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An issue devoted to Global Climate Change Issues



North Texas, Spring 2007. Weeks of flooding occurred in North Texas last spring, following years of drought. © K. Stevens.

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From the Chair

It's hard to tell here in Wisconsin that the globe is warming – we've been enduring record amounts of snow and unusually cold temperatures for several months now. On the other hand, other parts of the country have been warmer than usual this winter, bringing about events like the tornados that ripped through parts of the South in early February. Winter 2008 is producing unusual weather patterns in many locations around the world, showing us -- up close and personal -- what Climate Change is all about.

It seems particularly appropriate that we've chosen Climate Change as the theme for this edition of the EERE Newsletter. Responses to our request for articles shows how many aspects of the challenge there are to think about, and what positive steps are being taken by communities. Megan Day of Manitou, Colorado presents action plans developed by three Colorado municipalities who recognize the need to act locally, but within a global context on the climate change issue. Ann Ruzow Holland reports on the Green Community TechnologiesSM Program utilized by eight communities in New York and New England, which focuses on a process to integrate the Triple Bottom Line -- community, the economy, and the environment into developing community plans for reducing emissions. Grant Ferrier offers comment on the growing Climate Change industry and the economic opportunities it offers, and Jac Smith invites us to rethink the definition of the word "slum" within the context of sustainability in Third World cities. We are also pleased to present the work of our 2006-2007 ENRE Graduate Fellow, Zachary Shahan, with his paper, *Addressing Global Climate Change, Increasing Bicycle Travel*. Thanks to all of you for the good ideas and thoughtful reading.

Watch for the Survey! Maybe You'll Be a Winner!

Some time in March, ENRE members will receive an e-mail invitation to participate in a brief electronic survey about the Division. In order to serve you better, we need to get to know you better. The questionnaire, which should take you 5-10 minutes to complete, will include questions about your professional specialties and interests, along with what you think of current Division activities, and what you'd like to see in the future. With your input, we'll be able to support projects and activities members find truly valuable.

To sweeten the deal, and to recognize the value of your time, we will be drawing two winners from the pool of survey participants. Each winner will receive a gift certificate for the APAPlanningBooks.com. This is your chance to participate in helping the Division, and maybe win some good books for yourself. We look forward to hearing from you!

Regards,

Ingrid Kelley, Chair



Madison, Wisconsin mailbox, February 2008 © I. Kelley



Wind Farm from the air. © K. Stevens

Addressing Global Climate Change, Increasing Bicycle Travel

by Zachary Shahan

2006-2007 ENRE Graduate Fellow

Transportation, Global Climate Change and the Environment

Worldwide, acknowledgement that we need to identify and promote environmentally responsible alternatives to automobile travel is becoming more and more prevalent. Global climate change, an environmental problem of considerable concern, is gaining attention on both public and academic radars. The negative environmental effects of continued global warming are many, including sea level rise and flooding of coastal areas, increases in natural disasters, development and spread of vector-borne diseases, and large-scale species loss (Scheraga and Grambsch, 1998; Parry et al., 2001; Smith et al., 2003; Hurd et al., 2004; White, 2004). Strong evidence of unique and abrupt global warming is already documented (North, 2003), and greenhouse gas (GHG) emissions are now known to be a significant predictor of climate variability (Watson, 2001). Automobile travel is a major cause of greenhouse gas emissions (U.S. Environmental Protection Agency, 2006). The transportation sector accounts for approximately 33% of GHG emissions in the United States (DOE/EIA-0573, 2006), approximately 61% of which are from automobiles and light duty trucks. The transportation sector is the largest contributor to GHGs in the country, as well as the *fastest growing* contributor (DOE/EIA-0573, 2006). The automobile is also a leading cause of other types of air pollution and urban smog, related environmental problems plaguing increasingly urban and auto-dependent countries such as the United States (U.S. Environmental Protection Agency, 2006; Welch, 2006).

Efforts to develop more environmentally benign versions of the automobile are in progress, but viable and effective solutions are yet to materialize. A more immediate and probably more effective solution to these problems is to get people to switch from using the automobile to using more environmentally friendly modes of transportation, such as the bicycle. Traveling via bicycle, arguably the most environmentally friendly mode of travel, does not emit any greenhouse gases or any critical air pollutants. The United States Congress (1978) and others (Exploratorium, 2007; Lowe, 1988; Schinnerer, 1997; Whitt & Wilson, 1982; Wikipedia, 2007) consider bicycling to be the most efficient transportation mode. As one source explained it, on one slice of pizza a person could travel 10 miles by bike, 3.5 miles by foot, and 100 feet in an automobile.

In addition to the climate change and air pollution issues mentioned above, there are also water and land issues that increased bicycle travel could help to address, and there are social equity issues, economic issues, critical public health issues, and quality of life issues as well. But since the focus of this newsletter is global climate change, I will not delve into these.

Global climate change is *the* issue of concern facing our world today. The general consensus by climate experts is that we need to aim for a global temperature increase of no more than 2 to 3 degrees Celsius by 2050. (Even at this level, very serious environmental changes and catastrophes are predicted to occur.) To achieve this goal, we in the U.S. need to reduce GHG emissions to 60-80% below the 1990 level by 2050. We need to make changes now, and increased bicycle travel needs to be a part of these changes.

What Factors are Most Related to Bicycle Travel, a Comparative Study

For my graduate thesis at the University of North Carolina at Chapel Hill, I examined the relationship between bicycle facilities and bicycle travel. I conducted a comparative study between the United States and the Netherlands, using cities in Montgomery County, Maryland and the City of Delft in the Netherlands as my study cities.

Data regarding personal characteristics of respondents, neighborhood environments, travel mode options, travel distances, and bicycle facilities were collected from residents of both locations. In Montgomery County, 293 residents of five neighborhoods (ranging from urban to suburban to exurban) were interviewed as part of a study funded by the Robert Wood Johnson Foundation's Active Living Research Program Office. In Delft, a survey was developed specifically for this study and I collected 249 mail surveys from 1121 randomly sampled residents. The data collected in these interviews and surveys were used in Poisson regression analyses that, among other things, examined the relationship between perceived availability of various bicycle facilities and bicycle travel. The Delft portion of the study also examined the relationship between the perceived *quality and design* of bicycle facilities and bicycle travel.

In the Netherlands, the perceived availability of bicycle facilities and the perceived quality and design of available bicycle facilities were consistently significant. The attractiveness of natural and urban scenery along bicycle travel routes was especially significant. The only specific bicycle facility that showed a consistent positive relationship to bicycle travel, however, was bicycle-only roads in or near one's home neighborhood. Nonetheless, this was considered to be the best type of bicycle facility I tested for, so it is in line with the theory that a better bicycle facility is more likely to be significantly related to bicycle travel. The availability of bicycle facilities in or near one's home neighborhood, in general, was consistently significant in the US as well, but no specific facilities stood out as being considerably or consistently significant (and design factors were not addressed).

In the US portion of the study, findings consistently showed that many individual/personal factors were significantly related to whether or not a person bicycled, such as the respondent's age, gender, level of education, and whether or not (s)he had children. In the Netherlands, individual factors were significant sometimes, but not as frequently and sometimes not in the same direction (i.e. there was a positive correlation with one dependent variable and a negative correlation with another dependent variable). On the other hand, the degree to which a respondent believed bicycling was important (for environmental, social & health reasons), a more collective/societal factor, was consistently significant in the Netherlands.

Distance, between starting points and destinations, seemed to be the most important factor in the Netherlands. This factor was not as thoroughly examined in the US (it was only examined for travel to work), but the same seemed to be true. This finding points to the great necessity of compact and effectively mixed land uses in encouraging bicycle travel.

In both countries, the degree to which a respondent stated that they enjoyed bicycling was consistently significant.

Results indicate that the availability of bicycle facilities (especially higher quality facilities) located in or near one's home neighborhood is significantly associated with bicycle travel, cross-culturally. Aside from

bicycle-only roads (in the Netherlands), however, results did not clearly indicate any specific bicycle facilities that are significantly and positively related to bicycle travel. Results for bicycle paths, bicycle lanes, bicycle parking, bicycle traffic lights, and showers and lockers for bicyclists varied greatly. Although it was not studied in the US, the study did suggest that certain design aspects of bicycle facilities are critical to encouraging bicycle travel. It seemed especially important that bicycle routes run through attractive natural and urban environments.

In the end, bicycle facilities and the design of these facilities seem to be important factors encouraging or discouraging bicycle travel, but land use factors may be even more critical, certain individual factors seem to be very important as well, and collective/societal factors may have the potential to significantly influence the decision to travel or not to travel via bicycle. Additionally, much work still needs to be done to determine if any specific bicycle facilities are more conducive to bicycle travel than others. Perhaps it is just that the usefulness of such facilities depends a lot on the environmental (including urban) context and the right facilities need to be chosen for the right situations and localities. These initial findings do indicate that bicycle-only roads are important bicycle facilities.

In conclusion, building bicycle facilities, especially bicycle-only roads and well-designed facilities that travel through pleasant urban and natural environments, are probably important steps to increasing bicycle travel. However, public education campaigns, "bicycle marketing," public outreach and encouragement campaigns, and bicycle oriented events are very important as well. And it seems that nothing is more important than making our urban environments compact with effectively mixed land uses, decreasing the distances between homes and key destinations.

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It's Election Time Again

Ralph Willmer, AICP, Past Chair

And I am not talking about the Presidential campaign.

ENRE is beginning its election cycle for the position of Chair-Elect and Secretary/Treasurer. For more information on the responsibilities of each position, please go to <http://www.planning.org/environment/> and click on the bylaws link (you will be asked to log in). Members of ENRE in good standing are eligible to run for either slot. You will be asked to submit a position statement no longer than 300 words and a resume. The deadline for submission is **March 14, 2008**. The Nomination Committee will then select two people for each slot to run in the election. Voting will be done via electronic balloting in April and the winners will be announced at the APA National Conference.

If you are interested in running for either position, please feel free to contact me at 617.607.6177 or rwillmer@vhb.com.

Thinking Globally, Acting Municipally

Three Colorado Cities' Strategies to Reduce Greenhouse Gasses

by Megan Day¹

Thinking Globally

Concerned about global warming? Think global and act local. That is the strategy cities and towns across the U.S. are using to reduce greenhouse gasses, the byproducts of fossil fuel consumption, which stay in the atmosphere for a century causing global warming pollution.

In the absence of federal leadership on this issue, concerned Americans are taking matters into their own hands. While some states, including California, are coming to the fore, municipalities are driving climate change action in the U.S.

The following “local action plans” to reduce greenhouse gas (GHG) emissions in Fort Collins, Boulder, and Carbondale, provide a resource for communities to craft their own strategies. The process of reducing emissions has caused city leaders to change their perception of the municipality from merely an energy consumer, to a potential renewable energy *producer* and certainly the foremost local proponent of efficiency measures.

Cities Take the Lead

The U.S.'s refusal to join the 165 nations who have ratified the Kyoto Protocol and pledged to reduce greenhouse gas emissions frustrated those concerned about global warming. Not waiting for federal leadership, Seattle Mayor Greg Nickels pledged that his city would meet the Kyoto goals. Nickels then went on to create the *U.S. Mayors Climate Protection Agreement* to encourage other municipalities to do the same. Since Nickels established the Agreement in 2005, more than 600 mayors have signed on.

Many cities who seek to reduce greenhouse gas emissions join the Cities for Climate Protection Campaign (CCP), a program of the International Council for Local Environmental Initiatives (ICLEI). CCP provides resources and technical support to help communities measure and reduce their emissions. Internationally, more than 770 communities are participating in CCP, including more than 190 cities and counties in the U.S. Participating communities follow a five-step plan:

1. Conduct a greenhouse gas inventory for a baseline year and forecast year;
2. Set a greenhouse gas reduction target for the forecast year;
3. Develop a local action plan for meeting the target;
4. Implement policies and measures; and
5. Monitor and verify results²

Local action plans employ a wide range of strategies to meet greenhouse gas reduction targets, including energy efficiency measures, trip reduction efforts, increasing gas mileage in municipal fleet vehicles, recycling, increasing pump efficiency in water and wastewater systems, adding solar installations, planting trees, and purchasing wind energy.

In Colorado, 80 percent of the electricity is produced by burning coal, which produces CO₂, the most prevalent greenhouse gas.³ In 2004, Colorado voters passed Amendment 37, which requires utilities to generate 10 percent of the state's energy from renewable sources by 2015. Of the ten percent, four percent must come from solar resources. Xcel, the state's largest utility, is expected to spend more than

¹ This article is also being published in the January/February 2008 issue of Western Planner

² International Committee for Local Environmental Initiatives Cities for Climate Protection

³ Most emissions reduction efforts consider only the predominant greenhouse gases, carbon dioxide and methane, together represented as units of CO₂-equivalent (CO₂e), that result from the combustion of fossil fuel and from anaerobic decay of solid waste because CO₂e comprise the vast majority of municipal emissions.

\$1 billion on wind and solar installations over the next decade.⁴ Their efforts will help customers meet emissions reduction goals.

Fort Collins

Fort Collins led the way on the climate change front in Colorado. A growing city of 130,000 and home to Colorado State University, Fort Collins is not known for progressive politics. Of the county's registered voters, 40 percent are Republicans and 27 percent are Democrats.

In 1997, acting on a proposal from the city's Air Quality Advisor Board, Fort Collins joined the Cities for Climate Protection Campaign and became the first Colorado community to embark on a comprehensive greenhouse gas reduction process.⁵ Over the next 18 months, a staff and citizens committee crafted a climate protection plan.

City Council members met the resulting implementation plan with skepticism. Council members opposed to the plan questioned either the validity of global warming or the impact Fort Collins could have on a global problem. Staff members were sent back to the drawing board.

In November of 1999, council passed a more moderate version of the original plan that called for the city to "reduce local greenhouse gas emissions by at least 30 percent below predicted 2010 levels while achieving cost effectiveness in each program."⁶ Fort Collins, whose population has grown by 53 percent since 1990,⁷ chose to measure their progress compared to predictions under a "no action" scenario, rather than a past baseline year.

Emissions

The city's emissions inventory indicated a fairly typical scenario. In 2004, electricity generation accounted for 47 percent of greenhouse gas emissions, transportation 33 percent, natural gas 18 percent, and municipal solid waste two percent.⁸

Plans and Programs

Because Fort Collins has a municipal utilities company, the city's adoption of greenhouse gas reduction goals prompted the state's first renewable energy production goals. The utility quickly met its goal of two percent renewable energy by 2004, primarily with wind energy. The utility's power purchase agreement fostered the installation of one of the largest land-based wind turbines in the nation.⁹

City initiatives included the "Zilch" (Zero Interest Loans for Conservation Help) program for home energy efficiency and water and air quality improvement measures. The city launched the Climate Wise program in 2001 to foster collaboration among businesses seeking to increase recycling and energy efficiency. The program now boasts nearly 50 partners and a cumulative energy cost savings of over \$1.7 million. In 2004, the city updated its Residential Building Code to require energy efficiency improvements. To date, the city has more than 40 programs and initiatives in its GHG reduction portfolio.

Funding

Initial funding came from an ICLEI grant and other grants specifically for Climate Wise. Currently, a one percent fee on electric utility bills funds efficiency programs. The remainder is funded through existing staff and programs. Like most other cities and businesses, Fort Collins found that GHG reductions actually resulted in costs savings. By replacing traffic light bulbs with efficient light-emitting diodes

⁴ Town of Carbondale Energy & Climate Protection Plan. 2006, p. 5.

⁵ Denver joined in the early 90s, but focused on a Green Fleets program

⁶ Fort Collins City Council Resolution 99-137, Nov. 1999.

⁷ City of Fort Collins 2004 Climate Status Report.

⁸ City of Fort Collins 2003/2004 Climate Protection Status Report, City of Fort Collins Energy Management Team. Nov. 2005.

⁹ City of Fort Collins Sustainability Inventory, City of Fort Collins Natural Resources Department. 1 Jul. 2003.

(LEDs), for example, the city saved \$110,000 per year in electricity and maintenance costs for a 3.4 year payback.

Results

Because Fort Collins led the state in addressing climate change, they are the only Colorado municipality with a significant track record of their efforts. The city succeeded in reducing emissions 10 percent from predicted levels in 2001 and 9 percent in 2004. The efforts of businesses and organizations accounted for the majority of the city's GHG reduction (54 percent in 2004), followed by municipal, vegetation (through a tree-planting program), and individual citizen actions.¹⁰

Though solid waste contributed only two percent of the city's overall emissions, recycling activities, from all sectors, account for the largest GHG reductions. Recycling not only prevents land fill emissions, it also avoids upstream emissions associated with manufacturing new products.

While Fort Collins has made significant strides, the city is not on target to meet its 30 percent reduction goal by 2010 and may consider reconfiguring its Local Action Plan as a result. Per capita emissions have actually risen overall.

Boulder

Boulder, a city of 95,000 and home to the University of Colorado, is enthusiastically pursuing energy alternatives and conservation goals. A Boulder City Council 2002 resolution set their greenhouse gas reduction goal at seven percent below 1990 levels by 2012, mirroring the Kyoto Protocol. Two years later, Council directed the city's Office of Environmental Affairs to develop a local action plan to implement their goal. The resulting Climate Action Plan, passed in June 2006, is much like a master plan in its comprehensiveness and components.

Addressing climate change is a natural policy progression for Boulder. Environmental concern is an integral part of the city's culture. Their climate action plan was informed by the Boulder Valley Comprehensive Plan's policies. It also builds on the City Council's Environmental Goal to "enact and enhance city policies that cause the Boulder community to become a national environmental leader among communities."¹¹

Emissions

2004 emissions by sector:

Commercial 30%
Transportation 28%
Residential 17%¹²

2004 emissions by source:

Electricity – 51%
Vehicle fuel – 28%
Natural gas – 17%
Landfill gas – 4%¹³

Plans and Programs

Boulder's Climate Action Plan focuses on three goals:

¹⁰ City of Fort Collins 2003/2004 Climate Protection Status Report, p. 6.

¹¹ City of Boulder Climate Action Plan, June 2006, p. 4.

¹² Boulder, p. 11.

¹³ Since methane is 21 times more potent a greenhouse gas than carbon dioxide, the relative global warming potential of carbon dioxide = 1, and methane = 21. When GHG emissions are summed for an inventory, they are commonly referred to as CO₂e, indicating that the gases have been converted to CO₂ equivalent.

1. Increase energy efficiency
2. Switch to renewable energy and vehicle fuels, and
3. Reduce vehicle miles traveled

To inform their efforts, Boulder formed the Climate Action Plan Committee, a citizen advisory group.

The commercial sector, as the largest energy consumer, has the greatest potential for GHG reductions. The city is counting on their utility, Xcel Energy, to cover much of the commercial energy efficiency costs through rebates.

Because Boulder has aggressively implemented energy efficiency and renewable energy installations since the early 1990's, finding further opportunities to reduce municipal emissions may prove challenging. Previous actions include installing one of the nation's largest solar hot water heating systems at the North Boulder Recreation Center, which saves the city about \$20,000 per year.¹⁴

Funding

The Climate Action Plan estimates that the implementation costs will range from \$860,265 (or .4 percent of the budget¹⁵) to a one-time high of \$1.98 million in 2012. The spike in costs is due to an expected shortfall in their reduction goal and the need to purchase renewable energy credits to make up the difference.¹⁶ Boulder's cost estimates do not include cost savings offsets and are dramatically higher than other communities.

A two-year increase in the trash tax on the trash haulers in Boulder funded the city's existing residential and commercial efficiency programs as well as 1.5 staff, but expired at the end of 2006. Funding for much of their plan was secured in November 2006, when 60 percent of Boulder voters approved a new tax on electricity use.

Results

Boulder's efforts are working. City activities and initiatives (many of them began before the local action plan) resulted in far greater emissions reductions in 2005 as compared to 2004.¹⁷ In 2005, 37 businesses participated in an efficient lighting rebate program resulting in annual energy cost savings of more than \$160,000. The city launched a commercial energy and water efficiency audit and assistance program, "Building Performance with ENERGY STAR." Boulder expanded its residential weatherization services, resulting in natural gas savings of up to 69 percent for participating households. The city distributed over 650 energy-efficient light bulbs, initiated a campaign that resulted in 1,150 new wind power subscribers, and joined Chicago Climate Exchange (CCX).

The city is currently exploring municipalizing their utilities at the expiration of the current franchise agreement with Xcel in 2010. A municipal utility would provide capital to increase renewable energy initiatives. There is even talk of building a wind farm and the city is currently researching a potential site for a large solar photovoltaic (PV) installation on city property.

Carbondale

Carbondale has raced through the emissions reduction process — from planning to implementation — at astounding speed. Carbondale, a small mountain town of 5,625 located 30 miles east of Aspen, is home to environmental organizations such as Solar Energy International and Rising Sun, an energy sensitive lighting design company. The presence of such organizations, combined with leadership from the town trustees, led to the formation of the Town Environmental Board eight years ago.

¹⁴ Boulder, p. 40.

¹⁵ City of Boulder 2007 Recommended Budget <http://www.bouldercolorado.gov/index>

¹⁶ Boulder, p. 3.

¹⁷ City of Boulder. 2005 (March) Progress Report on Greenhouse Gas (GHG) Emissions Management.

At the suggestion of the Environmental Board, Carbondale joined CCP in the summer of 2005. Carbondale used the dramatic rise in energy costs as a vehicle to generate community input for their GHG reduction efforts. The resulting Energy Extravaganza, held in November 2005, attracted 150 people who helped shape their local action plan.

Emissions

That same month, the town contracted with local experts who used CCP software to conduct an emissions inventory for a 2004 baseline year. Electricity produced 46 percent of emissions, followed by gasoline at 25 percent, natural gas at 16, and diesel at 13 percent.¹⁸

Unlike Boulder, the residential sector produced the most greenhouse gas emissions (46%), followed by transportation (38%), commercial (14%), and the industrial sector (2%). The report acknowledges that the transportation sector is underreported, because it does not account for air travel, visitor or tourist travel, or transporting goods to the community. Municipal emissions (included in the industrial sector) accounted for three percent of the community's total, with waste water treatment contributing an astonishing 73 percent of municipal emissions, even without including the methane produced by sewage disposal.¹⁹

Plans and Programs

Carbondale's 2006 Energy and Climate Protection Plan calls for an ambitious 25 percent reduction in municipal emissions by 2010. They set their community-wide goal at a 25 percent reduction by 2012. In addition, they will strive to obtain 30 percent of heating and electricity energy from renewables by 2015.

The plan outlines five key strategies:

1. Lead by example;
2. Change the rules that influence energy use;
3. Remove barriers to wiser energy use;
4. Increase local renewable energy supplies; and
5. Cultivate clean energy jobs and businesses²⁰

Action steps include finding the most fuel efficient models for all new town vehicle purchases, making bus passes available for town employees, and investing in municipal energy efficiency improvements with a five-year or less payback period. To "change the rules," the plan calls for the town to reward compact land uses and require all new developments to provide bike and walking access. Most notably, the plan proposes building a local renewable power station, developing microhydro, and supporting efforts to turn waste cooking oil into biodiesel.²¹

With two major municipal solar installations under its belt, Carbondale has a track record of implementation. In 2006, the town installed six-kilowatts of solar panels on the town park pavilion. The previous year they installed a four-kilowatt system on the Town Hall roof.

Funding

Carbondale benefits from a unique regional resource that has made many of their renewable energy projects possible. Pitkin County, where Aspen is located, recently passed a Renewable Energy Mitigation Program which exacts a fee for new homes that exceed 5,000 square feet and do not have on-site renewable energy systems to meet some of their needs. A separate fee is charged for existing homes that exceed the property's "energy budget" allotted by the local building code. The program has raised

¹⁸ Greenhouse Gas Report for the Town of Carbondale. 2006.

¹⁹ Greenhouse, p. 5.

²⁰ Town of Carbondale Energy and Climate Protection Plan. 2006. p. 3.

²¹ Town, p. 13.

more than \$2 million for renewable energy and efficiency rebates and grants. The towns of Basalt and Telluride, also wealthy mountain towns, have since adopted similar policies.

Carbondale's most stunning achievement came in November 2006 when 81 percent of the voters approved a plan to issue Clean Renewable Energy Bonds to build the largest solar installation on Colorado's western slope. The two facilities will produce a total of 250 kilowatts. Xcel Energy will also provide significant funding for the project through rebates and by purchasing solar energy credits.²²

Conclusion

These three plans have engendered significant community support as awareness grows that GHG reduction improves local quality of life and air quality, supports the local economy, and instills a sense of pride in one's community.

The message that energy efficiency means cost savings is paramount in these plans. Every ton of CO₂e prevented through energy efficiency investments means money saved in utilities bills. Efficiency measures in turn reduce the amount of renewable energy needed and the size of the renewable energy system required.

As Lucinda Smith, Senior Environmental Planner for the City of Fort Collins explains, "In the last five years, so much information has come out on the benefits of greenhouse gas reductions, proving that when a city embarks on this process it realizes significant cost savings."²³ If saving the world is not a sufficient motivator for a community, perhaps saving some money will be.

Megan Day is currently a graduate student in the Urban and Regional Planning Program at the University of Colorado at Denver. Previously, she ran a nonprofit in Colorado Springs for six years, served as the campaign manager for a U.S. Senate candidate, and worked in community relations for her alma mater, Colorado College. She is spearheading the development of a greenhouse gas reduction plan and conducting the emissions inventory in Manitou Springs, Colorado, where she lives with her husband and two young daughters.



Snails seek high ground in N. Texas flooding © K. Stevens

²² Lyndbloom, Soozie. Chair, City of Carbondale Environmental Board, Solar in the Schools program, Solar Energy International. Personal Interview. 16 Oct. 2006.

²³ Smith interview

The Innovation Economy comes to Eight Towns: The Green Community TechnologiesSM process and the Triple Bottom Line²⁴

by Ann Ruzow Holland

Community, Economy, and the Environment are the “Triple Bottom Line.” Today’s municipalities resemble socially responsible businesses and are concerned about all three. A group of eight local governments in five states spent the last three years “walking the walk” and seriously changing the impact of their community actions on the local economy and environment. These communities were not only concerned about the escalating price of energy and the toll it takes on budgeting and planning, but also about new ways to organize and manage their capital assets in the public interest. They shared a sense of frustration with aging infrastructure, limited resources and an overwhelming responsibility to maintain facilities and services that were not meeting town needs today or in the future. Linking local government with the right kind and fit of technical assistance moved the group of eight from dilemma to action, bringing environment, economy and community together in a dramatic new way.

The hardest step is getting started and moving away from crisis-to-crisis planning. The Green Community TechnologiesSM (GCT) process is an innovative inventory, analysis, and planning process that helps organize and identify the most pressing problems local governments are facing. Funded by the United States Department of Agriculture’s Small Business Innovative Research program, Yellow Wood Associates of St. Albans, Vermont, created the Green Community TechnologiesSM process to help communities access the best state-of-the-art technologies to solve their infrastructure problems. Through GCT, eight local governments instituted a planned progression to more efficient, more environmentally responsible, cost-saving technologies and practices.

GCT applies a “systems approach” to inventory and analyze public facilities and infrastructure, and identifies areas where alternative approaches have significant potential to save money, protect the environment and improve service delivery. Based on community priorities, GCT provides customized research into alternative proven approaches that match community needs, conditions, and constraints. When communities are ready to implement changes, GCT can help identify a roster of qualified contractors. GCT culminates by identifying capital allocation opportunities that provide sustainable solutions to community problems. The results are compelling for public officials and taxpayers alike. By moving from dilemma to action, governments are able to report substantial cost and energy savings, improved bond ratings, regulatory compliance, job generation, and protect the environment at the same time while improving community quality of life.

Getting “One’s House in Order”

Capital asset inventories do not appear to rate high on a municipality’s list of key management objectives, but the Governmental Accounting Standards Board (GASB) and state Comptrollers believe these inventories are essential and play a critical management function. It is stunning that many municipalities do not possess a comprehensive and up-to-date inventory of the assets they hold in trust for the taxpayers. The GCT inventory process can address this critical gap while meeting GASB requirements. The GCT inventory process promotes communication between decision-makers and asset managers that can lead to better management of government assets. Improved communication leads to increased shared understanding of conditions and a willingness to consider feasible alternatives. Sustainable communities rely upon well-managed public facilities that are cost effective, affordable and environmentally friendly.

²⁴ This article has also appeared in the September 2007 issue of Empire State Magazine and the August 2007 issue of ICMA Public Management Magazine.

Some local governments have already compiled or maintain comprehensive capital asset inventories and have met GASB requirements. GCT enables communities to start with an inventory or not, depending upon their circumstances.

Comprehensive Asset Assessments in Case Study Communities

Richmond, Massachusetts, is a moderate sized community nestled in the Berkshire Mountains. Thetford, Vermont is a hill town within commuting distance of Dartmouth College in Hanover, New Hampshire. Both Richmond and Thetford are thriving communities which are experiencing moderate residential growth and development.


GCT began with a comprehensive assessment of each town’s material assets, such as sidewalks and roads, streetlights, buildings and equipment, vehicles, town-owned forests and water resources.

Litchfield, Maine, Barnstable County, Massachusetts and Hancock, New Hampshire, wanted to focus their initial inventory on a select set of capital assets. For example, Hancock wanted to combine the GCT inventory and assessment with their highway database to develop a maintenance plan based on road condition and use. They wanted to understand how well different road segments were meeting community needs today and in the future.

The inventory process itself provided a great benefit to these five communities, detailing holdings and their condition and promoting shared knowledge of assets among town officials. In one case study, conducting an asset inventory revealed that multiple heating systems were in need of replacement. Rather than stagger their replacement, the community could consider bulk purchase, cooperative energy systems, or higher efficiency alternatives, including alternative fuel use. In another community, it became clear that culverts and roads were inadequate in the same locations and that these locations were adjacent to the next town. This offers an opportunity to confer with neighbors so the solutions are “win-win.” Without the capital asset inventory, these options may not have been discovered and evaluated.

Some of the inventories were also designed to meet the new General Accounting Standards Board Statement #34 (GASB 34), which requires communities to report municipal infrastructure as an asset. As a result, roads, bridges, drainage systems, etc., are now subject to depreciation. Estimating cost depreciation requires extensive historical data collection that can be prohibitively expensive and labor-intensive for small local governments. Communities must meet GASB standards if they want to be in a position to finance municipal projects through bonding. In addition to its other benefits, the Green Community TechnologiesSM inventory cost effectively allowed Richmond to meet this important administrative benchmark.

Towns that have already complied with GASB 34 can incorporate this information into the GCT inventory. Results of the inventory and assessment go beyond GASB compliance and help identify areas in which alternative approaches should be considered to achieve better economic, environmental and/or social outcomes. A “systems analysis” of community infrastructure leads to specific recommendations for improved management or replacement of infrastructure with more efficient, environmentally-friendly technologies. At the conclusion of the inventory and assessment, communities receive an asset management tool in the form of an electronic database that can be updated as needed for the long-term.



GASB 34 Compliant Inventory and Assessment
The following is an example of a database set up to record necessary information for GASB 34 requirements for the depreciation method and background information for future steps in the GCT process.

GPS_ID	Building Name	Actual/Estimated Historical Cost	Basis of Historic Cost records showing acquisition price	Estimated Useful Life	Total Costs Incurred to Extend Useful Life	Reduction component system
BLD21	Town Garage	\$400,000		50 years	\$45,000	\$35,000

Estimated Useful Life	Total Costs Incurred to Extend Useful Life	Reductions (in components of systems)	Accumulated Depreciations to Date	Condition of Building	Meets Needs of Community
50 years	\$45,000	\$35,000	\$100,000	Good	Adequately

Jumping Ahead on the Fast Track: Hot button issues

Sometimes communities choose to forgo the inventory process in favor of a hot button issue that comes to the forefront and requires immediate attention. The GCT process is flexible and allows alternative applications. Hinesburg and Richmond, Vermont and Franklin, New York identified issues of immediate concern for Green Community TechnologiesSM to start researching alternatives. In these three cases, GCT worked with community decision-makers who had already identified assets most in need of repair, improvement or replacement. In keeping with the “Triple Bottom Line,” the GCT process identified potential cost savings and environmental benefits to each community.

Generally, when communities face infrastructure issues, they turn first to engineers or architects who provide them with a limited set of solutions based on their own expertise. Conventional solutions typically do not open the door to innovative solutions that have been effectively implemented in other places. With Green Community TechnologiesSM, communities define their needs in and learn about a wide range of proven solutions in use in the United States and beyond. From its library of technologies and technologists, alternatives are identified that provide for the wisest and most affordable decision for each community.

Hinesburg, Vermont

The Town of Hinesburg, Vermont (population 5,000) is nestled against the edge of the Green Mountains about 15 miles southeast of Burlington and about 10 miles east of Lake Champlain. In close proximity to metropolitan Burlington, Hinesburg has seen its share of growth over time, but as growth moves out from Burlington, Hinesburg will see even more.



Five Reasons why your local government should green up public facilities in your community and manage your public assets

1. Facilities cost taxpayers money and avoidance comes with a cost.
2. Taxpayers want high quality services and better services for less money.
3. It makes political sense; the people want a cleaner environment, improved quality of life. It gives meaning to the phrase “sustainable community.”
4. Thoughtful and creative planning is good government.
5. Oversight agencies and taxpayers want the kinds of accountability that can be achieved through GASB 34.
5. It supports environmental technology entrepreneurs and can lead to local job and/or business benefits.

Hinesburg was faced with growing residential demand that would force expansion of its wastewater treatment system. With a multi-million dollar capital project looming, the GCT process helped the Town by identifying opportunities to reduce input into the treatment plant by diverting grey-water from a single source that does not require expensive secondary treatment. In addition, GCT identified opportunities for water conservation in new construction that will reduce per unit wastewater flows, and alternative treatment technologies that will improve efficiency at the plant. As a result, Hinesburg expects to avoid having to invest millions of dollars in expansion in favor of much less expensive pre-treatment upgrades and a smaller and more efficient wastewater treatment system.

Solutions, such as this one, are most likely to emerge when problems are considered in a “systems” context, rather than as stand-alone issues. The stand-alone solution would have been to expand the treatment plant rather than look at the quality of flows it was treating, as well as opportunities for conservation and redirection. Without Green Community TechnologiesSM, comprehensive solutions would likely not have been considered. The traditional process of hiring expensive architects and engineers to implement conventional, “business as usual” solutions does not leave room for thinking outside the box and addressing the “Triple Bottom Line.”

Franklin, New York

Franklin, New York, population 1,218 (Census 2005) is in the Adirondack region of New York. The Town is at a pivotal point in planning for their facility needs, having identified a variety of issues with respect to existing buildings. The Town has also been considering constructing a new building to meet specific town

needs. Over the years, the Town's Building Committee collected a variety of information on its buildings. However, to date, the information collected was insufficient to provide a clear path forward. This is a common problem in municipalities and one which Green Community TechnologiesSM was developed to address. Providing external and objective technical assistance often leads to improved decision-making and subsequent action.

Franklin was in need of a new approach that could address the timing and demand of multiple needs. As a result, GCT conducted a multi-facility assessment, researched green building alternatives, and identified the regulatory issues and resources associated with the project. GCT maximized the use of existing assets and minimized the amount of new construction required to meet Town goals. The more compact the spaces are, the easier and less expensive they are to heat and maintain. Green Community TechnologiesSM introduced Town decision-makers to principles and practices of green building and gave them conceptual designs to bring to an architect. GCT will locate professionals, qualified to implement green building practices, for the Town to include on its bid lists. The Town of Franklin will consider addressing its building needs in phases in order to address the most critical needs first and move functions around temporarily without running out of space for them. Most importantly, phasing will allow the Town to focus its limited resources on one or two projects at a time without becoming overwhelmed. In the words of Dave Decker, member of the Franklin Building Committee, "We need a new community house, and thanks to this we're doing it the right way. I'm really impressed." Franklin is now working on recruiting "Green" architects, contractors and supplies, and constructing a capital finance plan for the four facilities.

Richmond, Vermont

Richmond, Vermont is located in the western foothills of the Green Mountains on the eastern edge of the Lake Champlain Valley. Like many communities, parts of Richmond's infrastructure are nearly a hundred years old, requiring costly improvements in the near future. While faced with numerous priorities for infrastructure repair and replacement, resources available for these improvements are limited, as is the capacity to consider alternative options.

As with many communities, the Town's capital assets had never been completely inventoried so Richmond prepared a Green Community TechnologiesSM capital asset inventory and assessment that satisfied GASB 34 requirements. Local leaders took advantage of this effort to map and digitize all infrastructure locations to create a capital asset overlay in their Geographic Information System (GIS). Richmond's auditors commended the town on completing the fixed asset requirement.

Once the inventory was completed, the Yellow Wood team conducted a participatory review process in collaboration with town administrators and the Richmond Planning Commission.

GCT identified six areas in which alternative approaches could make a real difference in outcome and cost. GCT researched the differences in cost, performance, capacity and impact between conventional and alternative approaches. Six recommendations were made where alternative technologies would provide superior overall economic and environmental performance. Planning was tailored to meet Richmond's "Triple Bottom Line" and engaged officials and citizens in charting the Town's future. This process also equipped them with an analysis of options based on the latest technologies and life-cycle economics.

Green Community TechnologiesSM found a grant to help offset the cost of highly efficient pumps and motors for the new sewage treatment plant. The Town is in the process of retrofitting its historic town hall to increase energy efficiency and is taking steps to upgrade underground pipes. Richmond's latest interest is in generating local energy using renewable fuels.

Lessons Learned: Moving from "Thought to Action"

For each of these eight communities, taking the time to analyze alternative approaches was not only in the communities' best interests, but also served to conserve taxpayer dollars and improve environmental impacts, thus addressing the "Triple Bottom Line." Introduction of a systems approach brought new choices to local government officials who needed to move from dilemma to concrete action. In the long term, implementation of GCT recommendations depends on towns' financial management capacity. However, the Green Community TechnologiesSM process equips administrators with baseline data, asset management tools, information about emerging technologies, and a methodology for decision-making as opportunities arise. Once implemented, GCT is successful at saving tax dollars, improving bond ratings and helping assure citizens' access to basic services. What is different about the Green Community TechnologiesSM process is that it accomplishes these goals while at the same time reducing environmental impacts, conserving resources and preserving quality of life.

By linking information on asset conditions with the extent to which they meet and will meet community needs, municipal leaders can take a proactive approach to their infrastructure. Officials can plan replacements well in advance and identify opportunities for cost savings through combined purchases. Understanding the pros and cons of alternative approaches helps public officials explain their decisions and choices to the electorate and Improves accountability for municipal infrastructure. Proactive planning combined with intelligent capital allocations will contribute to enhanced fiscal stability and physical security.

Public accountants, auditors and comptrollers recommend that municipalities take a long-term view of their infrastructure investments. Communities know that it is also in their best interests. The process of analysis can be daunting and complex. GCT uses a life-cycle costing approach to compare the total costs of alternative versus conventional approaches. Life-cycle costing is the process of considering alternatives which satisfy all performance requirements (e.g. code, safety, comfort, reliability) based on all costs spent over the life of the longest lived alternative. These costs include purchase price, operation and maintenance, replacement costs for shorter lived alternatives, and disposal cost. GCT enables communities to take a long-term view of their infrastructure by making the process accessible, affordable and successful.

Communities attain sustainability by design or fail to by default. The decisions towns make today will profoundly affect their ability to function in a near future in which energy supply and environment impact become crucial concerns. A new kind of approach is required for municipalities to make use of the emerging technologies and new practices that assure financial solvency, energy efficiency, natural resource conservation, and the capacity to meet citizens' basic needs.

About the Author

Ann Ruzow Holland, is a consulting Community Planning Advisor in Willsboro, New York and a Yellow Wood Associate. She has been a community planner and sustainable community developer for over 30 years.

Yellow Wood Associates is a community and economic development consulting firm providing research, facilitation, strategic planning, evaluation and training services since 1985. Visit the website at: www.yellowwood.org/gct.htm

Expanding Executive Committee

The Executive Committee has added some volunteer appointees to their ranks. It is hoped that the expanded will create the opportunity for more people to get involved and allow us to expand our programs within the Division. As everyone on the Committee is volunteering their valuable time, we are very grateful for their assistance, and would definitely welcome further additions. If you would be interested in assisting with one of the new positions below, or have other suggestions for further directions for the Executive Committee, please contact Ingrid Kelley (inkelley@charter.net).

The newly created positions are largely a formalizing of roles that have been filled in the past, specifically the Fellowship Coordination by Rachel Scheu, and the organization of the By-Right session applications by Danielle Bower. Welcome to the new Committee members who will be filling the following three new positions:

Danielle Bower, Chair of the By-right Sessions Committee

Rachel Scheu, Chair of the Fellowship Committee

Aimee Swenson, Chair of the Membership Committee

The Relevance of Slums to Global Climate Change, Planners and the Ecologically Sustainable City, State and Nation by Jac Smit, FAICP

This article suggests that it would be useful to have a new frame in addressing the issue of so-called slums'. It is based in large part on the author's experience in working in low-income portions of six cities on three continents. In 2005 the United Nations Think Tank in Paris [OECD] concluded from surveys that one billion of the world's three billion urbanites lived in what they call 'informal settlements' or 'squatter communities'.^A

The Washington Post on January 27th reports "-- two-thirds of the of Mumbai population lives in slums or on the street-"^B. This refers to eleven million of sixteen million. OECD projects that by 2050 there will be two billion living in these settlements as the world population increases from six and one-half to nine billion. They are found by OECD to currently house one third [one billion] of the total 2005 world urban population [three billion] and with recent trends will be home to half of the global urban population three billion of six billion] in a world of nine billion humans by the year 2075.

This article includes three elements

- A) Consideration of the utility of the term 'slum' from the perspective of the challenge of climate change;
- B) A perspective of the low-income portion of cities compared to our recent suburbs on the fringe "Sprawl"; and
- C) A possible reframing of planning for the so-called 'Slums, with next steps.

Should we continue Slumming?

The term "SLUM" may be less useful than it once was. The term became popular at the end of the 19th Century, [think London and New York]. In my youth we occasionally spent an evening "slumming". So, what's a planner to do but plan for its renewal, redevelopment or removal?

In terms of environmental sustainability and greening the metropolis, we might consider two insects, the spider and the butterfly. Considering the challenges of climate change which insect is the better bet? The first reaction of most of us urbanites to a spider is disgust or fear [out damn insect]. And our reaction to a butterfly is often wonder and perhaps envy. Which is more likely to survive in the warmer earth?

I bet on the spider. The fact that most of us find the low-income self-built quarters of cities to be unattractive or repulsive does not mean that they are not a good design for the 21st century and beyond.

Who is really the City Planner & Builder?

Today, in a world that is rapidly urbanizing, [think Africa, Asia, Latin America]; the city of the future is planned, built and managed/governed by its low-income citizens. They create "Resident Planned and Built Communities" [RPBC] which are today the dominant element of urban growth. Referring to these portions of cities as 'slums' is disabling to planners, social workers, local government, funding organizations, National governments and more. And it's an insult to the residents. It raises a barrier between the community citizens and leaders and the APA member.

The dynamic planners and builders of the low-income portions of cities do not need to be told how to plan or build or govern. Most of them are doing a good job. However most of these areas could benefit from outside support in education, health & sanitation, credit and communications.

They [RPBCs] are ready and able to contribute to the cost of these services.^C It is common that the highest density, lowest income portions of cities like Bombay and Dar es Salaam have lower crime rates than other areas. In part because they police themselves and they are "a community".

One planner's experience

My planning experience, not my education, taught me the reality of what was, and is, referred to as slums. In Chicago I took the 'E' south from the Loop. After a few station stops the whites disappeared and the blacks became all but me, and I became apprehensive. When I got off, walked the street, had an ice cream and asked a few questions to guide my way to a meeting. I felt cared for.

A few years later in Calcutta I walked a muddy, puddled street of a low-income neighborhood. When I asked a question, a shopkeeper said something to the effect that he did not understand English and took me by the hand to an English speaker. My greatest insight here was that the residents in this so-called slum were more welcoming and had more smiles per capita than the upper income area I lived in. A lifetime memory.

In Karachi Pakistan and Dhaka Bangladesh our foreign aid offer to support infrastructure and education persuaded RPBC's to actually move houses in order to welcome a drainage system and a school. Then project in Bangladesh was to assist with education. The first element was that the local community would build the school and the student desks and benches. We would provide the books, pencils, chalkboards, the teacher's desk and other tools and equipment. The national government would then provide the teacher(s). To no one's surprise, a few houses were moved and the school was built in the center of the community.^D

Mud houses can be built, modified, decorated and moved. Corrugated iron roofs are fairly easy to remove, move and reinstall and that's what is being done.

One view of the role of Urbanization in Climate change

Cities with their negative footprints including: 'heat island', fossil fuel consumption, traffic, paved and roofed surfaces, waste generation and high levels of natural resource consumption, as manufactured and processed goods, can be labeled as the major source of global warming; Second to what?

So, what is the climate change impact of 'slums' as an element of the city?

- A. Their high density contributes to a lesser city footprint per capita;
- B. Its infrastructure is less polluting per economic contribution, population and acre [and less reliable];
- C. The housing is built mostly from locally available material [not Cambodian forests] and utilizes heating and cooling efficiently [and less healthily];
- D. Most, but not all, have created a locally-based food system that depends less than other parts of the

city on imports;

E. The economy is strongly small enterprise which recirculates dollars efficiently within the community and the city;

F. Most but not all have their own police system; and

G. There is little petroleum driven traffic.

These six characteristics accumulate to a more efficient and more sustainable urban form than that which we have planned and built since the start of the industrial revolution a couple of hundred years ago. This type and form of urban community is contributing to a greener planet.

During the past twenty years a major element of city building has been what is commonly named 'Sprawl'. This term is a negative created in the 1950s/60s to define a new form of urbanization that was not yet understood as the entirely predictable and appropriate new urban form following on the so called suburbs which were enabled by the 19th century railroads.

A new role for city planners:

As planners;

a) With a renewed ethical responsibility to contribute to reducing global warming, it is reasonable to find that;

b) The now dominant CPBC elements of our urban landscape;

c) May well be most the successful model available in terms of growing the green city of the future.

It occurs to me that there may be better ways to accomplish our goal but this one is a working model to which we have ready access. And we would be smart to begin calling it by a title that recognizes it for what it is.

A logical first step could be to compare the ecologically sustainable characteristics of so-called 'Sprawl' and so-called 'Slum'.

A. GIS: map and diagram one 21st century urban fringe community; [housing, schools, shopping malls, golf courses, industrial parks, streets & parking].

B. GIS map & diagram a RPBC [housing, shops, streets, market, school, gardens, common,

C. Project A. and B. 25, 50, 75 years forward, multiply each by a billion, and measure the climate impact

D. Collect success stories. And add them to planning school curriculums, including student one week overnight in a RPBC.

As a profession we and our client will benefit if we retire the obsolete terms "slum" and "sprawl". It is possible that we can be persuasive of the decision makers if we present the results of our scientific ecological, global warming, climate change study, and lastly add it to our curriculum.

My guess is that the 'spider' wins. We may be better off to enhance the resident planned and built community than to renew, redevelop or bulldoze them as we have been doing for half a century.

Footnotes and References:

Planet of Slums, 2006, Mike Davis

Definition of 'Slum'

SLUM, *n* a section of a city where the poor people live (1825)

originally a 'cant' or slang word meaning a back room [origin unknown]; *S lom*, means "is bare, naked, poor" in Irish and is the origin of the mystery word 'slum'.

House in a Slum? you can't afford it, Dilip D'Souza, NY Times 1 27, 2008, dilip.fb@gmail.com

Squatters and the Cities of Tomorrow, 2007 Robert Neuwirth

Planet Aligns for the Dawn of the Climate Change Industry

by Grant Ferrier, Editor of Climate Change Business Journal™

From Katmandu to Khartoum, from Vladivostock to Venice and from London to Manhattan, everyone has heard about climate change. From Sacramento to Burlington, from Brussels to Beijing and from Kyoto to Bali, everyone is talking about climate change. Independent of all the talking and listening, humans and habitats on all continents are feeling the effects of climate change.

What a lot of people are not yet talking about, however, is the climate change industry. There is a realization among policymakers and economic development types that certain sectors will benefit from climate change policy. Meanwhile, a new breed of entrepreneurs and investors are devoting themselves to renewable energy, carbon offsets, green buildings and a number of other enterprises in apparently unrelated segments. Few of these pioneers consider themselves part of anything beyond their own discrete segments. Fuel cell companies, for example, wouldn't say they share a market with carbon capture and storage providers, and suppliers of wind energy have little to do with the demand side or energy efficiency.

The CCBJ view, however, is that these and other segments are converging in what we call the climate change industry. The CCBJ mission is to research, characterize and quantify the climate change industry, a working definition of which is presented on page three and in more detail on our website (climatechangebusiness.com). While a detailed quantification is in process, current estimates of key segments peg the climate change industry on the order of \$100 billion in the United States in 2006 and \$300 billion worldwide. Largest contributors to these totals are transportation (both alternative fuels and vehicles), clean or low-carbon energy (mostly renewable systems and power sales) and green buildings—each growing at 20-30% annually. Just as central to the development of the industry in its early stages, however, will be two segments profiled in this inaugural issue: carbon offset and credit markets and consulting & engineering.

The carbon market is dominated by the \$30-billion regulated albeit flawed market of the European Union. Coming on stronger is the voluntary market—pervaded by a frontier mentality until solid standards or a regulated market emerges. For their part, the industry's leading consultants have gained traction from their high-level contacts in government and industry, although billings specifically related to climate change still amount to only \$300-400 million.

As we refine our definition of the climate change industry in the coming months, we are well aware that climate change policy is not the sole driver of growth in many segments. Energy security, environmental policy, fiscal policy, industrial policy, incentive programs, subsidies and other market drivers also play a role. But the carbon imperative will be central to all segments included in the CCBJ definition of the climate change industry. Representatives across the economy from investors and entrepreneurs to the world's largest corporations to government and non-profits will all come into play as both customers and competitors. Power generation plays a dominant role, but no group of major emitters is likely to be left out of a regulatory equation. Europe's pioneering carbon trading system covers just the largest stationary emitters in power and industry, but it and other programs are busy with the details of adding transport, aviation, structures and even citizens in the future.

Keeping the engine of the global economy going will remain paramount for policymakers, but keeping people moving and their built environments hospitable contributes as much or more carbon to the atmosphere. Solutions will most likely be incremental improvements in power generation, transport and buildings, but each major sector has its revolutionary concepts and innovative projects that indicate the transition to a low-carbon future won't be strictly evolutionary.

Although Europe has taken much of the initiative in carbon policy, critics of its trading program are correct in observing it has yet to stimulate the active emission reductions envisioned by policymakers. In its defense, Phase I of the EU trading system from 2005-2007 was a trial period, and while the market was 'long' (meaning too many allocations were given out), it is likely better for political reasons to have been long than short. The EU learning process will undoubtedly help accelerate national and regional trading schemes, and many experts expect to see a global system in effect by 2016-2018.

The understandable conflict between developed and developing nations is also apparent from looking at the global emissions profile. The developing world not only contributes a larger portion than previously thought, but emissions are also growing much faster. Current mechanisms allow for technology transfer from north to south—and in effect emissions transfer from south to north—but an equitable global market with clear incentives for local emissions reduction is the ultimate goal. International negotiations are proceeding in fits and starts but remain encouraging for the most part.

As the largest potential market, and in the absence of federal policy, American industry has taken it upon itself to become the leading purchaser in the still relatively insignificant voluntary market for carbon offsets. State governments and regional blocks have also set emission reduction targets and identified policy instruments, thereby putting pressure on the federal government for a national system—ironically led by some of the largest emitters who evoke the now popular phrase in climate change policy: “If you are not at the table, you will be on the menu.” Voluntary initiatives are in evidence around the globe, with consumer-facing companies like Google, Nike, Dell, WalMart and others setting examples.

Whether mandatory or voluntary, it is clear that the world's leading economies are now moving rapidly on climate change. For a species that industrialized rapidly by drawing on the unparalleled energy density of fossil fuels, maintaining economic growth while lowering carbon emissions poses a challenge of almost indescribable difficulty. Writing in *Engineering & Science*, Cal Tech Professor Nathan Lewis called the challenge “the biggest experiment that humans will have ever done, and we get to do that experiment exactly once.”

Yet the business opportunity—the yin to the yang of the climate crisis—is also unprecedented in its scale and provides a world of challenge for a new generation of scientists, entrepreneurs, financiers and even bureaucrats. After more than a decade of talking and listening, the global economy at last seems ready for the climate change industry.

Excerpted with permission from Climate Change Business Journal™ newsletter, a new publication from Environmental Business International Inc. (San Diego, CA). CCBJ covers emerging opportunities and trends in the business of mitigating and managing climate change. It focuses primarily on: renewable and low-carbon energy; energy efficiency and conservation; distributed energy; green building development, design and materials; alternative fuels and vehicles; consulting & engineering; carbon offsets and emissions trading; and climate-change adaptation. See www.climatechangebusiness.com for details.

For more information about the author, Grant Ferrier, please visit:
<http://www.climatechangebusiness.com/Contributors.html>

CBJ Climate Change Industry Segmentation

1. Low-Carbon Power	Renewable/conventional equipment & power sales; project design & development
2. Carbon Capture & Storage	Systems, equipment & operations
3. Energy Storage	Equipment & systems (batteries, hydrogen, etc.)
4. Energy Efficiency & Demand Response	Systems, equipment & appliances; audits & studies
5. Green Buildings	Design & development; building materials
6. Transportation	Vehicles, fuels & systems
7. Carbon Markets	Credit & offset trading; project development, verification and registration
8. Adaptation	Risk assessment, planning, engineering & construction
9. Services	Consulting & research

Source: *The CCBJ Segmentation of the Climate Change Industry*, *Climate Change Business Journal*, EBI Inc. Copyright 2008 EBI Inc. See climatechangebusiness.com for more detail on segments and subcategories.

Climate Change Policy Guide to be presented at Las Vegas

by Ralph Willmer, AICP, Past Chair

APA is undertaking a major effort to craft a new policy guide to address the issue of how planning interfaces with climate change. At the Chapter Delegate Assembly during the Philadelphia conference, an issues forum was conducted to get initial input as to what should be considered in the policy guide. As a result of that forum, a record number of people volunteered to assist in the preparation of the guide, including a number of ENRE members.

The policy guide will examine four specific aspects of the climate change problem.

- Land Use
- Transportation
- Adaptation
- Standards and Technology

The guide will be circulated to chapters and divisions for review during February and March (specific deadline to be determined). ENRE members are encouraged to participate in the review process and submit their comments through the Division or their own individual chapters.

ENRE Chair Ingrid Kelley and Past-Chair Ralph Willmer, AICP are members of the Steering Committee.

ANNOUNCEMENT

Citizen & Planner Leaders for Local Sustainability Eco-municipality Leadership Training

June 6-11, 2008

Tufts University, Medford, MA

In June, 2008, a 5-day national training session will take place at Tufts University to increase citizen and planner leadership capacity in communities and their local governments to initiate and lead a change process to become a sustainable community. This sustainable communities approach has a substantial track record of successful implementation – possibly the most extensive in the world - in over 100 municipalities in Sweden, U.S., and around the world. The objective of the training is to prepare potential local leaders – including citizens, local officials, planners, or municipal staff – to be able to lead a process involving sustainability education, communication, and a strategic implementation process.

Faculty: Sarah James & Torbjörn Lahti, co-Directors of the Institute for Eco-municipality Education & Assistance (IEMEA), and co-authors of *The Natural Step for Communities: How Cities & Towns Can Change to Sustainable Practices* (New Society Publishers, 2004, winner of the 2005 *Planetizen* Top Ten Book Award. Torbjörn Lahti is the founder of the Swedish eco-municipality movement, and he and Sarah James are co-founders of the emerging U.S. eco-municipality movement. Between them, they have worked with over 150 municipalities in Sweden and the United States.

David Waldron, recent Director of The Natural Step's Masters Program In Strategic Leadership Toward Sustainability, Blekinge Institute of Technology, Sweden, and former Sustainability Coordinator of Whistler, Canada, the first North American municipality to adopt The Natural Step framework..

Julian Agyeman, Associate Professor of Urban and Environmental Policy and Planning (UEP), and Chairman of the Department of UEP at Tufts University. He is author of *Sustainable Communities and the Challenge of Environmental Justice* (New York University Press, 2005), among other books.

Cost: The fee for attendees requiring accommodations will be \$2,275 , inclusive of tuition, room, and board. Participants registering and paying before April 15,2008 pay a discounted rate of \$2,175. For persons not requiring accommodations, the cost will be \$2,000, or \$1,900 if paid before April 15, 2008. Unfortunately, no scholarships or reduced rates are available.

Primary Sponsor: The Tufts University Department of Urban and Environmental Policy & Planning. **Co-sponsors:** The Massachusetts Chapter of the American Planning Association and the American Planning Association Environment, Natural Resources, & Energy Division.

Registration: To register for this training, send the accompanying registration form and a check made out to IEMEA. (Sorry, no credit cards!) There is a 27-person limit. In the event of oversubscription, priority will be given to individuals presently leading or involved in local eco-municipality initiatives. Final registration deadline: May 15, 2008.

WHAT YOU WILL LEARN IN THIS TRAINING SESSION

- An in-depth understanding of what sustainability means both at the global and local community level, including the Natural Step framework for sustainability.
- An in-depth examination what it means to satisfy human needs within a sustainability context, including psycho-social human needs.
- How to present and communicate sustainability ideas and concepts to a variety of different audiences, plus tools and materials to accomplish this.
- How to design and lead a five-year “bottom-up” process for transforming a municipal government and its larger community to become an ‘eco-municipality’ – a sustainable community led by (particular) sustainability objectives which are practiced throughout the government and larger community.
- How to engage and involve the entire community – citizens, businesses, institutions, municipal departments and agencies – in defining a guiding vision and implementing actions to move toward sustainable practices.
- How to bring key municipal tools, such as master plans, land use regulations, capital improvements planning, and municipal budgeting into alignment with sustainability objectives.

Program questions: email Sarah James at james.s@att.net

Tufts facility & accommodations questions: email Beth Kurth at beth.kurth@comcast.net

Citizen & Planner Leaders for Local Sustainability Eco-municipality Leadership Training June 6-11, 2008, Tufts University

REGISTRATION FORM (Please print)
(Discount deadline – April 15; Final registration deadline – May 15)

Name _____
Affiliation/organization _____
Title _____
Mail address _____
Telephone (day) _____ email _____
Do you require accommodations? Yes _____ No _____

<i>Circle appropriate fee:</i>	Before 4/15/08	After 4/15/08
With Tufts accommodation	\$2,175	\$2,275
No Tufts accommodation	\$1,900	\$2,000

Please describe your current involvement or interest in eco-municipality leadership.

**Please send this form with check made out to IEMEA to:
Institute for Ecomunicipality Education & Assistance (IEMEA)
C/o Kurth Association Services
21 Hawthorne Street
Watertown, MA 02472**