Climate Change Perspectives

BRAD GUY, ***ELP Fellow 2000-2002***, *is interim director of the Center for Construction and Environment in the College of Architecture at the University of Florida. He also serves as Chair of the City of Gainesville Plan Board. Brad's expertise is in the areas of sustainable architectural design and materials, deconstruction and materials reuse, sustainable community development, and planning and project management*.

My work in Gainesville, Florida seeks to implement sustainability in the built environment- from planning and design to construction and deconstruction. I work on neighborhood planning, brownfields redevelopment and reuse of urban land, and alternative transportation. I also am particularly interested in the recovery/reuse of building materials, and "green" or alternative building materials. Last year I helped found a statewide organization called the Florida Green Building Coalition, Inc., which develops "green" standards for buildings, land development, and municipalities. Through this coalition, I will serve as the Gainesville/Alachua County liaison for a one-year pilot project funded by the U.S. Department of Energy to develop a municipal "green community" rating for Florida communities.

Climate change caused by the built environment results from direct building-level impacts and from related infrastructure. Direct impacts include removing productive natural ecosystems to make way for construction; mining raw materials; and developing synthetic building materials, often from fossil fuels. Indirect impacts include energy-inefficient design, primary reliance on fossil fuel energy, and sprawling, low density development that requires motor vehicle use. Buildings are a major source of pollution, toxicity, and waste. Buildings in the United States use about 30-40% of our annual primary energy production, resulting in about 35% of all carbon dioxide emissions. In addition, construction and demolition waste constitutes about 30-40% of all solid waste produced in the country. A more sustainable built environment would significantly lessen our contribution to climate change.

Unfortunately, many perverse incentives, including insurance practices, investment and property valuation practices, politically driven waivers of environmental guidelines, and tax structures encourage construction methods that contribute to climate change. For example, these economic practices still do not meaningfully acknowledge the higher risk involved in building in coastal areas, especially those already prone to extreme climate events like hurricanes. Insurance and property evaluations provide no incentive to build inland, disaster-resistant structures that would minimize the future economic impacts of sea-level rise as well as preserve natural buffers and sensitive coastal ecological areas. Federal insurance agencies also are only just beginning to explore property valuation and building loan practices that consider energy and location efficiency.

> According to the United Nations HABITAT program, running an average U.S. home can consume as much energy in less than two years as builders used in the materials and construction of the home.

Among the disincentives to changing building practices is a lack of understanding about the connection between local building practices and global climate change

consequences. A further challenge is that accepted building practices are ingrained via a traditional, fragmented, and conservative industry that faces high risks and a cumbersome building code system.

The most significant problem, however, is that short-term and speculative construction differs enormously from buildings designed as a long-term investment in place. Construction of affordable housing, for example, typically involves poorly designed buildings with low initial cost, even though a well-built and energy-efficient house is more affordable over the longer term. According to the United Nations HABITAT program, running an average U.S. home can consume as much energy in less than two years as builders used in the materials and construction of the home. Investing in energy-efficient design and materials is only a fraction of a building's total expense and the savings from efficiency can be greatly magnified over the years. One way to make housing affordable is to decrease the operating costs of a home. The costs of living include all costs at the end of a month, such as car expenses, mortgage, and energy costs. By building more efficiently, even more expensively built homes within an urban fabric of mixed-use, mass transit, and walkable densities can still be "affordable."

To get away from this unsustainable status quo, we need to understand that it is unhealthy and expensive to lead dispersed and wasteful lifestyles dependent on fossil fuels. We need to increase our sense of community and understand that the material world is less important than the world of giving and spirit. And we need to live our lives based on that understanding.

We are working towards a more sustainable future in the building and design field. Energy efficiency in buildings is increasing. The green building world has become more mainstream. States are beginning to deal with construction and demolition waste. California and Massachusetts both have increased regulatory measures to outlaw this building waste if it is reusable or recyclable. Communities are grappling with sprawl and the relationship between land use restraints and increasing housing costs. They are instituting new mechanisms for apportioning development costs equitably, including impact fees that require you to "pay as you grow." There are more widespread efforts to integrate sustainable construction language into building codes, and to develop alternative bio-based building materials that use agricultural waste products, for instance, instead of wood. Groups such as the Climate Neutral Program are helping companies offset carbon production by trading with other groups or reducing their own. One particularly noteworthy example is a corporation that bought carbon emissions offsets by contributing to Habitat for Humanity for energy efficient housing. By supporting reduced electricity use in Habitat homes the company offset its own emissions.

Connections are the key. Climate change needs to be wrapped into issues with readily observable environmental impacts. For instance, air pollution has major public health impacts as well as climate change implications. A coordinated effort could promote the incremental benefits of solving localized environmental problems (such as air pollution) and clearly link those solutions to their secondary global benefits.

Similarly, we must recognize the connections between our problems overseas and the United States' involvement in the Middle East and its policies to secure oil. Is it worth it to ignore human right violations and oppression, and risk American lives, for a lifestyle that is not only unreasonable compared to the rest of the world but also

far exceeds what is necessary to support a meaningful, healthy, and productive society? If alternative energy production and lifestyle patterns less dependent on fossil fuels benefit international peace and security, economic development, and our political interests, in addition to reducing our impact on the global climate, what are we waiting for?