Social Science Lessons for Managing Sustainability : Thoughts for La Reunion

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As a sociologist I come from a tradition that looks for patterns that can explain human behavior–generalities that apply across places and across time. For the past few years I have taught in a department of planning and public policy. Most of our students want to enter public service. Most of them are very much concerned with how we can create sustainable communities. In my work with these students I help them learn about sociological principles that can help promote sustainability. I believe that these principles can help all of us, no matter where we live, to create more sustainable communities.

I want to tell you about some of these sociological principles. In this discussion I will share examples from Oregon, and, occasionally, from other places. These generalities may sound simplistic, as just common sense. That does not, however, make them any less valid. All of these principles have been tested and confirmed over many years. In addition, even though these principles may sound simple, they may be difficult to apply in public policies and planning. Nevertheless, I believe that paying attention to these principles can help us address the difficult problems we will face in the years ahead in effective and humane ways. Trying not to be too bold, I will sometimes suggest ways in which these principles might be of use for La Reunion. To begin, let me put my comments in a broader context.

Sustainability, Climate Change, Mitigation, and Adaptation

In late January 2007, the United Nations was preparing to release its most recent report on climate change. The scientific evidence appears increasingly clear that climate change is a reality,

involving a range of issues from global warming to rising sea waters to more extreme weather events. Communities throughout the world are facing this reality and many interrelated challenges.

To face these challenges it is first important that we do all that we can to mitigate climate change, trying to slow down the damage that is being done to our environment. Second, we must prepare for the eventual adaptations that we will need to make to the changing environment, altering the way that we live to adapt to the reality of climate change and its effects. In doing this we will need to build sustainable communities and a sustainable world.

In discussing sustainable development, I use the definition of the Brundtland Report: development that "meets the needs of the present generation without compromising the ability of future generations to meet their own needs." Using ideas widely popularized by the United Nations, I conceive of sustainable development as involving efforts directed toward economic, social, and environmental well being. These are often referred to as the three legs of sustainability, the three mutually reinforcing and interdependent elements of social life that are central to ensuring a livable future for our descendants. We cannot have a world that is environmentally stable and healthy without also having social equity and economic well being. Economic well being for all citizens is only possible with social equity and environmental stability; and social equity is much more likely to occur when we have an economically sound society and environmental health and stability.

How can contemporary social science knowledge help us preserve the world in ways that can produce a productive economy, a fair social structure, and a flourishing and clean environment for our grandchildren? How can social science knowledge help citizens of Reunion Island promote a sustainable society: one that is environmentally healthy, economically sound, and socially equitable?

Let me present five social science principles that I think can help. These are all grounded in strong social science. There are many involved statistical studies that support these principles, but I will instead try to illustrate these principles with stories and examples. These principles and stories should help as we discuss ways to mitigate and adapt to climate change and work to create a more sustainable community.

Principle 1: Change is Easier When It Is Expected

The first principle I want to share is that it is easier for us to experience change when we know what to expect—when it is anticipated. Sociologists use the term "anticipatory socialization" to refer to the way we think about and rehearse the actions, emotions, and skills that may be involved in new roles and experiences. We tend to engage in this anticipatory socialization whenever we prepare to enter new situations. The practice that we do for these new situations, even just in our minds, helps us cope. Transitions and change are much harder on us when they are unexpected because we haven't been able to engage in anticipatory socialization.

A simple example involves dramatic weather events. In the United States some areas are prone to tornados, which can appear very suddenly and with very little warning. At most, communities have only a few minutes warning of a tornado's approach. In contrast, hurricanes (as we call them) or cyclones build up for several days and people have much more time to prepare their homes and to move to safer surroundings. They can anticipate and plan for what will happen. As you know, the damage can be catastrophic, but, because they have had time to prepare for the loss, they are better able to cope. They are better able to mitigate, to prepare their homes for coming disaster; and they are better able to recover from the effects of the disaster.

What is the lesson for us in thinking about a sustainable world? Quite simply, this principle helps us know that we need to prepare. We must deal in what sociologists would call anticipatory socialization. Such preparation will be helpful in ways that may not be immediately apparent, but will be very real. While thinking about the future takes time and can, perhaps, be painful or worrisome, it helps us deal with changes when they occur. Such anticipatory socialization can help counter the feelings of helplessness that many may feel in the face of climate change. When such feelings are addressed we can more effectively take actions that mitigate change and, when changes occur, better adapt to the changing world.

As you may know, the United States does not have a broadly defined national policy related to climate change. Instead, efforts are primarily focused within individual communities and slightly larger political entities such as states or counties. Some of these efforts are

sponsored by local or regional governments, but many are also sponsored by non-governmental organizations. I have recently been observing activities of the Resource Innovations Group (TRIG).[1] The Resource Innovations Group is a nongovernmental organization associated with the University of Oregon that has been involved in a number of such efforts. They work with local communities to educate about climate change and helping residents develop and adopt mitigation strategies. They have told me that one of the most difficult areas that they need to overcome is a feeling of helplessness that many people feel about climate change. People know climate change is happening and they are worried about it, but they also feel helpless and as though they can do nothing to help change its course.

However, there is much that individuals can do—both alone and collectively to help mitigate the rate of climate change. This first principle would suggest that the efforts to engage people in mitigation efforts will be much more likely to succeed if people are prepared for the changes that will happen.

Principle 2. Poverty and Inequality Affect Sustainability

The second general principle that I want to emphasize is that poverty and inequality strongly influence the possibility of developing a sustainable society. Note that I have included two concepts in this rule: poverty and inequality. Sociological knowledge suggests that both of these factors influence the ways in which communities can mitigate climate change and also adapt to these changes.

Poverty refers to the extent to which people lack monetary resources. We are probably all familiar with the ways in which having few material possessions affects individuals' opportunities and their ability to have adequate food and shelter. Yet, poverty also characterizes communities. Some communities, and some countries, have many more poor people than others. Just as individual poverty affects individuals' health and well being, community poverty affects a community's health and well-being. More important for our discussion today, a community's poverty affects its ability to both mitigate and adapt to climate change.

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[1] More information on projects of the Resource Innovations Group may be found at http://cwch.uoregon.edu/.

A simple example involves the impact of natural disasters. Earthquakes can affect countries throughout the world, both rich and poor. However, as shown in Table 1, the probability that people will be killed or injured varies a great deal between rich and poor countries. People are much more likely to die from natural disasters in poor countries, even when the natural disaster is objectively of the same magnitude. These differences occur because rich countries are better able to mitigate the impact of natural disasters. For instance, they are better able to build structures that can withstand earthquakes, and, in the case of hurricanes or cyclones, they are better able to move people out of harm's way. Rich countries also find it easier to adapt to difficult changes. When disasters occur it is far easier for rich countries to provide needed medical care, repair infrastructure, and to finance rebuilding.

In addition, people in poor countries are much more likely to engage in activities that harm the environment in ways that make the impact of a natural disaster even more destructive. For instance, people who have no other sources of heat or fuel may cut down all of the trees near their homes for fire wood, but in so doing they will drastically alter the watershed and make the impact of flooding much stronger and more dangerous. People in richer communities, who have alternative sources of heat or fuel, can afford to leave the surrounding watershed relatively protected.

However, poverty is only part of this second rule. The other important aspect is inequality. Some communities and some countries are much more unequal than others. That is, communities and countries vary in the differences between the rich and the poor, with some having large differences between the richest and poorest and others being much more homogeneous. Ironically, the poorest societies often have a great deal of inequality, with wealth concentrated among just a few members of the society while the vast majority live in great poverty. But inequality also appears in richer countries and in communities in rich countries. This inequality can occur between those who are rich and those who are poor. Inequality based on income is also, often, enhanced by differences based on race and ethnic background.

Let me give an example from the United States. Hurricane Katrina, which hit the southern part of the United States in 2005, is

one of the natural disasters that were listed in Table 1. Katrina was one of the deadliest hurricanes ever to hit the United States and caused a great deal of damage. The greatest loss of life occurred in New Orleans, Louisiana, and that city has also had the most difficulty rebuilding, even though the eye of the storm hit other areas more directly. While geographic characteristics of the city certainly contributed to the losses, a number of commentators have also suggested that social inequality also played a role. New Orleans has historically had a very high level of poverty and also has large gaps between the rich and the poor. In addition, many of the poor are racial minorities, primarily African American.

I simply want to suggest that the extreme racial and income inequality in New Orleans made it much more difficult for residents to work together to both mitigate against the possible harm that could come from severe weather events and to respond adequately to the aftermath of the disaster. The extreme difficulties that occurred there resulted from extreme poverty for part of the community, but also from inequality—the differences between rich and poor and also the differences between Blacks and Whites. The environmental and economic damage that resulted from Hurricane Katrina were exacerbated by the high degree of economic and racial inequality of the city. I suggest that other communities, including perhaps La Reunion, might look to the lesson of New Orleans and this second principle in thinking about how best to develop a sustainable community.

Principle 3. Population Structures and Population Change Affect Sustainability

The third major sociological rule that I want to discuss involves how demographic factors—the population of a community or a country—affect the probability that sustainability can occur and the ways in which we can both mitigate and adapt to climate change.

Sociological analyses of populations include a variety of factors, many of which are probably familiar to everyone. We look at the size of populations and how quickly the population is growing or declining. We look at the age composition of a population and the numbers of dependents, either children or older people, relative to the working age population. We look at the sex composition and the

relative numbers of men and women. And we look at migration, movement in and out of a community or country and the characteristics of these migrants. Population size and composition directly affect the consumption of resources and thus environmental degradation. Population growth, especially in poorer countries, is also very much related to poverty and inequality and the potential for economic development.

I suggest that population structures also very much affect sustainability and the ways in which communities can develop in a sustainable manner. Let me give another example, this time from the Pacific Northwest of the United States. Again, I have simplified the explanation of a complex situation to illustrate my point.

For many years, rural communities in the Pacific Northwest depended on logging as the basis of the local economy. Over time, however, they cut so much timber that supplies declined dramatically. The loss of habitat also threatened the existence of numerous species of animals. As a result, many of the lumber mills closed. Jobs disappeared from the communities, and with the loss of jobs the composition of the population changed. Those who could afford to do so and who could find opportunities elsewhere often left. This out-migration resulted in the population of many of the rural communities being much poorer than in earlier years. The communities also have different age structures than previously, with many fewer people in the productive working years. As a result, it has become even harder for these communities to develop alternative means of economic development, for many of those with skills and expertise were among the first to leave.

Not all rural communities in the Pacific Northwest have experienced population decline. Others have experienced sharp population growth. Some of these communities are in very beautiful areas, and they have become very attractive to retirees, generally people who are substantially richer than those who originally lived in the area. But these population changes have also been problematic. As these rich retirees move into a community they alter the age structure, increasing the ratio of older residents to those of working age. While the influx of older, wealthier residents can increase the demand for workers in certain areas, such as the service industry, it does little to promote the development of higher paid areas of the

economy. In addition, this influx of rich retirees tends to increase inequality within the community, to promote even greater differences between the rich and the poor. Finally, the influx of wealthier residents can impact the environment. Many of these wealthier in-migrants want to build large homes in isolated areas, with numerous ecological effects such as decreasing wildlife habitat and water resources.

Those who study climate change, such as the people in the Resource Innovation Group, suggest that one of the major impacts that we will face in coming years is changing migration patterns. As changing environmental conditions prompt people to move, some communities will lose population, while others will rapidly gain residents. The characteristics of those who move are almost always different than the characteristics of those who remain, resulting in problems for both the sending and receiving communities. Planners and policy makers should consider possible changes in population that will occur as climate change progresses and anticipate the potential impacts on both the sending and receiving communities. By remembering that population structures and change affect sustai-nability — and our ability to mitigate and adapt to climate change — we will be better able to move toward environmentally stable, economically strong, and socially just communities.

Rule 4. Strong Social Networks Help Promote Sustainability

The fourth general rule helps us know how to promote sustainability and to help communities better mitigate and adapt to climate change. For the last few years, social scientists have accumulated more and more evidence that social networks, the ties that individuals have with each other, promote individual health and the health of communities.

To some extent, these networks can combat the difficulties that accompany poverty. Even if a community is quite poor, the presence of strong social bonds can help counteract the problems that arise from poverty. Poor communities in which people have strong connections with each other, where they know each other and help each other, produce healthier children and are better able to address community problems. Communities with strong social networks are more resilient. People in these communities have the capacity to link

with others to both mitigate change and to adapt to difficult situations when they occur.

Unfortunately, inequality in a community tends to make it more difficult to have strong social networks. Communities with a great deal of social inequality tend to also have highly segregated social networks. For instance, studies within the United States have shown that the social networks of African Americans and whites tend to be very separate. Studies in Canada have shown that the networks of French speaking and English speaking Canadians often do not overlap. Thus, one of the reasons that New Orleans had such a difficult time preparing for Hurricane Katrina, or responding to the aftermath, is that the social networks within the community were fractured and segregated. Rich and poor citizens, and Black and White citizens, did not have trusting, working relationships.

Groups that want to promote change and to help individuals and organizations mitigate and adapt to coming climate change can build upon the strengths of social networks. Again, the work of the Resource Innovation Group is instructive. They are currently involved in projects with a diverse set of groups ranging from local governments, to residents of different neighborhoods within a city, to business people in a variety of industries. All of their projects are directed toward motivating efforts of mitigating and, as necessary, adapting to climate change. In these efforts the staff has explicitly used social networks as a mechanism for developing support for change.

For instance, a project that works with neighborhood organizations within a larger community is identifying and training a small subset of people in strategies of mitigating climate change with the plan that these people will, in turn, use their social networks to reach additional people. These people will then be able to reach still others. Another project builds on networks of local government officials. Already established groups have been used as a forum and starting point. The networks within these groups have been used for further information sharing. These networks are now also being used to promote regionally based sustainable economic development projects including the production of electrical energy through wind power and ocean tidal action.

The important point for this rule is that these efforts all build on existing social networks. By their very nature social networks include communication channels, feelings of trust, and norms of reciprocity and mutual obligation. Each of these elements can make change more effective. Communities that lack strong social networks, or that have highly segregated social networks, could be expected to face many more problems in sustainable development.

Principle 5. Understanding Social Processes is Empowering and Promotes Sustainability

The final principle relates, in many ways, to the first. The first principle was that change is easier for us if we know what to expect. The fifth principle says that change is easier for us if we understand the social processes that are affecting our lives and our communities. "Knowledge is power," and this principle is simply a sociologist's way of agreeing with this saying. Many studies have shown that people with more education are more successful in the business world and in other endeavors than those with less education. Part of this success may be related to an enhanced ability to analyze situations that comes with increased education. Just as knowledge can help individuals be more profitable in their economic dealings, I suggest that knowledge helps citizens overcome the helplessness and despair that many seem to feel in the face of climate change.

Again, let me give an example from work that I have observed in Oregon. The projects I have described from the Resource Innovations Group are only in their beginning stages, but they have all included elements of education to empower citizens. These educational efforts have taken many forms and have been implemented with many different groups.

For instance, one project has worked with people in poor communities in an area of the state that is often hit by forest fires. Poorer people in this area are more likely to live in outlying areas where the possibility of damage from fire is high. Because they are poor, they often have no insurance or other sources of funds to help recover when disaster strikes. Educational efforts have been used to help people in these communities learn about how to mitigate potential damage, as, for example, clearing flammable material away from areas near their homes.

Activities with governmental groups and business organizations have also involved education. Given the political atmosphere in the United States, some of these efforts have provoked skepticism among those in the audience. To help counter this skepticism, Resource Innovations Group has framed the educational efforts in ways that resonate with the government officials and business people. Framing is a term that social scientists sometimes use to refer to the way in which we organize or present information. They suggest that the "frame" within which information is presented can influence the reaction that others have.

The Resource Innovations Group has explicitly framed their educational discussions of climate change using an economic focus. Thus, many of the educational efforts with business people and government officials have focused on how efforts to mitigate climate change, such as reducing energy use, can be economically profitable. By using this frame in presenting information, the Resource Innovation Group is not being manipulative. Instead, I believe that they have translated important and necessary information into a context that makes sense to their audiences.

Finally, it is important to remember that education promotes sustainability only when it is delivered in a manner that is equitable and just. If the dissemination of education follows already existing lines of inequality, then it could well result in increased power differentials and actually work against building a sustainable economy and social fabric.

Summary: Looking to the Future

In discussing these 5 principles I have quickly summarized the important points which are very basic sociological principles. While they may sound simplistic, they are actually quite profound and powerful. I like to think of them as the "Big Ideas" that underlie social influences on sustainability. Even though many of my examples have been from the area in which I live, I want to emphasize again that these are general rules that should apply to all communities and countries.

It is also important to note that the factors I discussed in these principles are interconnected. For instance, rapid population change can alter patterns of economic inequality and can also disrupt social networks. The strength of social networks can influence attempts to

alter poverty and inequality and influence the nature of migration patterns. Anticipating changes within a society can be a way of promoting understanding of social progress.

All of the principles also embody issues related to the environmental, economic, and social aspects of sustainability. While the principles focus on social relationships and characteristics, they all have implications for building a sound economy and an environment that is healthful and sustainable. For instance, strong social networks help communities develop robust economies and can help promote development of a clean and sustainable environment. I believe that understanding and applying these principles as we plan for the future can help us create a more equitable, economically sound, and environmentally safe world.

Jean Stockard[2]

Table 1: Impact of Disasters by Region

Year	Disaster	Affected Areas	Impact
2006	Hurricane Katrina Category 5	Louisiana, Alabama, Mississippi	1,600 + dead
2005	South Asian EQ, 7.6 Magnitude	India, Pakistan	75,000 + dead; 3,000,000 displaced
2004	Indian Ocean EQ, 9.0 Magnitude	Indonesia, Thailand, Sri Lanka, India	185,000 + dead, 1,500,000+ displaced
1994	Northridge EQ, 6.7 Magnitude	Los Angeles, San Fernando Valley	51 dead, 9000 injured
1989	Loma Prieta EQ, 7.1 Magnitude	San Francisco Bay Area	63 dead, 3750 injured

Source: Kathy Lynn, Resource Innovations Group, University of Oregon

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[2] Ph.D., Professor Emerita, Department of Planning, Public Policy, and Management, University of Oregon.

Suggested Readings

On sociological principles, concepts, and theories:
Stockard, Jean. 2000 *Sociology: Discovering Society, 2nd edition*. Wadsworth.

On developing Sustainable practices and work of the Resource Innovation Group:
Doppelt, Bob. 2003. *Leading Change Toward Sustainability: A Change-Management Guide for Business, Government and Civil Society*. Greenleaf.
Rainey, David L. 2006. *Sustainable Business Development: Inventing the Future through Strategy, Innovation, and Leadership*. Cambridge University Press.

On poverty, race, and environmental issues:
Bullard, Robert D. 2000. *Dumping in Dixie: Race, Class and Environmental Quality*. Westview.
Bullard, Robert D. 2005. *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*. Sierra Club Books.

On issues involving population change and sustainability:
Aide, T. Mitchell and H. Ricardo Grau. 2004. "Globalization, Migration, and Latin American Ecosystems. *Science* 305: 1915-1916.
Hugo, Graeme. 1996. "Environmental Concerns and International Migration. *International Migration Review*, Vol. 30: 105-131.

On social networks and community health:
Putnam, Robert D. 2001. *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster.
Putnam, Robert D., Lewis Feldstein, and Donald J. Cohen. 2003. *Better Together: Restoring the American Community*. Simon and Schuster.