Sustainable Communities and the Great Transition

James Goldstein

GTI Paper Series

Frontiers of a Great Transition

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Sustainable Communities and the Great Transition

Prologue

Signs of an incipient global consciousness are evident around the world, signaling the emergence of a new layer of identity. People are expanding their self-conception as members of a neighborhood, community, city, region, and nation to include a sense of global affiliation. However, while global identity is growing, local identity remains strong. In fact, some argue that globalization actually enhances the significance of local communities, because of people's need to exert some level of control and feel grounded in a vast world.

This essay considers recent initiatives to promote sustainable local communities, and explores their potential for contributing to a *Great Transition* future (Raskin et al., 2002). Over the past twenty years, the concept of sustainable development has emerged as a framework for development that aims to meet the growing needs of the world's poor while protecting the natural environment. Although the concept of sustainability is not new, it gained prominence in 1987 with the publication of *Our Common Future* (WCED, 1987), the report from the World Commission on the Environment and Development (the "Brundtland" report). The United Nations established the commission to examine the world's environmental problems and propose a global agenda for addressing them. The commission found that environmental issues were intimately linked to a range of economic and social factors and could not be addressed in isolation. The report defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The Brundtland report spawned a rich variety of sustainability initiatives at all levels—local, national, and international—to combat these intertwined problems.

Before turning to examples and characteristics of sustainable community initiatives, we will first briefly turn to the spectrum of ways in which one may define a community and the growing importance and presence of certain types of communities. Communities can be conceptualized in numerous ways—for example, physical communities based on natural or political boundaries, logistical communities that facilitate the flow of goods and services, communities of practice defined by common interests and pursuits, and virtual communities that come together via the Internet. However, this essay focuses on geographic communities characterized by a shared identification with place, often reinforced by common economic, social, and cultural activities.

Because of their growing population and central role as nodes in our global system, cities are the first delineation of community that we will explore. Cities are also at the forefront of organized efforts to enhance sustainability. Of course, cities vary greatly in size and character, ranging from small ones of 50,000 to 100,000 that may be surrounded by rural areas, to dense urban regions of ten million people or more. Despite these differences, cities remain a useful point of departure for an analysis of sustainable communities.

The first section of the essay describes two key forces—urbanization and globalization—that have strengthened place-based identity while fostering broad recognition of the need for sustainable development. This section identifies cities as key actors in efforts to ensure sustainability and examines the limitations of those activities. While much of the focus here is on the physical and infrastructural aspects, we recognize that physical conditions are an expression of the underlying social and economic realities. The second section envisions three archetypal regions, outlining key features of sustainable cities in a *Great Transition* world. The third section draws from recent experience to explore a new wave of initiatives that suggest the initial contours of a path toward *Great Transition* cities.

The Importance of Cities in a Globalizing World

Urbanization—the most dramatic change in settlement patterns over the past 200 years—has set the stage for globalization. Urbanization has occurred amid rapidly rising population levels, particularly in developing countries. In 1800, only three percent of the world's population of some one billion lived in urban areas. This figure grew to fourteen percent by 1900, with twelve cities home to more than one million inhabitants. By 1950, 30 percent of the global population had become urbanized, and eighty-three cities reported populations of more than one million.

The last half of the twentieth century brought unprecedented growth in both population and urbanization. By 2000, some forty-seven percent of the world's roughly six billion people lived in urban areas, and the population of more than 400 cities had exceeded one million (United Nations, 2001). Of course, important differences between global North and South remained: as of 2000, about three-quarters of the population in developed countries lived in urban centers, while in developing countries about forty percent did. However, with rural-to-urban migration continuing at a rapid pace in China and other developing countries, this gap is expected to close. The United Nations projects that "sixty percent of the world population will be urban by 2030, and that most urban growth will occur in less developed countries" (United Nations, 2006).

Megacities also emerged during the twentieth century. The United Nations first coined the term in 1970 to refer to cities of eight million people or more. As population and urbanization have skyrocketed, the term has come to signify metropolitan areas of ten million inhabitants or more. As of 2000, some twenty megacities existed across the globe. Most are in the developing world—including Sao Paulo (eighteen million), Delhi, and Manila (fourteen million each)—and most new ones are expected to emerge in the global South (see United Nations, 2003).

It is useful to examine cities by drawing two separate but related distinctions among them. The first is a North-South distinction. The social, economic, physical, and quality-of-life aspects of the urbanization process differ between global North and South. For example, while far from problem-free, the few megacities in the global North (New York, Los Angeles, Tokyo, and Osaka-Kyoto) have massive transportation and sanitation infrastructure systems that serve virtually their entire populations. The vast majority of residents of Northern megacities also have access to employment and decent housing. While they face pollution, congestion, poverty, inequality, and other challenges, Northern megacities generally meet the basic needs of their residents and provide a wide range of public services relatively efficiently. A large fraction of residents and businesses are also highly networked globally through the Internet and other means.

By contrast, megacities in the global South often lack basic infrastructure services, such as water and sanitation, for a large proportion of their residents. Housing is also substandard for much of these populations. Moreover, although the prospect of employment is often the most important draw for rural migrants to these cities, unemployment and underemployment are rampant. While a relatively small elite in these cities is networked globally, most people remain poorly integrated into the larger world. Finally, differences in the governance, legal, and land-tenure systems of megacities in the global North and South have led to striking differences in urban form and landscapes, and these are likely to persist. The makeshift shanty neighborhoods of Delhi, Sao Paulo, and other Southern megacities are not generally found in the North.

While the North-South distinction is important, it provides only a limited insight into differences among cities. An important counterpart is the divide between the rich and the poor within cities. In both Northern and Southern cities, the scope of the inequality gap is tremendous. Many residents of all cities face constrained opportunities, destitute living conditions, and

inadequate services. Persistent poverty and inequality have significant environmental justice and health implications. The world's poor are often disproportionately affected by the consequences of global environmental changes. These issues have not gone unnoticed. In fact, collective responses joining indigent populations in the global North and South reflect the prevalent nature of the rich-poor divide and the important links between economic status and environmental justice.

The development of global markets and the rapid modernization of traditional economies have reinforced the decades-long pattern of urban migration worldwide, especially within developing countries and from rural areas in the global South to cities in the North. Globalization has also underscored the importance of cities and metropolitan regions as global gateways and centers of economic, political, and social life. In a globalizing world, where individuals increasingly look outward for employment and commercial opportunities and have greater access to international travel and cultural experiences, they do so through the portal of their city or metropolitan area. Large cities are essential nodes in the globalization network.

Because of the centrality of both global and local identities, cities ranging from 50,000 people to large megacities of ten million or more have become vital in efforts to create sustainable communities, and an appropriate lens through which to assess those efforts.

Sustainable communities initiatives

The 1992 Earth Summit in Rio de Janeiro, and the economic, social, and environmental challenges associated with urbanization and globalization, spurred local sustainability initiatives around the world, opening a new chapter in how to "think globally, act locally". These efforts fall into two camps: local-only, and local linked to global, or "*glocal"*.

The term *glocalism* has been coined (Robertson, 1995) to describe the development of a global identity in parallel with a strengthened local identity (see also, Harmsworth, 2001). Communities are often a key focal point of individual political engagement, even around global issues. Strengthened local identity, along with an enhanced understanding of the opportunities and risks of globalization, can be a key motivator for social action and spur broad political support for the transformational change essential to sustainable development. Thus, the local level is a central arena where the vision of a *Great Transition* world meets actual attempts to create it.

The local-only initiatives address an impressive range of sustainability issues and enjoy some measure of local success. However, local-only sustainability efforts have not sufficiently recognized or addressed the global nature of sustainability. Their focus tends to be on local priorities such as managing water resources, improving local transportation systems, or conserving open space. For example, a recent review of more than thirty local sustainability programs in the United States found that most cities have selected measures based on locally targeted concerns rather than global considerations, such as a city's CO_2 emissions or ecological footprint (Portney, 2003). The lack of connection to global drivers, impacts, and opportunities limits the effectiveness of these efforts in contributing to global sustainability.

Glocal sustainability initiatives, in contrast, acknowledge the connection between global and local dynamics. For example, *glocal* initiatives recognize the local role and responsibility in protecting the global commons in such areas as climate change and maintenance of fishery stocks. Local Agenda 21 activities—the Aalborg Charter (European Conference on Sustainable Cities and Towns, 1994), the European Sustainable Cities and Towns Campaign, and the Lisbon Action Plan (European Conference on Sustainable Cities and Towns, 1996)—as well as the Earth Charter, are perhaps the strongest examples of sustainability initiatives that explicitly recognize links among localities around the world, and global drivers, impacts, and opportunities for

action. They show that cities and communities through *glocal* initiatives can reflect and enhance how people create identity and affect the prospects and pathways of a *Great Transition*. A closer look at the development of a few of these initiatives offers insight into their merit as effective and robust initiatives.

During the preparatory process for the 1992 Earth Summit, the International Council for Local Environmental Initiatives (ICLEI) proposed Local Agenda 21, which called for local governments to apply locally the Agenda 21 global plan of action—a key document coming out of Rio. Article 28 of Agenda 21 states: "Because so many of the problems and solutions being addressed by Agenda 21 have their roots in local activities, the participation and cooperation of local authorities will be a determining factor in fulfilling its objectives" (United Nations, 1992). In the decade following the Earth Summit, more than 6,400 local governments in 113 countries became involved in Local Agenda 21 activities.

In 1994, some eighty communities also signed the Aalborg Charter of European Cities and Towns Towards Sustainability, the European response to Local Agenda 21. By May 2004, more than 2,250 local and regional authorities in forty-two countries had become signatories, and thus part of the European Sustainable Cities and Towns Campaign. The Charter explicitly recognizes the links between local and global sustainability, holding that "a town or city cannot permit itself to export problems into the larger environment or to the future. Therefore, any problems or imbalances within the city are either brought towards balance at their own level or absorbed by some larger entity at the regional or national level". The charter also addresses the responsibility of cities and towns to reduce greenhouse gas emissions. A core strategic tool of the campaign is a network that promotes information exchange, capacity building, marketing, and evaluation of sustainability efforts among local authorities in Western and Eastern Europe that aim to implement sustainable development.

As an example, the city of Leicester in the UK, after signing the Aalborg Charter, developed the Leicester Climate Change Strategy. In doing so, the city investigated its contributions to global warming, and examined its local infrastructure and needs in the context of the idea of a fair share of global emissions. The Climate Change Strategy encompasses several on-the-ground efforts to reduce CO_2 emissions, including providing residents with financial incentives and information to reduce their home heating needs as well as a "Better Buildings" program which seeks to "secure high quality and high sustainability outcomes for the local community within a global context" (Leicester Better Buildings, 2006).

The limits of today's sustainable communities efforts

While *glocal* approaches overcome many of the shortcomings of local-only efforts, most do not question the assumptions and values that drive the level of production and consumption that produces the negative environmental, economic, and social consequences associated with globalization. What's more, most *glocal* initiatives have not translated rhetoric into actual programs,[*] or are too new to demonstrate significant impact. Efforts to create sustainable cities have thus had limited success in contributing to the transformational change that sustainability requires. Modest on-the-ground achievements contrast sharply with the significant changes in values and lifestyles that are essential for a global transition to sustainability.

[*] See, for example, the vast majority of *glocal* climate change initiatives in the U.S. and several other countries. They generally recognize the global nature of the problem but the specific CO_2 reductions called for relate to the modest goals of the Kyoto Protocol, rather than the far more aggressive reductions required for climate stabilization.

One World, Many Places: New Visions for Sustainable Communities

Dateline 2084 (In this section, we assume the perspective of 2084 and look back as if a Great Transition had already occurred in the earlier part of the twenty-first century, imagining the various types of sustainable communities that might have emerged. We will then return in the third section to the initiatives and pathways that would be useful for achieving similar sustainable communities).

As described in *The Great Transition Today: A Report from the Future* (Raskin, 2006) a *Great Transition* world is characterized by a new set of core values: quality of life, human solidarity, and ecological sensibility. They have replaced the prominent values once associated with twentieth century capitalism—consumerism, individualism, and domination of nature—which now seem anachronistic.

While these values now form the common foundation and framework for present society in the late twenty-first century, they are expressed in a multitude of ways in different places. Linked by a strong recognition of global connectedness, a diversity of vibrant communities and regions has developed around the globe, each reflecting its unique social, economic, cultural, and ecological conditions. Thus, "one world, many places" was the slogan adopted in the formative years of the *Great Transition*. We now recognize that communities and regions have followed many paths to take their place in a *Great Transition* world. This diversity is consistent with the notion of "constrained pluralism" whereby the specific historical and cultural aspects of each community are retained and honored, while at the same time all communities recognize their global connectedness and live according to the universal values of quality of life, human solidarity, and ecological sensibility.

Three archetypical *Great Transition* regions illustrate the pluralistic *Great Transition* society of 2084: Agoria, Ecodemia, and Arcadia (Raskin, 2006). The unique characteristics of these three archetypical regions have important implications for the identities of their inhabitants, their governance structures, and the relationships among communities and regions (see Box). While all three regional types adhere to *Great Transition* principles of pluralism, solidarity, ecological sensitivity, and subsidiarity (decision-making at the lowest level practicable), they do so in varying ways. It should be noted that few regions correspond precisely to these archetypes; indeed, larger regions may have entire sub-regions that deviate from the dominant form.

The following is intended to provide an accessible vision of how *Great Transition* values and principles are reflected in settlement patterns, governance, trade relations, and a number of other concerns in the diverse sustainable communities that now exist. First, we describe the overall changes that have occurred in these sectors that are common to all the regions. Then we briefly reiterate the broad contours of each of the three regional archetypes, and provide a concrete feel for how communities in each region function, paying special attention to the related issues of land use, transportation, and food/agriculture. The physical and social components of communities are equally important and interact in a reciprocal manner. While the focus here is on the physical and infrastructural aspects, physical changes in these sectors entrain underlying social conditions. In fact, focusing on physical parameters is a way to promote consideration of the social equity and related changes required to achieve the types of regions described.

Regions in a *Great Transition* World*

The fabric of planetary society is woven with hundreds of regions that are astonishingly diverse in character and size. Some correspond to the national boundaries of a century ago and others are federations of earlier states. Still others are parts of former states, forging a common identity around the boundaries of river basins and other ecosystems (so-called "bio-regions"), urban centers, and cultural traditions. Nevertheless, most regions can be clustered crudely into one of three major types, called *Agoria*, *Ecodemia*, and *Arcadia*, although few regions are pure cases.

Agoria

These regions would be most recognizable to a visitor from the year 2000. Some critics call *Agoria* "Sweden Supreme", with its more conventional consumer patterns, lifestyles, and institutions. Its economies are dominated by large shareholder corporations. However, when compared to even the most outstanding examples of social democratic models of the last century, the commitment to social equality, the environment, and democratic engagement from the level of the firm to the globe is of a different order. The key is a vast array of policies and regulations, supported by popular values, that align corporate behavior with social goals, stimulate sustainable technology, and moderate consumption patterns in order to maintain highly equitable, responsible, and environmental societies.

Ecodemia

The distinguishing feature of *Ecodemia* is its fundamental departure from the capitalist economic system. The new system, often referred to as "economic democracy", banishes the capitalist from two key arenas of economic life. First, the model of the firm as comprised of private owners and hired workers has been replaced by worker ownership in large-scale enterprises, complemented by non-profits and highly regulated small businesses. Second, private capitalist markets have given way to socialized investment processes. Worker ownership and workplace democracy has reduced the expansionary tendency of the traditional capitalist firm. The focus is now on profit per worker (rather than absolute profit) and the popular goal of "time affluence", which shortens work weeks. Publicly controlled regional and community investment banks, supported by participatory regulatory processes, recycle social savings and tax-generated capital funds. Their mandate is to ensure that successful applications from capital-seeking entrepreneurs satisfy social and environmental criteria, as well as traditional financial criteria.

Arcadia

Relative to other regions, the bias in *Arcadia* is toward self-reliant economies, small enterprises, face-to-face democracy (at least in cyberspace), community engagement, and love of nature. Lifestyles tend to emphasize material sufficiency, folk crafts, and reverence for tradition. While the local is emphasized, most people are highly connected with cosmopolitan culture and world affairs through advanced communication technology and transportation systems. *Arcadia* has centers of innovation in some technologies (organic agriculture, modular solar devices, human-scale transport devices, etc.) and arts (new music, craft products, etc.). Exports of these products and services, along with eco-tourism, supports the modest trade requirements of these relatively time-rich and slow-moving societies.

This discussion of differences should be balanced by a reminder that the regions also have much in common. Relative to the nations of a century ago, contemporary regions enjoy a high degree of political participation, healthy environments, universal education and healthcare, high social cohesion, no absolute poverty, and more fulfilling lives. Finally, people the world over share the historically novel attribute of citizenship in a world community.

* Summarized from Raskin (2006).

Land use

The flagrant despoiling of land and disruption of ecosystems so common in previous centuries—from mineral extraction and industrial development to unchecked residential and commercial development—slowly came to an end with the universal appreciation for global ecological sensibility that arose with the *Great Transition*. This has had an enormous impact on land-use planning and continues to shape the physical landscape today. The value of ecological services, such as species habitat, water purification, flood control, and CO_2 uptake, is now well-recognized and codified in land-use regulations. Recent decades have seen an emphasis on ecological restoration and maintenance, as contaminated lands are cleaned, streambed vegetation is replanted, and floodplain development is reversed. Moreover, the embrace of dematerialization and nanotechnology, as well as industrial ecology and remanufacturing, has greatly reduced the need for new raw materials. Strong controls on extractive industries and adherence to sustainable forestry and agricultural practices, have stemmed the tide of widespread land-clearing and destruction of rain forests and other lands that occurred in the nineteenth, twentieth, and early twenty-first centuries. Finally, a deep appreciation for how dense urban living and urban food production within a mixed-use landscape can preserve open space and promote social connectedness has altered settlement patterns.

Transportation

In all regions the transportation system is remarkably different from that of the early twenty-first century. After finally recognizing that global reserves of petroleum were diminishing and that continued widespread use of fossil fuels posed a dire threat to climate stability, the 2015 global commitment to a hydrogen economy fueled by renewables and biomass is about to be realized. It has been a long and difficult transition spanning most of the century, requiring massive infrastructure investments and technological advances. During this transition over the past few decades, hybrid-electric, dual-fuel gas/hydrogen, and biofuel vehicles played a key role, but the transportation sector is now largely fueled by hydrogen. Average vehicle weights have been reduced significantly with "light-weighting" through the use of composite materials, and hydrogen fuel prices are high to reflect the full cost of production and to discourage excessive use. While the shift to renewables-generated hydrogen has virtually eliminated concerns about greenhouse gases and other air pollutant emissions as a strong motivator to reduce vehicle miles traveled, a desire to minimize congestion and use resources efficiently are still important considerations. Widespread telecommuting is also prevalent.

The deification of the car and the view that private vehicle ownership expands personal freedom, so prevalent in the early part of the century, has largely been replaced by the broader notion of mobility. Mobility comprises a range of approaches to moving about comfortably and efficiently (preserving a sense of independence into our elder years and despite any physical disabilities) rather than a narrow focus on cars as the primary means of travel. In recent decades considerable efforts have been made in terms of policy and infrastructure investment to enhance public transit and inter-city rail, delivering extremely rapid, frequent, and pleasurable service based on late twenty-first century technology. This was motivated not only by concerns about climate change and resource exhaustion, but also by a strong movement to enhance quality-of-life by minimizing congestion and travel times, and by the growing demand for convenient non-polluting transport. Along with public transit, in response to the obesity crisis that afflicted growing numbers of people early in the century, an investment in the promotion of walking and

biking led to the inclusion of bikeways and related facilities (e.g., for storage) in land-use regulations and transportation plans.

Food and agriculture

Greater understanding of the health, resource use, and ecological implications of the input-intensive practices that became the model for modern agriculture in the second half of the twentieth century has led to dramatic changes in the food production and consumption system throughout the world. Because people are aware of the impacts of their food consumption choices, governments make policy decisions and individuals make purchasing decisions based on contributing to long-term ecological, community, and human health. Personal eating habits, recipe books, restaurants, and community gatherings and governance all reflect a culture of appreciation for sustainable farming practices and healthy food.

After decades of intense international effort, the hunger crisis was finally eradicated around mid-century, with per capita calorie intake converging around 2,800 to 3,000 calories per day. Farming and gardening practices emphasize avoidance of chemical fertilizers and pesticides, conservative use of water, and healthy working conditions. Crops are generally selected to prioritize heirloom varieties that have traditionally fared well in local soils and climate conditions, minimizing the need for chemical inputs. A diversity of crops is grown in close proximity, using sophisticated knowledge-intensive "eco-farming" practices to guard against pests, and crops are rotated annually to prevent soil depletion. An emphasis is placed on "closing loops" in the food system; food and agricultural waste is composted and returned to the soil. Overall meat consumption has been significantly reduced, a happy coincidence between lifestyle choices and the value of improving the efficiency of the food production system, increasing the availability of grain, and lowering the intake of animal fat relative to affluent diet patterns a century ago. Where meat is raised, pastures are located next to, or rotated with, crops so that manure from animals can be easily used to fertilize fields.

These trends were reinforced by the obesity epidemic that struck many parts of the globe in the late twentieth century, which spawned a widespread education effort by multilateral agencies, governments, and NGOs throughout the world focused on diet and exercise. Greater consciousness about health and the impact of diet has reversed the trend of increasing amounts of highly processed foods and helped transform markets towards organic whole foods.

Agoria

Agoria has high levels of urbanization and trade is critical and comprises a significant fraction of the economy. Agorians enjoy the broadest range of goods as their society retains more interest in consumerism than the other *Great Transition* regions. For Agorians, global identity, with the metropolitan region as a gateway, is dominant. Agoria is deeply engaged in global governance around issues such as trade and infrastructure.

Land Use

Agoria is comprised primarily of large, high-density cities with close links to other urban centers around the world through trade, cultural, and other exchanges. While urban parks and community gardens flourish in these cosmopolitan cities, immediate proximity to green space is not as highly valued as in other regions. The emergence of regional land-use commissions (within the Ministry of Sustainable Development), with decision-making power that evolved from the early experiments in the late twentieth century, has had a powerful impact on the Agorian landscape. A mix of land-use, investment, and tax policies and incentives aimed at rebuilding urban infrastructure and protecting nearby undeveloped land has resulted in

considerable recycling and reuse of abandoned or underutilized properties. While the bulk of development proposals are still initiated by private parties, they are highly regulated and must conform to regional land-use plans. "Preferred development zones" with preferential tax treatment support the priorities of regional land-use plans, and development restrictions and/or fees are placed on priority undeveloped areas within the region.

Mixed-use zoning is adopted throughout the region to encourage integration of residences, offices, and commercial activities within walking and biking distances from each other and from transit stations. Though public investment and public/private partnerships are considerable, the market has muted a fuller transformation of the urban landscape.

Though less prevalent than in Ecodemia, community gardens and green roofs are fairly common, providing seasonal fresh produce, storm water management, aesthetic benefits, and exercise opportunities. Although Agoria makes an effort to reduce average distance traveled for foodstuffs, its heavy emphasis on international trade and its residents' interest in a broad range of material goods means that Agorian cities are not necessarily closely tied to nearby regions and the countryside for their supplies of goods and services.

Transportation

Agorians generally spend more time on paid work than inhabitants of other regions and tend to travel more for work. Agoria has developed excellent high-speed metropolitan transit systems to meet most local travel needs. This includes subways, light rail, and emerging personal rapid transit technologies in downtown areas, as well as conversion of major highways to accommodate bus rapid transit (BRT), high-occupancy vehicle lanes, and (electric) bicycles and scooters. The use of BRT and high-occupancy cars is stimulated by time- and place-dependant congestion pricing, whereby the level of fees (tolls) for private vehicles in high-traffic areas varies according to the time of travel. Many public transit stops are attractively situated close to highways in order to facilitate easy access from all modes. Public-private partnerships have realized innovative solutions by experimenting with new technologies. Advanced information and communications technology (ICT) is widely used for road pricing, congestion pricing, fare payment, trip reservation, information and communication services, telecommuting, and e-commerce.

While private vehicles still play an important role in the transportation system, they are noted for alternative technology, high efficiency, and a set of policy and tax incentives that minimize congestion and foster smaller, more efficient vehicles. Cars entering Agorian cities pay a congestion fee according to size and type of propulsion, thus discouraging use of large vehicles and non-zero-emission cars. Large parts of downtown areas are closed to individual cars except certain categories (high-occupancy, all-electric or hydrogen vehicles, multi-occupancy taxis). In these areas, public transit is free or low cost, bicycle facilities are readily available (lanes, storage facilities), and there are easy links to public transit and inter-city rail stations. Traffic light systems have been modernized to promote pedestrian and bicycle use and safety.

The continued importance of international trade to the economy of Agorian regions generates more long-distance rail and air travel than in other regions. This is mitigated somewhat by technology and policy: teleconferencing has become commonplace, air travel far more efficient, and taxes on air travel much higher with proceeds funding other CO_2 reductions or sequestration.

Food and Agriculture

The food for Agorian communities continues to be produced primarily outside of the region, though broad-based educational programs and labeling requirements help residents understand the sources and contents of all food in the system. Driven by consumer demands and strong price signals related to transport costs, a higher fraction of the food consumed in Agoria is produced

within 500 miles than was the case decades ago. Because fair labor standards are upheld in all trade decisions and the full costs of production and transport are now captured in food prices, certain goods from distant sources and foods that are out of season have a high cost premium. As a result, the almost endless variety of foodstuffs that were once available any time of the year in some locations is now more limited.

Health consciousness has moderated calorie intake among Agorians and, combined with concerns about land-use resource impacts, has contributed to a significant decline in meat production and consumption. Full-cost pricing policies mean that meat products are far more expensive than fruit, vegetables, and grains, reinforcing the social trend toward less meat consumption.

Large commercial agricultural operations continue to produce much of the food for Agoria, but do so in a system with strong environmental and labor regulations. Sustainable aquaculture has expanded and accounts for a significant fraction of protein formerly provided by land-raised meat.

Ecodemia

Ecodemian regions tend to have urban centers as well as towns and more rural areas. Ecodemian areas are less dependent on trade and there is less engagement in global governance than in Agoria, as value is placed on organizing the local/regional economy around meeting basic needs of the regional population. Thus, in Ecodemia there is less need to produce and/or import the endless array of goods and services that are available in Agoria.

Land Use

Ecodemia exhibits a more diverse land-use pattern, comprising cities as well as less dense towns. The integration of residential, business, and institutional uses is mandated not only through zoning but also through planning and direct public investment in transit-oriented development. This mixed-use planning also makes it easy for a substantial fraction of Ecodemians to live in walking or biking distance of their jobs.

Ecodemian communities are renowned for their public green spaces, ranging from grand urban parks to small "pocket parks" in virtually every neighborhood, as well as an abundance of tree-lined streets and urban forestry. The emphasis on green infrastructure and creating attractive public spaces and recreational opportunities encourages social interaction among a wide diversity of residents, enhancing feelings of equity and access to a range of amenities. It also translates into smaller average housing sizes; as people spend more time in public spaces, they spend less time at home and have less desire to increase the size of their own homes and property.

Ecodemia uses enforceable growth boundaries to ensure preservation of open space, agricultural land, and wilderness areas in close proximity to dense urban neighborhoods. There's a strong connection in Ecodemia between city and countryside, particularly in terms of the food system.

Transportation

Demands for private transportation services are somewhat less in Ecodemia than Agoria, as most residents live and work near public transportation hubs. This has been accomplished through decades of land-use regulatory reform as well as significant public policy efforts and investment in mixed-use transit-oriented development. Transit includes a number of modes: subway, "bus rapid transit", rail, light rail, car sharing, and taxis. This has reversed the decline in transit use experienced in the first few years of the century. Walking, cycling, and high-speed transit are easy, attractive, quick, comfortable, and less expensive than driving and parking. An

extensive network of pedestrian and bicycle pathways links most parts of each Ecodemian region and provides recreational opportunities for residents. Bicycles are available for free or a nominal charge at most transit stations. Bike stations provide cyclists with locker and shower facilities and a secure place to store and repair their bikes.

With widespread worker control, many employers offer free or reduced-cost transit passes as a benefit, and a high fraction of offices and workplaces are situated near transportation hubs. Individual car use has decreased markedly, as Ecodemians value collective living arrangements and the low-cost convenience of alternative public and private transportation. Also, trade is highly regulated, and it is done so with the objective of reducing business travel.

Outside of dense urban centers, extensive car-sharing programs, pick-up shuttle services using hydrogen vehicles, and car and bicycle parking facilities make access to mass transit easy.

Food and Agriculture

Much of the food consumed in Ecodemia is grown within the region in large worker-owned farms. Through strict land-use controls, Ecodemia has been able to retain significant agricultural acreage just outside dense urban neighborhoods and town centers. A strong commitment to ecological agriculture is implemented through organic farming practices, careful crop rotation, and soil husbandry, minimizing the need for supplemental inputs. In addition, large-scale community supported agricultural (CSA) operations are common. Urban residents become members of a CSA farm through investment of dues and/or labor and receive in exchange a regular share of the farm's output. Ecodemia's robust agricultural sector extends to a large food processing industry where fresh agricultural products are processed, canned or frozen, and packaged. This is not only another major source of employment; it is also an important means to provide local food well beyond regular growing seasons.

Residents of the more urban parts of Ecodemia are committed to buying foodstuffs from producer cooperatives within the region as a way to support the local economy and ensure quality and freshness. Greenhouses located throughout the region, including on rooftops, provide fresh produce year-round and are solar heated or, where possible, integrated with power plants and industrial processes, making use of waste heat.

While some food is imported from outside the region, the vast majority comes from within 500 miles, with very little from the great distances (1,500 miles or more) so common in the previous century. This does somewhat limit the range of certain food products available during certain seasons in Ecodemia. Overall cost effectiveness is achieved by creating close connections between growers and consumers; while farmers markets, community supported agriculture programs, farm stands, and community-owned food stores ease transportation and assure quality control.

With shorter working hours and more leisure time, Ecodemians spend considerable time tending community gardens and greenhouses, as well as small plots on green roofs, which are ubiquitous in Ecodemia. Such activity combines Ecodemians' interest in healthy food, exercise, maintaining a green urban landscape, and building community.

Arcadia

Arcadia's economy is characterized by residents' strong desires for self-sufficiency and a simpler lifestyle. A diverse array of highly aesthetic crafts is a hallmark of many of these communities. Arcadians identify most strongly with their immediate local community, and direct grassroots democratic governance and decision-making is the norm. With the local community strongly emphasized, Arcadia has the least active engagement in global governance institutions.

Nonetheless, advanced communications technology and transportation systems keep Arcadian residents connected with cosmopolitan culture and world affairs.

Land Use

Arcadia is largely rural, with small towns sprinkled throughout the landscape. Agricultural land and gardens are seen everywhere, as many Arcadians grow at least some of their own food in small family or communal fields. Towns support mixed land use—residential, commercial, and institutional—as they serve as centers of local commerce, trade, education, governance, and spiritual endeavors. Town centers tend to be closely connected with the surrounding countryside, supporting the Arcadian value of self-sufficiency.

The Arcadian landscape reflects an appreciation of the significant value of ecological services—wildlife habitat protection and species diversity, purification of air and water, flood mitigation, waste assimilation, etc. Sustainable land stewardship and the maintenance of these ecological services is a deep part of the Arcadian culture.

Transportation

Relative to other regions, there is considerably less need and demand for mobility services in Arcadia, especially for travel out of the region. While the more rural nature of Arcadia means travel distances to urban centers are greater, this is offset by a strong focus and commitment to local community. Thus, the vast majority of trips in Arcadia are local, with a high fraction done by walking and biking. This is also true in town centers, the layouts of which reflect the slower pace of Arcadian life and the strong desire to preserve landscapes and lifestyles. Arcadian regions have extensive walking and bicycle paths that link rural areas with town centers and allow residents to meet most of their daily mobility needs. In addition to integrating exercise into Aracadian lifestyles, these pathways support the slower lifestyle of Arcadia and encourage social interaction.

The relatively low travel demand is reinforced by the high value placed on local production and consumption in Arcadia, as well as a de-emphasis on trade. Thus, long-distance transport of food and other goods for consumption in Arcadia is minimized. Local transport of agricultural and other goods is provided by truck, often cooperatively organized to efficiently meet the needs of multiple households or the broader community.

Densities in Arcadia generally do not support mass transit, however regional bus services (with modest frequency) provide links to town centers within Arcadia and to larger urban centers in other regions. Cars are still an important part of the transportation mix in Arcadia, but due to the emphasis on communal living and material sufficiency rather than individual consumption, they are generally shared community vehicles rather than privately owned. As in other regions, most are hydrogen vehicles fueled by renewables.

Food and Agriculture

The vast majority of food in Arcadia is grown locally. Food production is a major segment of the local economy, comprising a combination of small family plots and somewhat larger communal farms and gardens. Ecological agriculture is practiced throughout Arcadia, as there is a reverence for traditional integrated farming methods. Thus, small-scale organic meat production is common, with animal wastes used to fertilize crops, and crop residue and household food waste used as animal feed.

Out of the growing season, Arcadian residents rely on foods that are easily canned, frozen, or stored for a significant share of their food. Regional facilities process surpluses from local farms and gardens during the growing season, and make such “convenience food” available to residents year-round. The food available to Arcadians is largely related to what the local climate and soils will support, so variety is more limited than in other regions, especially in non-growing seasons.

Infrastructure for delivery from local farms is designed to encourage sharing of transportation resources.

Table 1 provides a summary of these key issues for each of the regions.

Table 1: Key Characteristics of Regional Archetypes

	Agoria	Ecodemia	Arcadia
Land Use	• High-density cities. • Mixed land use—business, residential. • Preferred development zones dictate land-use plans/restrictions. • Modest requirements for green space.	• High-density cities and towns; well-defined geographical growth boundaries. • Mixed land use; easy access to pedestrian malls/city centers. • Substantial acreage of parks and public spaces.	• Rural areas with well-defined town centers. • Substantial land area for food production. • Primary model for residential land use is cluster development/ communal living.
Transportation	• Highest demand for mobility services. • Extensive, high-speed public transit network—e.g., subway, light rail, bus rapid transit. • Lightweight, efficient cars—primarily fueled by hydrogen. • Parking & congestion fees minimize use. • Inter-city rail and air transport systems.	• Modest demand for mobility services; high-speed public transit network covers most mobility needs. • Easy access to public transit hubs through bike storage, car sharing, and shuttle services. • Decreased demand for inter-regional and international travel (esp. for business).	• Low demand for mobility services. • Walking/biking constitute a majority of trips. • Hydrogen-powered regional public bus system. • Shared, community-owned vehicles replace most private cars.
Food & Agriculture	• Majority of food produced outside the region; great variety in all seasons. • Food prices incorporate externalities of food production and transport. • Significant diet shift towards vegetarianism. • Community gardens supplement outside food sources. • Seasonal farmers markets support agriculture in nearby region.	• High percentage of food produced within the region; variety depends on locale. • Ecological agriculture practiced; strict organic standards and fair labor laws. • Meat consumed only to extent that it is raised in region & sustainably. • Urban gardens and green roofs common. • Strong system of local gardens, community supported agriculture (CSA), processing facilities, & markets.	• Majority of food produced within the region—provides major source of jobs. • Ecological agriculture practiced; strict organic standards and fair labor laws. • Meat consumed only to extent that it is raised locally and sustainably. • Network of specialized CSA with option of work or trade contributions. • Local farmers markets are the primary venues for food and goods.

Toward a New Generation of Sustainable Cities

The previous sections posit that in a *Great Transition* world, people will forge a new global identity even while strengthening their local identities (the "paradox" of globalization). While global citizenship is important, people continue to reside in unique communities, and much of their social, economic, and political engagement occurs at the local level. Thus, as they begin to act based on their new global identity and *Great Transition* values, heeding Gandhi's call that "we must become the change we want to see in the world", cities will be the locus of experimentation and innovation. Individuals' level of engagement will vary with the type of region in which they reside (Agoria, Ecodemia, or Arcadia) and their personal interests. Nonetheless, cities will serve as incubators for innovative technologies, institutions, and governance structures.

Here we explore how citizens can begin to forge sustainable communities on the path to this future. Informed by recent real-world experience, we identify an idealized process for a "new wave" of sustainable cities initiatives and their key characteristics. Such an idealized effort includes three major elements—Process, Analysis, and Action—each with several components. This structure is intended to provide the initial contours of a path toward *Great Transition* cities.

Key characteristics of a sustainable cities initiative

As with the first generation of sustainable cities initiatives, new-wave efforts will vary with the unique circumstances and history of each city. But such initiatives will share core characteristics that reflect *Great Transition* values, including quality of life, human solidarity, and ecological sensibility. These shared attributes include:

- An integrated approach.
- Broad participation.
- A *glocal* perspective.
- A long-term view.

An integrated approach. These initiatives must address the key aspects of sustainability—environment, economy, and society—in an integrated fashion, because they are inextricably linked in the real world. Economic growth affects the environment and social welfare. Environmental resources fuel economic growth. Environmental degradation may undermine social well-being. However, actually representing these present and future interactions in an analytical framework is challenging. A systems dynamics framework may be useful for understanding these complex relationships. Leaders of sustainability initiatives may benefit greatly from an introduction to general systems dynamics concepts in the early stages of the project. Indeed, tools such as EarthCAT (a tool developed for the Earth Charter) incorporate systems dynamics training into their process frameworks. Further, focusing on social welfare means building equity, both because it embodies *Great Transition* values and because inequity undermines social cohesion and stability. Hence, social equity must be an important objective of the sustainability analysis and plan.

Broad participation. A meaningful sustainability planning process that forges a common vision for the future involves a broad array of stakeholders, including citizens, NGOs, government, and businesses. Broad participation should occur throughout the process—not merely as a last step before leaders approve a sustainability plan. While building inclusiveness into an initiative can make it more arduous and time-consuming than a traditional planning exercise, doing so is essential for devising a robust plan that can evolve as conditions change and for winning support for implementation.

***Glocal* perspective.** Sustainable cities initiatives focus primarily on improving local quality of life, but they also reflect *Great Transition* values by recognizing global connectedness. This occurs in at least two important ways. First, such initiatives acknowledge ecological limits on the natural resource inputs to production and the assimilation of waste. Second, such initiatives assume their share of responsibility for global equity, which means eliminating poverty, meeting basic human needs, and ensuring fair trade.

Specific tools and approaches can enable local sustainability efforts to embrace a global perspective. These tools not only recognize global environmental and social responsibilities but also help cities translate them into local metrics. Such tools may include:

- CO_2 budgets, which allocate cities a "fair share" of global greenhouse emissions, which they may not exceed.

- Analyses of cities' ecological footprint, which estimate the amount of productive land required to support a city's production and consumption, and show how that area relates to the total amount of productive land.

- Environmental space calculation, which incorporates the quantity of pollution and non-renewable resource use—including forest and agricultural land—that is available for a country's use based on the notion that future generations are entitled to the same level of resources per capita. The environmental space calculation is particularly useful and unique in that it incorporates equity into its calculation of fair-share resource allocation.

- "Sister-city" relationships—thousands of which now exist worldwide—can also strengthen connections among localities, enabling them to share best practices and build solidarity.

Long-term view. Sustainable cities initiatives must incorporate techniques for analyzing the long-term impact—over several decades or more—of near-term decisions. Such techniques not only consider phenomena such as climate change but also imply the use of certain analytical techniques such as lifecycle assessment and scenario analysis. Taking the long-term view also spurs cities to consider the capacities of natural systems to support renewable consumption of resources and assimilate wastes. This approach further encourages cities to measure any reduction in the assets, resources, and capabilities of future generations.

An idealized sustainable-cities planning process

An idealized sustainable-cities initiative would include three major elements—Process, Analysis, and Action—as well as key steps drawn from first-generation sustainable communities

planning efforts.[*] While successful initiatives must devote attention to the three major elements, they may eliminate or combine specific steps, or pursue them in a different sequence. These processes are not linear; rather they are iterative and should be adapted and updated as lessons are learned from local experience. In the discussion below, we illustrate the three key elements with reference to the Boston Scenarios Project,[†] a three-year project begun in 2005. (See box.)

Process

Define the sustainability process. Critical decisions in defining the process of a sustainable-cities effort will include identifying project partners and creating an organizational structure, such as a steering committee and other committees and task forces. The lead partners could be NGOs, local government, or others. The main criterion is that the lead organization be a respected convener in the broader community. The partners will determine the venture's geographic and topical scope, including its time horizon and sequence of steps. Forging links with existing planning processes is also important to ensure the initiative's results influence those efforts and win broad support. Early participants also determine how to integrate the economic, environmental, and social elements of the initiative.

Convene a multi-stakeholder visioning process. An inclusive multi-stakeholder process is essential to winning broad support for a sustainable-cities initiative. Such a process can take several forms, but usually includes citizens, nongovernmental organizations, government, and businesses. A key task is to develop a "preferred vision" of the region over twenty-five to fifty years, including measurable indicators that can track progress toward this ideal vision.

Establish a public review and input process. The multi-stakeholder structure should also offer ongoing opportunities for public participation and review to ensure long-term commitment to the initiative and its results. Models for facilitating this input are numerous. A public outreach and media campaign may help engage citizens and institutions.

Analysis

Analytical effort in an idealized sustainable-city initiative focuses on developing integrated scenarios—alternative long-term futures—within the framework of a "story", or narrative, as well as quantitative indicators. Scenario-based planning has a long tradition in defense analysis, strategic business planning, and international social, economic, and environmental assessments. Alternative scenarios allow participants to systematically explore not only where current trends will lead but also what different futures might look like. Examining those scenarios also helps participants understand the connections between economic, social, and environmental factors, and address critical uncertainties. Formal forecasting methods may be appropriate for projecting some variables in the short term, but they are ineffective for anticipating the response of complex systems in the long term. While quantitative modeling of economic growth and structure, population, technology, resources, and the environment help make the implications of different scenarios more vivid, models require vision to highlight critical qualitative and normative aspects of alternative futures. The analytical work required for scenario building may be done by a variety of organizations, including academic institutions, technically oriented NGOs, or planning agencies.

Establish indicators and targets and analyze existing conditions. Hundreds of communities both large and small have developed indicators of regional social, environmental, and economic health.[‡] However, communities often select such indicators without an extensive visioning

[*] See, for example, Hallsmith et al. (2005).

[†] The Boston Scenarios Project is conducted by the Tellus Institute with funding from the U.S. Environmental Protection Agency.

[‡] See, for example, the International Sustainability Indicators Network, at http://www.sustainabilityindicators.org.

process, so the connection between vision and indicators is often tenuous. A central challenge is to ensure that a city devotes serious effort to analyzing existing conditions and establishes targets for key outcomes. These tasks can be time-consuming and difficult, depending on the degree to which systems are in place for collecting information on a wide range of environmental, economic, and social conditions.

Analyze the business-as-usual scenario. Before depicting alternative futures, cities should create a "business-as-usual" (BAU) scenario that examines the long-term future given current trends and policy interventions. This is not an easy undertaking. Still, the BAU scenario should assess the region's major economic, environmental, and social concerns in an integrated fashion and within a global context. For example, transportation must be linked to land use and air quality as well as demographic considerations and equity. BAU scenarios are critical to a systematic approach to sustainability initiatives, as they force stakeholders to take a long-term perspective, identify and quantify the potential consequences of current actions, and provide a point of comparison. Conventional sustainable-city initiatives often overlook BAU scenarios because they falsely assume a shared understanding about the future impacts of existing activities, confront resource constraints, or prefer to move rapidly toward "solutions".

Analyze alternative scenarios. After establishing the business-as-usual scenario, the next step is to examine alternative scenarios that incorporate elements of a desired future. Most conventional assessments identify ways to modify government policies to incrementally improve expected conditions. However, such scenarios generally do not challenge fundamental social values, governance systems, and economic structures. Conventional efforts to develop alternative scenarios also often focus on specific sectors individually, rather than pursuing an integrated approach.

Action

Process and Analysis efforts are meaningful only if they raise the consciousness of a region's residents and institutions and, ultimately, spur action. Of course, full-blown implementation of a scenario based on transformational change will require a complex sociopolitical process.[*] Implementation may occur unevenly as opportunities arise, though still driven by a shared and integrated vision. In any case, an initiative's success in spurring action and implementing new policies will reflect its ability to engage key stakeholders, develop a shared vision, and provide consistent opportunities for public input. The scenario building process itself—if it effectively engages a broad range of interests—may be the critical first step in triggering the social cohesion required for taking action towards implementing change.

Define and prioritize an action agenda and policy recommendations. The scenarios developed in the Analysis phase—especially those that use backcasting—identify possible paths for realizing a vision. The next step is to further define and refine the needed actions by fleshing out policy recommendations, identifying opportunities for implementing them, and considering their political implications. Ideally, these recommendations will point to specific parties who will implement them, and include an accountability structure to track progress and take corrective action.

Integrate with regional governance. Linking efforts to develop alternative scenarios to a region's policy debates and planning efforts enhances the likelihood that sustainability plans will be implemented. Sustainable cities initiatives often overlook this critical step. However, the most successful science-based and inclusive planning process will not see implementation unless it links the results with policies, laws, regulations, local and regional plans, specific projects, and

[*] For a description of one such process, see the companion paper on Global Citizens Movement (Kriegman, 2006).

budgeting priorities. Local governments as well as NGOs may play an important role in establishing this link.

Build solidarity. Sustainable cities initiatives have enormous transformational potential, not only for their own regions but also for society. Links with other cities through shared visions, implementation strategies, best practices, and lessons learned can contribute to a broader social movement.

The Boston Scenarios Project

The Boston Scenarios Project is a multi-stakeholder project that utilizes alternative long-range scenarios to depict possible futures for the Boston metro region. The project utilizes an integrated approach to sustainability and a long-term, glocal perspective.

Process

At the outset, the project team identified existing planning and sustainability-related efforts and organizations in the Boston region. While the review found considerable activity, it identified a need for a scenarios-based project that explicitly included a focus on sustainability and global responsibility. Three key partner organizations were engaged to participate in the project. These included the area's regional planning agency, a large community foundation, and the Massachusetts State Sustainability Program. The project team developed the initiative's scope and approach, including the creation of alternative scenarios to 2050 and a focus on the metropolitan region served by the regional planning agency. The project team also established a multi-disciplinary Advisory Committee. The project was able to take advantage of a parallel multi-stakeholder visioning process conducted by the regional planning agency called the MetroFuture project. Over 3,000 "visioning statements" from MetroFuture participants were reviewed and informed the development of the alternative scenarios.

Analysis

The project is developing three scenarios for the Boston region to the year 2050. The scenarios include narratives as well as quantitative measures developed using a computer-based model of social and environmental drivers. These scenarios also include new indicators to track the region's global impacts and responsibilities, including carbon dioxide (CO_2) emissions, which relate to Boston's "fair share" of greenhouse gas emissions, and the region's ecological footprint, which gauges the sustainability of its use of natural resources and assimilation of waste.

The project also established several mechanisms to promote stakeholder review of its scenarios, action agenda, and policy initiatives. These include Advisory Committee meetings, working groups organized by key topic, a website, and an email list-serve.

Brief descriptions of the three scenarios are as follows:

Business-As-Usual: The business-as-usual scenario assumes that current trends in the Boston region continue, with no major policy changes, surprises, or discontinuities. The dominant values and forces shaping the region—the primacy of markets, the growing pace of land conversions for development, heavy reliance on fossil fuels and automobiles—remain intact.

Policy Reform: In the policy-reform scenario, residents and policymakers recognize the negative consequences of trends and policies in resource use, the environment, economic activity, and social conditions. While most of the dominant values shaping the region remain unchallenged, the government focuses concerted effort on creating jobs, providing affordable housing, expanding access to health care, reducing sprawl and congestion, promoting greener technologies, and improving environmental conditions. Although social and environmental conditions improve, the overall trend toward sprawling development and depletion of natural resources persists.

Deep Change: The deep-change scenario posits transformational change in the Boston region. Residents, government, and NGOs recognize their global connections, and this growing sense of global responsibility contributes to a fundamental shift in values and a shift of priorities away from economic growth and consumption toward enhanced quality of life and well-being. Residents embrace a vision of a sustainable region in a sustainable world with a strong sense of community and human solidarity. Citizens see that they could achieve far better quality of life by working and consuming less, living in more compact and integrated communities, and acting in ways that connect them to the world beyond.

Action

The project's partners and Advisory Committee are directly and indirectly engaged in actions to implement policy recommendations based on the analysis. The aim is to work with relevant governmental authorities to help guide investment decisions and allocation of public resources throughout the region. The project is also working with local and state NGOs to promote understanding of the need for cuts in greenhouse gas emissions, the limits to technological fixes, and the link between climate change and consumption levels and lifestyles. Other implementation efforts include working with Regional Transportation Plan to shift investment from roadways to transit and walking/biking paths; working with state agencies and nonprofits to institutionalize a commitment to green building; and coordinating with the Massachusetts State Sustainability Office to promote globally responsible practices among government agencies. The project is the first phase of an ongoing program to expand the circle of participants in the region, enrich the visions and analysis, and influence the suite of policies and actions toward a glocal Boston.

The idealized approach to a sustainable-cities initiative is not a blueprint, but an iterative process. Cities will likely vary significantly in how they pursue specific steps, depending on their circumstances. Still, each step requires important decisions, some of which are outlined in the following table:

Table 2: Checklist for Designing a Sustainable Community Project

Initiative Component	Steps	Selected Methodological Decisions
Process	DEFINE THE SUSTAINABILITY PROCESS	*Who are the project partners and the lead organizations? *What provisionally are the boundaries, topics and time horizon? *What are the steps, schedule, and decision-making process?
	CONVENE THE MULTI-STAKEHOLDER VISIONING PROCESS	*How will the visioning process be organized? *How will participants be selected and their participation organized? *Will an independent facilitator or mediator manage the process? *How will the vision be described and communicated?
	ESTABLISH CONTINUAL PUBLIC REVIEW AND INPUT PROCESS	*What are the channels for continual public input? *How will the project inform the public/stakeholders about progress? *Who will be responsible for this exchange of information?
Analysis	ESTABLISH INDICATORS AND ANALYZE EXISTING CONDITIONS	*How will the project translate its vision into measurable indicators? *How detailed and precise will the indicators be? *What data collection is necessary to track progress on critical indicators, such as global responsibility?
	ANALYZE BUSINESS-AS-USUAL CASE	*What assumptions and trends should used to project economic, environmental, and social conditions, such as rates of population change, economic growth, housing starts, poverty crime statistics, and air and water quality?
	ANALYZE ALTERNATIVE SCENARIOS	*What are the key variables for quantifying the alternative scenarios coming out of the envisioning process? *What are the critical uncertainties that should be highlighted? *Which institutional responses and policy changes should be included?
Action	DEFINE AND PRIORITIZE AN ACTION AGENDA AND POLICY RECOMMENDATIONS	*What criteria will the project use to prioritize policy recommendations? *How detailed should policy prescriptions be? *Should the parties responsible for implementing policy recommendations be identified?
	INTEGRATE WITH REGIONAL GOVERNANCE	*What mechanisms are available to implement the policy recommendations? *What roles should governmental and nongovernmental organizations play? *How can the initiative establish accountability? Among whom?
	BUILD SOLIDARITY	*How can the region share results with other regions? *How can the region link actions at the local level to activities elsewhere and contribute to a broader movement toward sustainability?

Sustainable communities and the Great Transition

In this essay we have noted the many ways in which "community" can be defined, and focused on the important role of place-based communities in identity formation and as points of political engagement. While new forms of community would certainly emerge in the move towards a *Great Transition* world, geographic communities—characterized by a shared affinity with place, reinforced by reciprocal economic, social, and cultural activities—would remain as a key locus for translating sustainability concepts and plans into action. It has become increasingly clear that *glocalism*—the development of a global identity and sense of responsibility in parallel with a strengthened local identity—is a critical element for the development of the new values and lifestyles that characterize a *Great Transition*.

The concept of community in a *Great Transition* future would take on a richer meaning than it currently implies. A transition to a more sustainable, equitable future would go hand-in-hand with broadening and deepening the sense of community to recognize our roles as global citizens, mobilize around challenging ecological conditions, combat social ills, and maintain a peaceful and pluralistic society. That potential has already begun to manifest in struggles for more sustainable societies. Efforts to amplify it have significant promise for transforming our society. The social capital of strong communities is a pillar for creating and maintaining a healthy, equitable global society. Communities are unique and of great consequence: through the development of a shared vision and collective action they are capable of harnessing the power needed to foster deep changes towards a *Great Transition*.

References

European Conference on Sustainable Cities and Towns. 1994. *Charter of European Cities and Town Towards Sustainability ("The Aalborg Charter")*. Aalborg, Denmark.

European Conference on Sustainable Cities and Towns. 1996. "The Lisbon Action Plan". Lisbon, Portugal.

Hallsmith, G., C. Layke, and M. Everett. 2005. *Taking Action for Sustainability: The EarthCat Guide to Community Development*. Montpelier, VT: Global Community Initiatives.

Harmsworth, K. 2001. "Glocalism: The Growing Importance of Local Space in the Global Environment". Canada West Foundation.

Kriegman, O., with F. Amalric and J. Wood. 2006. *Dawn of the Cosmopolitan: The Hope of a Global Citizens Movement.* Boston, MA: Tellus Institute.

Leicester Better Buildings Initiative. 2006. *See http://www.leicesterbetterbuildings.org.uk/*.

Portney, K. E. 2003. *Taking Sustainable Cities Seriously: Economic Development, the Environment, and Quality of Life in American Cities*. Cambridge, MA: MIT Press.

Raskin, P. 2006. *The Great Transition Today: A Report from the Future*. Boston, MA: Tellus Institute.

Raskin, P., T. Banuri, G. Gallopín, P. Gutman, A. Hammond, R. Kates, and R. Swart. 2002. *The Great Transition: The Promise and the Lure of the Times Ahead*. Boston, MA: Tellus Institute.

Robertson, R. 1995. Glocalization. Time-space and homogeneity-heterogeneity. In M. Featherstone, S. Lash, & R. Robertson (Eds.), *Global modernities* (pp. 25-44). Thousand Oaks, CA: Sage.

United Nations. 2006. "Human Population: Fundamentals of Growth Patterns of World Urbanization," U.N. Population Reference Bureau, accessed at http://www.prb.org/Content/NavigationMenu/PRB/Educators/Human_Population/Urbanization2/Patterns_of_World_Urbanization1.htm, January 2006.

United Nations. 2003. *World Urbanization Prospects: The 2003 Revision*, accessed at http://www.un.org/esa/population/publications/wup2003/WUP2003.htm, December 2005.

United Nations. 2001. *The State of the World's Cities Report 2001*. Nairobi, Kenya: UN Center for Human Settlements.

United Nations. 1992. *Agenda 21.* United Nations Conference on Environment and Development (The Earth Summit). Rio de Janeiro, Brazil.

World Commission on Environment and Development. 1987. *Our Common Future*. New York: Oxford University Press.