Sustainable Mountain Communities:
Environmental Sustainability in Communities Impacted
by Tourism and Amenity Migration

WEEK 2: DISCUSSION SUMMARY

Topics: Providing Sustainable Utilities and Infrastructure
        Minimizing Air, Water and Soil Pollution

Thank you to everyone who contributed to the second week of discussion. It was much
quieter than the first, perhaps reflecting the difficult questions posed by this week's
topics. The second week saw 6 postings from 6 contributors representing communities
in Alberta, Iowa, Kentucky, Arkansas and Washington, DC. Thank you, all.

The following discussion summary is categorized by topic and discussion thread, with
common conclusions listed at the end of each topic section. Here is the discussion
summary for week two!

A. PROVIDING SUSTAINABLE UTILITIES AND INFRASTRUCTURE

Discussion Threads:
*** Reduction of Energy Consumption
*** Water Conservation
*** Alternative Building Materials
*** Sustainability as a Condition for Growth
*** Common Conclusions
*** Reduction of Energy Consumption

Steve Gasser began this discussion with an overview of some of the efforts being made
by the town of Banff, Alberta to provide more sustainable utilities and infrastructure.

To address utilities, the Town of Banff has initiated a municipal energy retrofit program,
approved a 'revolving fund' for energy projects and is currently writing a local action plan
for energy reduction in the community and municipal operations.

Steve noted a number of Canadian municipalities who have successfully implemented
energy-saving projects, including:

Energy Efficiency Program: Windsor, Ontario
Building Energy Savings Program: Drumheller, Alberta
Better Buildings Partnership: Toronto, Ontario
Energy Efficiency Revolving Fund: Edmonton, Alberta
Energy Management Services: London, Ontario

Other case studies are available at:
www.fcm.ca/scep/case_studies/building/building_index.htm

The Town of Banff has also partnered with Soltek Solar Energy Systems (Calgary, AB)
to pilot a grid-tie energy system that will reduce the town's dependence upon the

regional electric grid. The system will power dedicated circuits at the town Operations Centre and provide an active example from which other organizations in the community can learn. The equipment consists of 10 - 95 kW Photowatt Solar modules, a beta version of Sustainable Energy Technologies' Sustainable Energy Management System (SEMS) system, and a 48 volt - 48 KW Gel Cell battery bank.

The goal is to use this project as a foundation for a "follow-on" project that would introduce more alternative energy sources including Crystalline Solar Modules and a Fuel Cell. It is hoped that this, in turn, will lead to a third pilot project involving 400 - 500 residences and businesses within the Town of Banff.

Some other alternative energy case studies include:
Taking Advantage of Alternative Energy Sources: Windsor, Ontario
Community Energy System (CES) and the Canadian North: Fort McPherson, Northwest Territories
District Heat: Watson Lake, Yukon

Additional information is available from:
www.fcm.ca/scep/case_studies/energy/energy_index.htm

Steve noted that many of Banff's energy projects were begun as a result of the town joining the "Partners for Climate Protection Program" operated by the Federation of Canadian Municipalities (FCM).

*** Water Conservation

Banff began addressing water conservation in the mid-1990's by installing water meters on all properties in the Town of Banff. After nearly six years, every property was fitted with meters and Council approved a one-rate system for the price of water - replacing the previous flat rate and variable rate from before.

Steve noted two water conservation case studies, including:
WaterSmart Program: Kamloops, British Columbia
Blue River Community Water System: Thompson Nicola, British Columbia

Other water conservation case studies are available at
www.fcm.ca/scep/case_studies/water_management/water_management_index.htm and additional information about the Town of Banff is available from www.townofbanff.com.

*** Alternative Building Materials

John Buffington of The Mountain Institute (TMI) described an innovative product that can be used to create more sustainable infrastructure. "Rammed Earth" bricks are made out of earth and manufactured with a simple machine. The bricks are durable, environmentally friendly, and can be produced on-site at a low-cost.

Because the construction of rammed earth buildings makes use of both new technology and human labour, TMI views the construction material as a tool for economic development that also contributes to environmental protection and affordable housing. For example, in Tibet, TMI's Rammed Earth Building Program has trained a machine

shop on how to manufacture the technology and trained a collection of builders on how to modify their existing knowledge to use the machine for construction projects.

According to John, rammed earth construction:
- replaces polluting alternatives such as concrete blocks and oven-fired clay bricks;
- does not require extensive shipping of raw or finished materials;
- produces highly insulated buildings that do not require extensive heating or cooling, and;
- can make use of industrial by-products, such as fly-ash, by using these by-products as stabilizing agents.

*** Sustainability as a Condition for Growth

Caroline Marion of Lake Louise, Alberta, noted that in that National Park communities of Lake Louise and Field, commercial operators who wish to expand their operation must complete an independent energy and utilities audit to ensure that they are maximizing water and energy conservation.

For example, the Chateau Lake Louise (a large hotel in the hamlet of Lake Louise) was directed, as a condition of approval for a meeting facility, not to exceed its current water consumption. To accomplish this, CLL will incorporate water saving features into the design of their new building and retrofit existing hotel fixtures. The Chateau will also rehabilitate 22 acres of its property from cultivated to natural landscape.

Caroline notes that these mitigations are only two of a long list developed to ensure the new meeting facility would have no significant environmental impact on adjacent lands.

***Common Conclusions

- Sustainable utilities and infrastructure can be implemented with success, provided the benefits of implementation are clear to decision-makers.

B. MINIMIZING AIR, WATER AND SOIL POLLUTION

Discussion Threads:
*** Caring for Common Property
*** Private Property: "It's My Land, I'll Do What I Like"
*** Bearing the Cost: Assisting Low Income Groups
*** Common Conclusions
*** Caring for Common Property

Janie Lee of Kentucky described a program in her area that cleans the local lake areas after seasonal visitors leave. She notes that this program is particularly good for families as it offers parents the opportunity to teach their children to care for the land. She sees several groups becoming more environmentally aware in her community and feels that progress is being made.

*** Private Property: "It's My Land, I'll Do What I Like"

Cornelia B. Flora of Iowa believes that progress would be faster were it not for the mountain ethic of individualism and the concomitant belief that what is done on one's own property is one's own business. She believes this normative structure to be common to many European – American mountain communities and echoed in social movements that resist collective decisions by towns or counties to control pollution.

Cornelia notes that most mountain communities in North America were founded in an age where natural resources were seen as infinite and self-restoring. Because the population was scarce during this time, it made perfect sense to use wood-burning stoves, for example. But today, with increasing populations, tens of thousands of such stoves sending particulates into the atmosphere can lead to serious air pollution.

*** Bearing the Cost: Assisting Low Income Groups

Frank Farmer of Arkansas, agreed with Cornelia, but felt that the cost of implementing pollution reduction measures can be prohibitive for poor mountain communities.

Frank notes that the cost of heating in mountain areas can be much higher that in other communities. Firstly, relative isolation coupled with rugged terrain makes transmitting power more expensive (be it electric, gas etc). Secondly, the climate in many mountain communities can be much colder on average than in other communities, increasing the amount of energy consumed. Frank uses Karl Kranzel's term "the costs of space" to describe the problem.

Mr. Farmer notes that there are a large number people living in and around mountain communities who hold low-income positions in the service industry or other marginal jobs. He believes that the costs of "clean living" should not be born exclusively by these people, but shared by developers who are willing to take responsibility for some of the impacts of increasing population. Frank feels that impact fees must be more carefully calculated to include all the negative externalities.

Janie Lee made note of a program launched by a Kentucky legislator to assist low-income households in addressing issues of pollution. The program helps low-income households install septic systems, reducing the use of straight pipes. She feels this assistance is a positive step forward.

*** Common Conclusions

- Individual property owners need to be aware of the impact of their actions – both positive and negative. The personal investment of individual citizens is necessary to affect change.
- In many mountain communities, increasing pollution is caused by increasing population. However, the costs of mitigating this pollution can be relatively higher for low-income members of the population. Responsibility for addressing the resulting problem needs to be born by residents, government and developers alike.