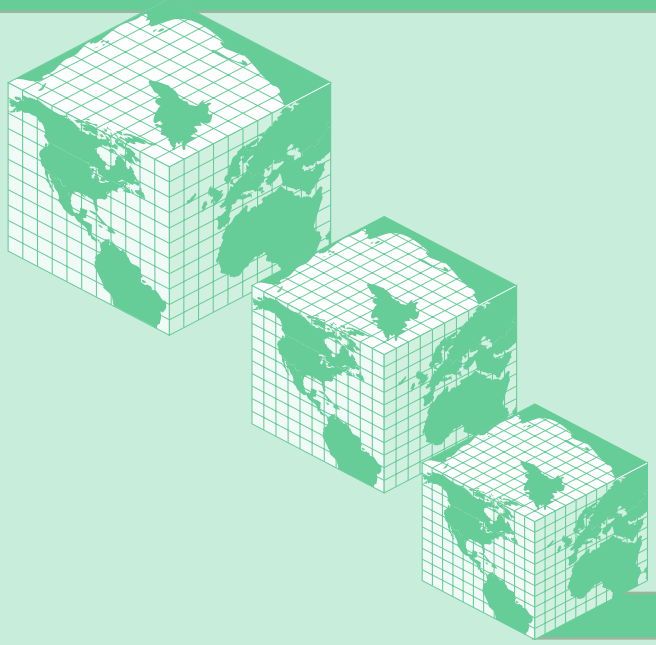
TOWARDS A COMPREHENSIVE GEOGRAPHICAL PERSPECTIVE ON URBAN SUSTAINABILITY



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I

PREFACE

About two billion of the nearly six billion people alive today dwell in urban areas. By 2050, about six billion of the world's then nine billion people will live in cities, with the greatest concentrations in cities in the so-called developing nations (Bos et al. 1994; United Nations 1993). This dramatic acceleration in urbanization of the earth's peoples—a tripling of the world's urban population over just two generations—poses daunting challenges of social and economic destitution and severe environmental degradation.

The goal of improving the social and economic conditions of an increasingly urbanized population while preserving life systems and maintaining environmental quality has become subsumed under the rubric of "urban sustainability." But sustainability is a chaotic concept, so poorly theorized and laden with so many definitions that it risks plunging into meaninglessness, at best, and becoming a catchphrase for political demagoguery, at worst. The ideal of sustainability—widely but loosely defined as meeting today's needs without compromising future generations—is used to justify and legitimate a myriad of policies and practices ranging from communal agrarian utopianism to large-scale, capital-intensive market development.[1]

By 2050, about six billion of the world's then nine billion people will live in cities

As a result of this multiplicity of meanings, the ideal of sustainability has generated a growing counter-reaction across the political spectrum. Those on the right equate sustainability with expanded government interference with market processes and view discussions about sustainability under United Nations auspices as a challenge to national sovereignty.[2] Those on the left view sustainability as a rhetorical trope legitimating the reproduction of exploitative class relations under the guise of ecological necessity.[3] The ideal of sustainability is at once being adopted wholesale and generating a move to jettison the term as incapable of transcending its suspect connotations.

Despite this conceptual and political ambiguity, both the ideal and the necessity of long-term sustainability are inescapable in the face of the scale of urbanization anticipated in the numbers cited above. Yet geographers (and others), dissuaded in part by the political cacophony surrounding the debate, have largely neglected the challenge of conceptualizing the interrelationships

among social, economic, political, and environmental processes, a challenge simultaneously posed by the scale of predicted urbanization and by the idea of sustainability.

Existing structures of knowledge creation and compartmentalization in academia exacerbate this silence. Scholars of urban processes affecting first-world cities rarely interact with scholars of third-world cities. Theories of third-world urban processes rarely inform current theorizing about first-world cities. Neither group has a strong tradition of embracing environmental or ecological concerns. Urban scholars investigating global–local linkages focus primarily within the economic sphere and neglect environmental impacts and questions of ecological sustainability. Scholars focusing on environmental processes (including researchers examining global environmental change and political ecologists) have almost completely disregarded the urban. The barriers separating these distinct areas of research—first- and third-world urban processes and environmental processes—have grown to be sturdy and quite impermeable.

Theories of third-world urban processes rarely inform current theorizing about first-world cities

At the same time, much of the popular and journalistic writing on urban sustainability has not engaged theories of society and space and has not been well grounded in current empirical knowledge of urban processes. Consequently, the popular literature on sustainable cities has had little impact on either urban geography or on thinking about global environmental change. Nor have geographers sufficiently contributed to building the conceptual framework necessary to place the popular idea of urban sustainability on a sound theoretical footing (but see Campbell 1996; Drakakis-Smith 1995, 1996, 1997; Healey and Shaw 1993; Munton 1997).

The very real challenges that unprecedented urban growth pose to social and environmental sustainability, nonetheless, remain. To begin to address these challenges, a Research Workshop, "Towards a Comprehensive Geographic Perspective on Urban Sustainability," convened at Rutgers University on June 16–20, 1998. The Workshop, sponsored and funded by the National Science Foundation, Geography and Regional Science Program, brought together eighteen geographers and urban planners from the United States, Canada, and Great Britain representing broad diversity in substantive expertise, regional specialization, life experiences, and professional seniority. Participants included specialists in urbanization and environmental processes as well as scholars with regional expertise in the United States, Europe, Asia, Africa, and Latin America.

WORKSHOP GOALS

The goals of the Research Workshop were sixfold:

1. To place urban sustainability firmly on the research agenda within geography
2. To advance geographic research on urban sustainability by establishing lines of communication among leading researchers in previously disparate realms of scholarship
3. To salvage the concept of urban sustainability by articulating a strong conceptual framework to advance understanding of the concept and its implementation
4. To challenge geographers to use the synthetic concept of sustainability to rethink the ways in which often arbitrary distinctions among disciplinary subfields affect geographic education, especially at the graduate level
5. To assess the current state of knowledge about urban sustainability
6. To develop and disseminate an agenda for research on urban sustainability that productively integrates diverse perspectives to build the knowledge base that will be needed as the world's urban population triples over the next 50 years.

The popular literature on sustainable cities has had little impact on urban geography or on global environmental change

The results of the Workshop are summarized in this report. In addition to preparing and distributing this report, the group plans to disseminate the results of the Workshop through a variety of publications, Internet postings, and other media inside and outside the field of geography.

WORKSHOP ORGANIZATION

The Workshop convened on June 16, 1998 at the Center for Urban Policy Research (CUPR) at Rutgers University in New Brunswick, New Jersey. An introductory evening session provided an opportunity for participant introductions, reviewed the rationale and overall goals for the Workshop, and established basic ground rules for the remainder of the five-day Workshop.

The schedule for the next four full days was designed to maximize interaction in small Working Groups while also providing opportunities for integration and synthesis in plenary (full group) sessions. Prior to the Workshop, participants selected one of four Working Groups (Table 1) pertaining to central but problematic and interrelated themes within the larger concept of sustainability; the Working Groups comprised participants' primary substantive and conceptual focus during the Workshop.[4] The four Working Group themes were:

1. The relationship between the economy and the environment
2. The relationship between the local and the global
3. The role of the urban and urbanization
4. Political processes, institutions, and possibilities for action

TABLE 1
Working Group Themes

The Relationship Between the Economy and the Environment
[J. Emel, R. Johns, K. Pandit, R. Schroeder]

Economic processes place demands on ecological systems, and vice versa. How should these relationships be conceptualized, measured, analyzed, and evaluated? How do transformations underway in the organization of production, the concentration of ownership, the globalization and mobility of capital, the demand for labor and technology, inter alia, affect environmental or ecological systems, and vice versa? What are the spatial and temporal points of congruence and/or divergence between economic and ecological processes? Is sustainability compatible with existing economic systems (i.e., the greening of industry), or does it require more fundamental change?

The Relationship Between the Local and the Global
[S. Bagchi-Sen, R. Cline-Cole, M. Douglass, V. Lawson, E. Sheppard]

Spatial disjunctures between economic and ecological processes identified above present a fundamental challenge to sustainability. Global economic decisions may have locally specific ecological consequences, while local economic activities may have global ecological impacts. The spatial scale of externalities is linked to levels of technological complexity, resource use, institutional capacity, poverty and wealth, and multiple other factors. The complex spatial variability of causes and effects suggests the importance of problematizing, and then clarifying, the conception, construction, and use of scale in urban sustainability.

The Role of the Urban and of Urbanization
[S. Hanson, M. Leaf, R. Leichenko, S. Marston]

What are the consequences of "the urban" for an understanding of urban sustainability? On the one hand, United Nations projections of six billion people residing in urban places by the year 2050 forcefully suggest the importance of comprehending urbanization in discussions of sustainability. On the other hand, the magnitude of projected new urbanization presents an opportunity for creation of sustainable urban settlements. Underlying these considerations is the recognition that the urban is not simply a container in which development—sustainable or otherwise—occurs. How is the process of urbanization linked to the process of development and the process of sustainability?

Political Processes, Institutions, and Possibilities for Action
[J. DeFilippis, R. Lake, T. McGee, S. Pincetl, M. Waterstone]

Institutional and political structures intersect with all of the above factors to delineate possibilities for action. How do existing institutional arrangements and decision-making processes constrain movement toward sustainability? What new political arrangements will help to prioritize among economic and environmental processes, transcend spatial discontinuities, and accommodate large-scale urbanization? Can a single institutional design both support a reflexive debate on the meaning of sustainability and provide a structure for its implementation?

Through a combination of plenary sessions and intensive Working Group meetings, the next four full days of the Workshop were devoted to discussion and drafting two principal documents:

1. An assessment of the state of knowledge on urban sustainability, organized around the four Working Group themes
2. A research agenda and dissemination plan delineating key research questions and identifying a process for mobilizing the geographic community to respond to the unprecedented challenge looming in the next fifty years

These two written documents are closely related. The assessment of current knowledge helps to identify knowledge gaps that in turn provide the structure and direction for the research agenda. Discussing and producing the knowledge assessment occupied the first two full days of the Workshop. Discussing and producing the research agenda and dissemination plan occupied the third and fourth days.[5]

LESSONS LEARNED: ORGANIZATIONAL SUGGESTIONS FOR FUTURE NSF WORKSHOPS

In the debriefing session held on the last day of the Workshop, participants offered the following comments and suggestions for future NSF Workshops:

- The Working Group structure facilitated productive interaction. It was useful that each Group had both a procedural charge, i.e., to produce a written document by the end of the Workshop, and a substantive focus.
- Some participants would have liked more time for cross-group (plenary) interaction than was allowed in the schedule.
- Some would have preferred to shift between Working Groups. The Workshop co-chairs discouraged this to expedite group discussion, consensus building, and report writing, and very little shifting occurred.
- Workshop participants should include non-academics. For this Workshop, participants from the corporate and non-profit sectors as well as grassroots organizers and activists would have added valuable perspectives.

II

RECONCEPTUALIZING URBAN SUSTAINABILITY

In developing a geographic conceptualization of urban sustainability, we begin by outlining our conceptual understanding of sustainability. We then engage the question of geographic scale, outlining an approach to local and global processes in the context of urban sustainability. We next consider the intersection of processes of urbanization with the environment and the economy. The final section focuses on political and institutional structures for implementing change.

Contradictory definitions of sustainability bound a continuum that embraces a multiplicity of perspectives

WHAT IS SUSTAINABILITY?

The scholarly and popular literatures are rife with competing and often contradictory definitions of urban sustainability. Varying definitions tend to operate or function at different spatial scales and to reflect the perspectives of individuals or groups occupying different social, economic, political and/or spatial positions. These perspectives differ primarily in terms of their implicit assumptions regarding *what* is to be sustained, variously invoking biological systems, development trajectories, investment profitability, power relationships, levels of material consumption, and cultural "life styles," inter alia (see, for example, Mitlin and Satterthwaite 1996).

Concepts of urban sustainability marking the polar extremes include:

1. A global-scale, big-players' version in which sustainability is synonymous with *sustainable development* and its management, embracing the agenda of the market, top-down planning, and scientific, technological, and/or design-based solutions (e.g., Pugh 1996); and
2. A local-scale version in which sustainability is synonymous with *sustainable livelihoods* and in which local context can lead to different and locally contingent perspectives on the meaning of and conditions for sustainability and the means to achieve it (e.g., Sachs 1993; Douglass and Zoghlin 1994; Drakakis-Smith 1995).

These antagonistic and contradictory definitions of sustainability bound a continuum that embraces a multiplicity of perspectives. The absence of conceptual consensus in part explains the lack of clarity regarding sustainability within the scholarly and popular literatures, as well as the susceptibility of the concept to political or ideological co-optation.

These alternative definitions subsume broad differences in standpoint and perspectives in regard to the meaning and implications of sustainability as well as the means to achieve it. From the perspective of places where development dynamics have undermined livelihoods, development is counter to sustainability. In these contexts, "sustainable development" is an oxymoron, a target of opposition and a source of struggle to overturn power relations imposing development from above. From the perspective of materially privileged places, conversely, development is synonymous with material well-being based on high levels of consumption. Here sustainability connotes conservation, preservation, and/or protection of material privileges and the power relations through which they are produced and reproduced (that is, sustained). From a third perspective, that of actors and institutions whose interests are advanced through processes operating at increasingly global scales, sustainability entails the weakening or elimination of local barriers to accelerating globalization.

In light of these countervailing definitions based on conflicting economic and political agendas, we propose a definition of sustainability that focuses on sustaining lives and livelihoods rather than on the question of sustaining development. By "sustainable livelihoods," we refer to processes of social and ecological reproduction situated within diverse spatial contexts. We understand processes of social and ecological reproduction to be non-linear, indeterminate, contextually specific, and attainable through multiple pathways.[6]

Within the terms of this definition, sustainability:

1. entails necessarily flexible and ongoing processes rather than a fixed and certain outcome;
2. transcends the conventional dualisms of urban versus rural, local versus global, and economy versus environment; and
3. supports the possibility of diversity, difference, and local contingency rather than the imposition of global homogeneity.

Across the multiplicity of concrete situations, the sustainability of local livelihood practices articulates with global-scale socioeconomic and bio-geochemical systems in complex, indeterminate, and poorly understood ways. Recent ecological and social theory proposes that socio-ecological processes comprise non-linear dynamic systems that do not tend to equilibrium.

Local challenges to sustainable development, as well as global challenges to sustainable livelihoods, can have far-reaching effects at both larger and smaller scales and in distant locations. The indeterminacy of complex interactions across multiple scales argues convincingly that sustainability cannot be comprehended as a function of managed solutions, definitive scenarios, or predicted outcomes.

Sustainability cannot be comprehended as a function of managed solutions, definitive scenarios, or predicted outcomes

BASIC PREMISES OF A GEOGRAPHIC CONCEPTUALIZATION OF URBAN SUSTAINABILITY

Intensive discussion over four days of the Workshop revealed several basic premises that encapsulate our approach to a geographic understanding of urban sustainability and inform the research agenda summarized in the latter section of this report:

1. Sustainability is a process, not a fixed or predetermined outcome.
2. Our concept of sustainability is consistent with robustness and flexibility in problem solving within localities, rather than management toward certain, preconceived outcomes.
3. This entails a shift in thinking about sustainability from achieving set standards and single "solutions" to empowerment for local problem solving based on diverse knowledges.
4. The role of local knowledge and practices is vital; there is much to learn from alternative ways of addressing sustainability in different contexts.
5. Urban sustainability is an integral part of, and not distinct from, sustainability in general. This implies examining the process of urbanization within the context of dynamic and complex social, economic, political, and ecological processes producing sustainable or unsustainable urban landscapes.
6. Urban (or any other) places are not containers of sustainable or unsustainable processes but rather are produced through processes that may or may not be sustainable.
7. Urban sustainability does not connote urban self-containment, isolation, or insulation from global processes but rather the development of local–global relationships conducive to sustainability.
8. Sustainability is fundamentally a political rather than a technological or design problem, in the sense that the greatest barrier to sustainability lies in the absence of institutional designs for defining and implementing sustainable practices in local contexts.

Sustainability is a process, not a fixed or predetermined outcome

A comprehensive geographic perspective on urban sustainability reflecting these basic premises entails focusing on process rather than outcomes; on geographic context (i.e., the place-specific aspect of indigenous knowledges) rather than on universal recommendations; on contingency and specificity (both across places and within places over time) rather than on homogeneous solutions; on flows and linkages across space; on flexibility rather than predetermined outcomes; and on building local capacity for managing unintended consequences, deflecting external shocks, and responding to global pressures. Expanding the capacity of communities (at various scales) to support sustainable livelihoods

is thus more important, and more consistent with principles of long-term sustainability, than is the imposition of top-down solutions for meeting externally defined basic needs through market-led consumption processes.

III

BACKGROUND: CONCEPTS OF SCALE, URBANIZATION, ENVIRONMENT–ECONOMY INTERACTION, AND POLITICAL STRUCTURES

Approaching sustainability in terms of sustainable livelihoods highlights the conceptual centrality of geographic scale

The conceptual premises outlined above derive from consideration of a wide-ranging set of themes central to an understanding of urban sustainability. These themes informed the focus of the four Working Groups (summarized earlier in Table 1). The Working Group reports are summarized here, as informed by the discussion and comments of the full Workshop in plenary session. We first address questions of scale, focusing primarily on an approach to understanding place in the context of sustainability. We then turn to urbanization and the special challenge to sustainability posed by large urban places. Next, we consider interactions between economy and environment, and conclude this section with a discussion of political and institutional structures for urban sustainability.

CONCEPTS OF SCALE, THE LOCAL, AND THE GLOBAL

Approaching sustainability in terms of sustainable livelihoods highlights the conceptual centrality of geographic scale. Livelihoods are constituted in local places where sustainable and unsustainable practices are experienced and where agency is rooted. But while sustainability is embedded in localities, this understanding necessitates clarification of the idea of locality and of local–global relations.

Conceptualizing locality requires transcending the dualism of local and global. The concept of locality holds in tension its dual nature as both (1) a node in networks of flows and interactions; and (2) a place, a site of everyday life. A locality includes the state, the economy, and civil society, mediated by and filtered through processes of regulation imposed by political practices, constellations of power, particular histories, and cultural norms and practices, all operating at a variety of geographic scales. How these elements come together "in" a particular place is in part a product

Viewing the locality as place entails a conceptual shift to a set of processes and networks operating at finer geographic scales

of how that locality, viewed as a system of practices, articulates with intersecting practices and processes (typically in uneven fashion) operating at larger and smaller scales or at the same scale elsewhere.

Each locality, then, is a node in a global network; in this sense, every locality is an open system with a reach that is potentially global (Massey 1991). Networks of flows in and out of a place include people (labor), goods, money, information, and ideas (including culture, technology, and the like). Viewed in this way, it is impossible to separate the local from the global.

While this concept of locality as integral to networks of flows emphasizes process, the repetition and replication of local practices endow localities with (temporarily) stabilized forms.[7] In this sense, each locality is also a place with a particular history, geography, culture, and set of power relations, all of which intersect with ideas of sustainability. Viewing the locality as place entails a conceptual shift to a set of processes and networks operating at finer geographic scales including the household, the neighborhood, and the district. These concepts of locality—as a node within multiple networks and as a place—need to be held in tension in any work on urban sustainability.

Traditional Concepts of Locality

Mainstream development paradigms, including neo-liberal, structuralist, and techno-environmental views, tend to privilege reductionist approaches to locality, exhibiting the following characteristics:

- *A tendency to homogenize localities as an abstract concept,* through a characteristic set of assumptions embedded in each approach, rather than conceiving of localities as highly variegated. For example, the neo-liberal perspective assumes that markets operate similarly and increase efficiency, growth (output), and profitability across places. Further, markets are assumed to be the central mechanism for achieving development goals such as increasing and distributing wealth.
- *A tendency to ascribe either no agency or unlimited agency to localities.* The former view holds that local development must be directed by non-local institutions because local places are unable either to facilitate development or to sustain environments. Ascribing unlimited agency to localities occurs in models of local self-sufficiency and in cases where "failures" of development and/or of environmental or social sustainability agendas are attributed, for example, to local inadequacies such as corruption, insufficient governance capacity, or lack of local innovation.
- *A tendency to characterize southern localities as "flawed"* by judging and evaluating southern localities on northern terms. An example is the pervasive tendency among neo-Malthusian and demographic transition theorists to attribute global problems of poverty and environmental

degradation to problems stemming from "too many people," rather than from northern consumption levels or from complex combinations of processes that exhibit enormous spatial variation.

Reconceptualizing Locality

Conceptualizing sustainable lives and livelihoods entails a different approach to scale than the traditional approaches summarized above. A reconceptualization of locality contributes the following:

- We take seriously the differentiation among and within localities. The concept of sustainable lives and livelihoods, constructed through localities, is more sensitive to diverse contexts than are the prevailing paradigms of (sustainable) development, which tend to flatten diversity across localities. This means breaking down stereotypes, avoiding an idealized concept of locality, and rejecting the idea of universal solutions to local problems. This also means recognizing localities as sources of diverse knowledges and practices that must be drawn upon in addressing questions of sustainability (Cline-Cole 1998).
- Locality is an inclusive construct that invites creative tension among a variety of levels of analysis. Our concept of locality attends to the variety of spatial scales at which the pursuit of local livelihoods is simultaneously shaped—from households to transnational financial networks. "Green" practices can have unexpected negative consequences in distant locations. For example, many levels of analysis need to be considered in evaluating the relative merits of recycling wastes in situ versus exporting wastes.
- A relational concept of locality allows us to acknowledge the ways in which local "failures" are a product of intersecting power relations over a variety of geographic scales, rather than simply a failure of local capacity and will.
- The emphasis on flows, linkages, and networks highlights the tensions introduced by jurisdictional boundaries that usually articulate poorly with networks. For example, resistance to neighborhood destruction or displacement that is addressed to local authorities or decision-makers ignores the fact that localities are situated within national, regional, and global hierarchies. Forces contributing to neighborhood displacement range across geographic scales through complex networks of processes and power relations.
- Localities must be recognized as sites of contestation and struggle as well as of cooperation and co-optation. Our concept of locality considers regulation and governance not simply as national or supra-national projects but also as processes that include grassroots groups, NGOs, community-based organizations, and the like.
- Possibilities for sustainable livelihoods depend on the societal (cultural and political) context in particular localities, and not only on economic and ecological conditions. Sustainability includes social sustainability (e.g., the changing ethnic diversity in cities is likely to be of particular importance in shaping social sustainability). In addition,

the sustainability agenda must engage questions of meaning, sense of place, social capital, and civic culture.

- A broader conceptualization of sustainability and scale recognizes the central role of households in the pursuit of sustainable livelihoods in localities. Each household member is incorporated into circuits of production and consumption in particular ways. Households display complex strategies for investing in members—with potentially profound implications for gender relations within households—such that households may sustain economies under structural adjustment, for example, rather than economies sustaining households. The role of the household, and of individual household members, in relation to larger structures varies enormously across localities in the Americas, Africa, Europe, and Asia (Schroeder 1993, 1997).

URBANIZATION AND URBAN FORM

Understanding *urban* sustainability requires engaging with the particular kind of locality associated with urbanization and the urban. A focus on urban sustainability implies that urban localities pose particular challenges and opportunities for achieving sustainable livelihoods.

The role of the household in relation to larger structures varies enormously across localities in the Americas, Africa, Europe, and Asia

Urban sustainability is an integral part of global sustainability and entails examining urbanization within the context of dynamic and complex social, economic, political, and ecological processes producing urban growth in sustainable or unsustainable ways. Urbanization entails not only the movement of population from rural to urban areas but also the outcomes of changing processes of production, consumption, and social reproduction.

As cities in the developed world have increased the share of service activities in their economic base, previously established industrial activities have often been exported, in some cases to the periphery of the urban region and in other cases to locations in the developing world. This spatial shift in secondary sector activities has had implications for both urban and rural locations as well as for developed and developing locations.

Changing levels of consumption throughout the world also significantly shape urbanization in complex and geographically uneven ways. Discussion of sustainability necessitates coming to terms with the effect of increasing levels of consumption on stimulating new urban forms as well as changing landscapes within urban places. Rural areas throughout the world are becoming "urban" in the sense of mimicking occupations, income, consumption, and lifestyles characteristic of urban areas (Kelly 1999; McGee 1994). It is at the level of the household and the firm where new modes of consumption are played out.

New or newly expressed processes of urbanization are manifested in new urban forms. The sheer variety of urban forms is increasing in both first- and third-world contexts, with the advent

of the mega-city, the extended urban region, the post-industrial city, and other forms.[8]

Cities of twenty million are fundamentally different from the smaller urban agglomerations of the past, not simply in terms of population size but also in their generative processes, the scale of their ecological impacts, the administrative and organizational challenges they pose, the possibilities for internal isolation and peripheralization, and both the opportunities for and barriers to interaction across vast urban regions (see Fuchs et al. 1994; Lo and Yeung 1998; McGee and Robinson 1995; Rakodi 1997).

Urbanization on a vast scale typically is associated with overwhelmingly negative environmental impacts. But large dense urban agglomerations also offer the opportunity to achieve scale economies in the provision of services such as water, sanitation, electricity, and transportation. Too little is known about the comparative opportunities and barriers to establishing sustainable livelihoods in diverse urban forms and settlement densities.

It is at the level of the household and the firm where new modes of consumption are played out

Both the causes and the effects of urbanization are embedded within the multi-scale processes that define and produce localities. Some conventional notions of urban sustainability (e.g., the "eco-city" approach) view the city as a self-contained, bounded territorial unit and the sustainable city as one that is self-sufficient and self-reliant. This concept of sustainable urbanization is an oxymoron, however, because a city cannot exist without its hinterland, and that hinterland can encompass the globe. Ignoring interdependencies among localities and between a locality and its hinterland overlooks questions about whether one locality is becoming "more sustainable" by making other places less sustainable, e.g., by exporting waste or by maintaining levels of material consumption necessitating degenerative production in other locations (Lake 2000).

ECONOMY AND ENVIRONMENT

Economy and environment are often posed as encompassing antagonistic or mutually exclusive values and objectives. Our conception of urban sustainability, in contrast, necessitates both a broader and a more closely integrated understanding of the economy and the environment. We consider, first, the broader categories of economy and environment implicated in urban sustainability and then examine the interaction of economic and ecological processes.

Cities of twenty million are fundamentally different from the smaller urban agglomerations of the past

Long-term sustainability of economic systems necessitates a broader definition of economic processes than is encompassed in conventional definitions, involving an integration of economic with other societal dimensions of sustainability. Economic objectives are defined not only in terms of high and/or increasing economic growth rates but also in terms of maintaining social capital, achieving distributive and procedural justice, and expanding democratic

TABLE 2

Goals of Economic and Ecological Sustainability

Economic Sustainability	*Ecological Sustainability*
Full employment	Maintaining biodiversity
Economic stability	Maintaining life-support systems
"Reasonable" economic growth	Conservating the resource base
Elimination of poverty	Reduced reliance on non-renewables
Labor force replenishment and skilling	Conserving renewables
Attainment of labor standards	Creating a secondary materials economy
Expanding social capital	Eliminating health risks
Distributive and procedural justice	Avoiding creation of new risks
Democratic participation and accountability	Protecting household and workplace safety

A key issue in the relationship between economic and ecological sustainability is temporal scale

participation and accountability. These additional elements are essential components of economic sustainability to the considerable extent that their absence undermines its attainment.

The goal of ecological sustainability encompasses the conventional elements of maintaining biodiversity and life support systems and reducing reliance on non-renewable resources. It also includes protection of public health and safety, both at the societal level (through reduction of hazardous wastes and pesticides, and so on), and also at the level of the household and the workplace. These expanded conceptions of economic and ecological sustainability are summarized in Table 2.

A large number and variety of actors engage in policymaking that affects economic and ecological sustainability at different spatial scales (Table 3). As a consequence, there is not one but many different knowledges about processes related to economic and ecological sustainability, held by different groups and organizations. This diversity implies a fragmentation of, and contestation among, knowledges at all scales. The compartmentalization of knowledge is only partial, however, as various groups work across scales to achieve their ends (Cline-Cole 1998).

The duality between economic and ecological sustainability is artificial. A key issue in the relationship between economic and ecological sustainability is temporal scale. While objectives considered "economic" may appear to conflict with "ecological" goals in the short term, they are likely to be co-dependent when viewed over the long term. Focusing more specifically on *urban* sustainability, there is a dialectical relationship between processes of urbanization and the environment–economy nexus. Characteristics of urban places such as high population density, energy consump-

tion, and agglomeration and scale economies have direct implications for the economy–environment relationship, and vice versa.

The close interrelationships linking economy and environment challenge many long-held assumptions:

- *The assumption that livelihoods can be sustained through market processes.* A more narrowly construed version of this assumption is that markets (either independently or through regulation) can encourage sustainable practices of natural resource exploitation by internalizing externalities. Neoclassical assumptions characterize negative externalities as examples of market failure and, therefore, redeemable within the scope of market processes. In this view, it is economically rational for producers to maximize negative externalities (since socialized costs need not be compensated by the producer). A fundamental structural challenge to sustainable livelihoods arises, however, if externalizing costs is not only rational but necessary for current markets to operate, as appears to be the case given the increasingly rigorous competition of capital under conditions of globalization. The conclusion to draw from this reexamination of neoclassical assumptions is that market processes are incompatible with the goal of sustainable livelihoods.

- *The assumption that scarcity (and the search for marginal advantage) leads to environmentally sustainable innovations.* This is a variation on the conventional assumption that markets drive technological innovations conducive to sustainability. There is strong evidence, however, (Makhijani and Saleska 1999; Shiva 1992; Tenner 1997) that many technological innovations prompted by problems with existing production processes (and related problems of overcapacity) are actually or potentially more ecologically harmful than the technologies they replace. One example is the field of biotechnology, which may have some positive effects but which also poses serious ecological, social, and ethical problems (Krimsky and Wrubel 1996; Rissler and Mellon 1996). The problem is exacerbated to the extent that the spatial and temporal effects of new technologies are quite diffuse and improperly understood.

- *The assumption that capital mobility requires environmental deregulation.* The dependence of localities on inward investment, and consequent fears of capital flight, often underlie arguments for reduction or elimination of environmental regulations and explain the apparent willingness of impoverished localities to accept environmental risks and burdens as they seek to sustain local livelihoods. Localities' dependence on mobile capital, and the inequality inherent in that dependence, however, can be fundamentally reduced through development of alternative frameworks of ownership and control that replace profitability with sustainability as the motivating principle.

- *The assumption that international trade agreements are conducive to international environmental standards.* International trade agreements such as NAFTA, designed to eliminate barriers to the global circulation of capital, are often justified on the grounds that they will support establishment and enforcement of uniform environmental standards.

Traditional analysis of economic and environmental effects tends to ignore issues of household composition and the gender division of labor

TABLE 3

Location of Knowledge about Economic and Ecological Sustainability

Scale	*Economic Sustainability*	*Ecological Sustainability*
GLOBAL		
	International financial institutions	Climate-change researchers
	Supranational organizations	Global environmental NGOs
	Multinational corporations	
	International trade secretariats	
NATIONAL/ REGIONAL		
	National governments	Regulatory agencies
	Trade associations	Environmental organizations
	National corporations	Regional planning agencies
	Trade unions	
URBAN/ LOCAL		
	Local government	Environmental justice advocates
	Community-based organizations	Land trusts/preservationists
	Neighborhood associations	Sustainable agriculture organizations
	Households	Households

Quite aside from difficulties in implementation and enforcement, which are formidable in their own right, trade agreements do not fundamentally alter the structure of production or consumption and, like most environmental regulations, address symptoms of environmental degradation rather than underlying causes. By expanding the spatial scale of production and consumption, such agreements indeed expand the geographic area subject to environmental damage.

- *The assumption that individuals are fungible within economic and ecological systems.* Traditional analysis of economic and environmental effects tends to ignore issues of household composition and the gender division of labor. The focus on sustainable livelihoods highlights the household as a place where economic and ecological processes are intimately related. Household members can support or subvert sustainability as they participate in circuits of production and consumption. The household as a site of mutual dependence can also fracture sustainable practices under particular conditions. For example, transformations in global systems (e.g., colonialism, globalization of capital, and so forth) can bring about changes in gender divisions of labor within households, which in turn can disrupt sustainable agriculture and livelihoods. The household is important for historical and contextual analysis in order to understand how prior sustainable systems have been maintained or damaged by external shocks (see, for example, Carney 1996; Gibson-Graham 1996; Rocheleau et al. 1996).

POLITICAL AND INSTITUTIONAL STRUCTURES

The greatest barriers to defining and achieving urban sustainability are political, to the extent that attaining sustainable livelihoods necessitates a realignment of entrenched interests, outcomes, and power relationships. The political character of sustainability is directly apparent (1) in constructing and delineating the idea of sustainability as a problem and as a desired objective; (2) in identifying and characterizing the origins or causes of problems that undermine sustainability (i.e., in the reproduction of existing, unsustainable, structures and practices); and (3) in delineating solutions conducive to sustainability. That is, the definition of the problem, its causes, and possible outcomes are all inherently and inescapably political projects.

The greatest barriers to defining and achieving urban sustainability are political

As suggested by the plethora of definitions of sustainability summarized in the Preface to this report, various constellations of power define the term in ways that serve their own interests (as David Harvey suggests, no one can be "against" sustainability). As a consequence, questions of sustainability require an inquiry into the structure and organization of power relationships, and their institutional expression in forms of governance, where governance is defined in the broadest institutional terms. Changes in the structure of governance are a prerequisite for moving toward sustainability.[9]

The prevailing discourse is dominated by biophysical and technological approaches that assume, for example, that sustainability primarily refers to ecological systems that can be sustained via engineering solutions. Such approaches contain implicit, and sometimes explicit, assumptions that lead directly to severely constrained problem definitions and agendas that presuppose outcomes and entail commitments to narrowly construed forms of resolution. These have been globally articulated under such rubrics as modernization and development, encompassing an ever-expanding proportion of the earth's population and land area within the sphere of commodification and market processes. Defining sustainability as a merely technical problem, however, obscures the social, economic, and political arrangements underlying existing unsustainable practices, and assumes that sustainability is achievable while leaving intact those underlying relationships (Lake 1996).

Changes in the structure of governance are a prerequisite for moving toward sustainability

Thus, interest shifts from identifying "best practices" for replication in other locations to understanding the conditions that foster the adoption of sustainable practices. If the barriers to sustainability are primarily political rather than technical, then research is needed to uncover the reasons that cities are unwilling (or unable) to implement sustainable practices. This in turn implies a focus (a) on the social and political conditions under which individuals in urban places (of various descriptions) can democratically participate in decisions about sustaining their livelihoods;

and (b) on the social and political consequences of realizing the condition of urban sustainability. We argue, in short, that issues of sustainability inhere in the social, political, economic, and cultural relationships fundamental to the organization of society. These structures, in turn, delineate power relationships that emerge as, and are articulated through, institutions of governance.

Institutions of governance are socially constructed and, therefore, subject to transformation. We conceive of governance as a set of institutions that may comprise varying configurations of actors situated, for example, in the state, the market, and/or civil society. Institutions are composed of sets of rules, which may be formal or informal, codified or implicit.[10] These rules define institutions in terms of constituent actors, the conditions for their inclusion, their reach or authority, the states of the world they can affect (i.e., their jurisdiction), the flow of information, the mechanisms through which decisions are produced and/or overturned, and the distribution of end results. Such governance institutions are dynamic (i.e., changing and changeable), instrumental, context dependent, hierarchical, and overlapping (Commons 1957; Ostrom 1986, 1990; Wantrup 1970; Waterstone 1996).[11]

Change in the direction of sustainability may involve the introduction of new institutional actors or change in the boundaries, scope, and jurisdiction of existing institutions

Different configurations of these multiple, interacting institutions produce the conditions of everyday life. Among the myriad examples of institutional actors operating at various spatial scales are: international political organizations (the United Nations, WTO, NATO); global financial institutions (World Bank, IMF); global, national, and local corporations and markets; global NGOs; national, state or provincial, and local governments; inter-city networks (associations of governments, national chambers of commerce, etc.); local, community, and grassroots organizations; and households.

As summarized above, each of these institutions is constituted by a set of rules defining its constituent actors, boundaries, scope, authority, jurisdiction, decision process, and outcomes. Politics is the process of contestation over delineation of those rules: in short, who governs, how, where, for whom, and with what outcomes. The nature of these rules determines the extent to which outcomes are conducive to sustainable livelihoods. Change in the direction of sustainability may involve the introduction of new institutional actors or change in the boundaries, scope, jurisdiction, and so on, of existing institutions.

IV

RESEARCH AGENDA

The geographic conceptualization of sustainability outlined above raises an extensive list of issues needing clarification, development, or resolution. These issues define a rich agenda for research in support of a transition to sustainable livelihoods. We first outline a broad approach to structuring research on sustainable urban livelihoods and then identify specific elements within a research agenda.

APPROACH TO RESEARCH

Research should be designed around an extensive program of comparative case studies, focusing on long-term analysis of human-environment dynamics at selected sites in different parts of the world. Such case studies should encompass a variety of geographic scales. An extensive program of case study research should strive to build a knowledge base that contributes to theoretical and practical understandings of challenges to and opportunities for urban sustainability. This entails examining cases where sustainability is being undermined, either by local practices or by external pressures, and those where sustainability is being reinforced. Selection of research sites should take into account their utility for exploring and challenging different theoretical propositions about possibilities for, and barriers to, livelihood sustainability. Working from analysis of events and processes occurring at these sites, research should pursue the consequences of local events and processes for the sustainability of livelihoods at the local scale as well as in other sites (at different scales) affected by local practices. The research objective is less to identify "model" practices of sustainability to be transported to other sites but rather to identify processes and conditions through which sustainability is more or less likely to be attained.

Localities selected as case studies should correspond to the following criteria:

1. Select localities where livelihoods are at risk or are being sustained.
2. Select localities where different outcomes have been achieved in the face of similar challenges to livelihood sustainability.
3. Select localities that differ in economic structure (e.g., agricultural, extractive, manufacturing, or service economies), level and/or form of urbanization, social and cultural practices, exposure to environmental risks and hazards, and political and institutional structures.

In both conception and execution, research should be collaborative, incorporating researchers with different expertise and located in the different sites. Research should also be inclusive and participatory, incorporating local practitioners (and their local knowledge) as full partners. Consistent with the normative goal of seeking to promote sustainable livelihoods, research should contribute to capacity building and empowerment in localities constituting the comparative case studies. Additional points of leverage, from which pressure for change can be effective, should be sought at all case study sites, recognizing that local problems often may best be addressed by action from a distance.

RESEARCH QUESTIONS

The research questions below are organized in terms of the four broad themes discussed in the background statement. Reflecting the multiple close relationships between and among these themes, categorization of research questions in many instances is quite arbitrary. This list is meant to be suggestive rather than exhaustive.

Geographic Scale, the Local, and the Global

1. What is the relationship between sustainability and the flows (of population, capital, resources, information, etc.) linking a locality to other localities and to other geographic scales? Is there a relationship between the length and intensity of flows and sustainability?
2. How do local perceptions of scale interdependencies support or undermine sustainability?
3. How are the flows connecting localities to other scales mediated by technology and regulation and how does this, in turn, affect sustainability?
4. How can territorially bounded localities address transborder economic and environmental systems operating at larger spatial scales?
5. How does the social, political, economic, and cultural history of a locality affect sustainability?
6. How are sense of place, stocks of social capital, and civic culture related both to geographic mobility and to sustainability? How do these social and cultural resources relate to willingness to invest in a place, as well as to change local institutions and modes of behavior?

Urbanization and Urban Form

1. How does the form and density of settlement patterns affect processes of sustainability? How does this relationship vary in different contexts, keeping in mind the multiscale concept of locality outlined above?
2. What are the economic and environmental causes and impacts of increased levels of production and consumption across a broad spectrum of human settlement types?

3. How are the material environmental impacts of urbanization mediated by social relations? For example, although we can measure the amount of pollution generated by a population on its surrounding air shed, we still need to understand the particular socio-cultural practices that produce that pollution. How are the environmental impacts of urbanization embedded within a set of local practices shaped by the economy, culture, history, and geography of a city, inter alia?
4. How is sustainability affected at the level of the household and the community? How is sustainability influenced by gender relations within households, by livelihood strategies of households, and by changes in household composition due to urbanization and selective migration? How is sustainability influenced by the changing position of poor or other marginalized segments of households and of communities under conditions of rapid urbanization?

Economy and Environment

1. If attention is to shift from sustainable development to sustainable livelihoods, how are livelihoods conceptualized, measured, analyzed, and assessed? How are livelihoods differentially constructed at the level of the household, the locality, and larger spatial scales, and how do these differences affect sustainability? What forms and conditions of livelihood are more or less conducive to sustainability?
2. What are the structural impediments to, and opportunities for, markets to foster sustainable livelihoods?
3. What is the effect on sustainability of the increasing scope of market institutions (e.g., through privatization)? How does privatization of formerly public functions affect the economic and ecological systems in a locality?
4. What are the possibilities and limits of the "greening of industry" as a route to sustainability, and to what extent (and under what conditions) does this strategy become a substitute for more far-reaching structural change?
5. To what extent, and under what conditions, have/can consumer-led campaigns (i.e., for ecologically and socially sound goods, green labeling, certification of forestry products, etc.) alter patterns of consumption and/or production, and does such change contribute to sustainable livelihoods?

Politics and Institutions

1. What are the consequences for sustainability of currently existing institutional rules and relationships, operating across and within a broad range of context- and issue-specific cases and localities?
2. How are the systemic changes underway in the form of economic restructuring, global environmental change, accelerating urbanization, and scale shifts in governance structures (e.g., devolution, deregulation, privatization, etc.) introducing *changes* in institutional rules and relationships, and what are the consequences for sustainability of

these systemic changes, in a broad range of context- and issue-specific cases and localities?

3. How do institutional rules and relationships need to change to facilitate a transition toward greater sustainability, in a broad range of context- and issue-specific cases and localities? What new categories of actors, with what scope, authority, and decision rules, are needed to facilitate attainment of sustainable livelihoods in various contexts?

4. What institutional rules promote greater local control over local ecological processes and conditions? Under what circumstances can local actors and institutions enhance their ability to change local practices, or to change practices by other actors, toward greater sustainability?

In addition to, and intersecting with, the above substantive issues, urban sustainability research should focus on the following:

1. ***Concept development:*** research refining the conceptual understanding of sustainability

2. ***Methodological development:*** research developing and improving tools for analyzing sustainability

3. ***Strategic usefulness:*** research aimed at refining understanding of how analysis of sustainability can be targeted in ways that are most conducive to accomplishing change

4. ***Uses of knowledge:*** research designed to uncover how knowledge on sustainability is used selectively by actors in varying contexts

5. ***Implementation:*** research on how change can most effectively be achieved

NOTES

1. An Internet search on "Sustainable Development" produces thousands of Web sites including grassroots organizations (e.g., the Sustainable Communities Network, www.sustainable.org), international corporations (the World Business Council for Sustainable Development, www.wbcsd.ch), U.S. government agencies (e.g., the U.S. Department of Energy's Center of Excellence for Sustainable Development, www.sustainable.doe.gov), the United Nations Commission on Sustainable Development (www.un.org/esa/sustdev), and the World Bank (www-esd.worldbank.org/). A new journal, *Sustainable Communities Review*, began publishing in 1997.

2. According to the Competitive Enterprise Institute (www.cei.org), "The pursuit of 'sustainable development' through the expansion of regulatory authority and international bureaucracies will inevitably lead to both economic and environmental failure. . . . True 'sustainable development' can only come from a reliance upon the market institutions of private property, voluntary exchange, and rule of law."

3. In David Harvey's view, "it is very hard to be in favor of 'unsustainable' practices, so the term sticks as positive reinforcement of policies

and politics by giving them an aura of being environmentally sensitive. The general drift of the term's use . . . situates it against the background of sustaining a particular set of social relations by way of a particular set of ecological projects" (Harvey 1996, 148).

4. The Working Group themes were originally suggested in part by comments presented by Andrew E.G. Jonas in a panel discussion on "The Local Consequences of Changing Environmental Policy" at the Annual Meeting of the Association of American Geographers, Boston, MA, March 1998.

5. On the afternoon of Friday, June 19, the group visited the office of the Regional Plan Association in New York City and met with RPA Executive Director Robert Yaro. An extended discussion of RPA's recently released regional plan for the tri-state NY-NJ-CT metropolitan region provided an opportunity to test the group's emerging conceptual framework against the political, economic, and social specificities of a concrete case.

6. We recognize the anthropocentric character of a formulation that apparently prioritizes the construction of sustainable livelihoods over, say, sustainable ecosystems. We believe, however, that sustainable livelihoods presuppose sustainable ecosystems; thus, our formulation emphasizes systems interaction.

7. The time scale within which localities appear as stabilized forms is highly variable.

8. But note the problematic nature of definitions of "consumption" from ecological and economic perspectives.

9. Note that govern*ance* is not simply synonymous with govern*ment* (Ostrom 1990).

10. Rules constitute institutions not only with respect to conditions of material life but also with regard to matters of ideology, rhetoric, language, and meaning.

11. The uneven potential for creating such institutions (sets of rules) is a working definition of power.

V

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