

Disaster Management

Sustainability after the Disaster

Sustainability

The classic definition of sustainability, developed by The World Commission on Environment and Development (the Brundtland Commission) is “[meeting] the needs of the present without compromising the ability of future generations to meet their own needs” (1987, p. 188). Similar concepts are being referred to today with such terms as “sustainable development (or redevelopment),” “development excellence,” “smart growth,” and “sustainable ecosystems.”

The concept of sustainability is composed of three pillars: economic, environmental, and social—also known informally as **profits, planet, and people**.

Sustainability Recovery after Disaster

The Six Principles of Sustainability

A community that wants to become more sustainable will

1. Maintain and, if possible, enhance, its residents' **quality of life**.
2. Enhance local **economic vitality**.
3. Ensure **social and intergenerational equity**.
4. Maintain and, if possible, enhance, **environmental quality**.
5. Incorporate **disaster resilience** and mitigation.
6. Use a consensus-building, **participatory process** when making decisions.

(adapted from Mileti 1999, p. 31)



WHAT DOES SUSTAINABILITY MEAN FOR A COMMUNITY?

A community can be thought of as being made up of three spheres: a social sphere, an environmental sphere, and an economic sphere. Sometimes they are called the three Es—equity, environment, and economics.

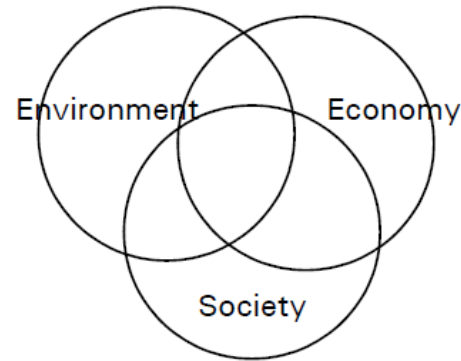
- The *social* sphere consists of all the interactions among people—cooperating in their neighborhood activities, practicing their religion, enjoying their families, sharing cultural identities, solving problems together, being friends.
- The *environmental* sphere is the natural and physical setting in which the community exists—the visible landscape as well as the not-so-visible resources like groundwater, air, and fertile soil. People in a community rely on and use these common resources.
- The *economic* sphere within a community consists of all the activities, transactions, and decisions that are based on producing and exchanging goods and services—to each other and to outsiders.

These spheres can appear separate from one another, but in fact they are all intimately related. A town could not exist for long if the early people had totally depleted or contaminated the groundwater, for example. It would not be a nice place to live if some of the people were made to endure poverty-level living conditions so that others could enjoy economic success.

Sustainability, then, means the ability to or the capacity of a community to maintain itself over time. It means that the community is a good place to be, that its foundations are solid and healthy, and that it can cope with the changes that time brings. To have a really sustainable community, the three systems must be integrated in a give-and-take

THE THREE SPHERES OF A HUMAN COMMUNITY

Overlap or interconnection of the spheres indicates a degree of sustainability.



HOW A COMMUNITY BECOMES SUSTAINABLE

To be sustainable, a community needs to maintain the overlap and integration of its social, environmental, and economic spheres. Each sphere or system has many components, and in every community the quality, quantity, importance, and balance of them will be different. But most people agree that the six principles listed below, if addressed simultaneously, will build sustainability. A community can use these principles as guide to where it wants or needs to improve its sustainability, and how do it.

1. Quality of Life

What a community thinks of as quality of life—or “livability”—has many components: income, education, health care, housing, employment, legal rights, and exposure to crime, morality, pollution, disease, disaster, and other risks. Different communities have different things that they prize: one town may be proud of its safe streets, high quality schools, and rural atmosphere, while another thinks that job opportunities and honoring its historical heritage are what make it a good place to live. The point is that every locality can decide for itself how best to maximize the livability within its boundaries—can define and plan for the quality of life it wants and believes it can achieve, for now and for future generations.

2. Economic Vitality

The people in a community need a reliable source of decent jobs. Businesses need an attractive business climate. The local government needs a stable tax base and revenue to enable it to provide and maintain the infrastructure and services that keep the community operating effectively.

Embracing sustainability in the local economy means paying attention to qualitative factors within the economy as well, not just to the bottom line. All these things are summed up in the term “economic vitality.” A community with this attribute has numerous advantages in its drive not only toward sustainability, but toward all of its other goals, whatever they may be.

A truly sustainable local economy is diversified, and less easily disrupted by internal or external events or disasters. Recovery from disaster, for example, is fundamentally an economic proposition. The success of recovery will be determined not only by how well the community attracts, effectively utilizes, and sustains the flow of investment capital from a multitude of sources through the rebuilding process, but also by the quality of the uses to which it puts that capital. Further, a vital, sustainable economy does not simply shift the costs of its good health onto other regions. Nor is a sustainable local economy reliant on unlimited population growth, high consumption, or non-renewable resources.

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3. Social and Intergenerational Equity

In an ideal community everybody gets treated fairly, regardless of ethnicity, age, gender, cultural background, or other characteristics. This means that the resources and opportunities are equally available to all, and that a few people don't profit at the expense of others. It means making sure, to take one example, that people of limited economic means do not end up with no housing choices except for the most dangerous sites in town—that in the floodplain of the river, or over a historic toxic waste site.

One thing that present-day decisionmakers sometimes overlook is the stake that future generations have in what happens today. A sustainable community would not exhaust its resources during this generation, destroy natural systems, or pass along unnecessary hazards to its great-grandchildren. The current nuclear waste crisis is one example of how what seemed like a good idea to one generation's scientists and policymakers may saddle future generations with exposure to hazard.

4. Environmental Quality

Communities are finding that the natural features of their location—a river, beach, mountain setting—can become defining points for community identity. Residents are demanding open spaces, unspoiled areas, parks, wildlife habitat, and the educational opportunities that nature can provide. In the long run, it is essential that human activities not degrade the air, oceans, fresh water, and other natural systems. A community can take a positive step toward a sustainable future by trying to replace local practices that are detrimental with those that will allow ecosystems to continuously renew themselves. In some cases, this will mean simply protecting what is already there by finding ways to redirect human activities and development into less sensitive areas. In others, a community may have to change deeply ingrained patterns, like reliance on the automobile, in order to combat the sprawl and noise and air pollution it causes.

5. Disaster Resilience

A community has a better chance of being around in the future, of retaining its special character over time, and of being a good place for its residents to live (and stay) if it is resilient in the face of natural disasters like tornados, hurricanes, earthquakes, floods, and drought. Although such events cannot be prevented, a community can do a lot to make sure that they cause as little physical damage as possible, that productivity is only minimally interrupted, and that quality of life remains at (or quickly returns to) high levels. Further, a sustainable community would think of hazards and disasters as integral parts of the much larger environment in which it exists. It would not rely solely on outside (such as federal or state) help but instead shoulder responsibility for the risks that cannot be avoided, and for the return to normalcy after a disaster, if one does occur.

6. A Participatory Process

A participatory process means seeking wide participation among all the people who have a stake in the outcome of a decision. The decisionmaker identifies concerns and issues; allows generation of ideas and options for dealing with those concerns; and helps to find a way to reach agreement on what steps will be taken to resolve them.

Engaging in a participatory process improves the quantity and dissemination of information, fosters a sense of community, produces ideas that may not have been considered otherwise, and engenders a sense of ownership on the part of the community for the decision that is ultimately made.

CONSIDERING SUSTAINABILITY AFTER A DISASTER

In an ideal world, communities would routinely take a long-term view of the future, and build into their planning and management processes the various principles of sustainability. But the reality is that most communities have not been doing that. If a community has not yet formally considered broader issues like environmental quality, social equity, or livability, the period of recovery after a disaster can be a good time to start. Why? Because disasters jiggle the status quo scrambling a community's normal reality and presenting chances to do things differently.

A disaster brings some temporary changes to a community—changes that can create opportunities to build back in a better way.

- People are thinking about the problems of floods, earthquakes, landslides, tornadoes, etc, when normally they don't think about these things. This is true for residents as well as local staff and officials.
- In some cases, the disaster will have done some of the work already. For example, a tornado, earthquake, or flood may have damaged or destroyed aging, dilapidated, or unsafe buildings or infrastructure.
- A disaster forces a community to make decisions, both hard and easy.
- Technical and expert advice becomes available, from a variety of state, federal, regional, and non-profit sources.
- Financial assistance becomes available from the state and federal government agencies, both for private citizens and for the community itself.
- Programs designed to help a community mitigate disasters can be used to strengthen overall sustainability and resiliency to other social, economic, and environmental problems.

The best way to ensure that a community has a sustainable recovery from a future disaster is to prepare a comprehensive plan for a sustainable, holistic recovery. But even if a community has not prepared such a plan, there are many common-sense things that can be done during recovery that will make a community more sustainable than it was before.

When a community begins recovering from a disaster, its staff, officials, and residents face numerous tasks that have to be done. Roads and bridges may need to be rebuilt; businesses need to reopen; eroded beaches and dunes may need replenishment; housing needs repair, restoration and replacement; problems with utilities must be remedied; social and medical services have to be reinstated; businesses need to be retained and built back. In many cases it is a relatively simple matter to do those tasks in a slightly different way so that long-term, broad benefits are maximized and future damage and disruption avoided, instead of just putting things back the way they were. When looked at in this light, those disaster-caused tasks become *opportunities* for improving the community.



Paying for Sustainable Disaster Recovery

Many federal, state, and private programs provide technical and/or financial assistance to help carry out sustainability strategies. In most instances, this assistance is available in a disaster recovery situation as well as during normal conditions. There also are some government and other programs that assist in working toward sustainability after a disaster. The following

Matrix of Opportunities

(x = an opportunity to devise a recovery strategy that furthers sustainability)

Some Situations a Community Could Face during Disaster Recovery

The Principles of Sustainability & Some Options for Applying Them	DAMAGED TRANSPORT			DAMAGED PUBLIC FACILITIES				DAMAGED UTILITIES				DAMAGED HOUSING			ECONOMIC DISRUPTION				ENVIRONMENTAL DAMAGE				DISRUPTION TO HEALTH & SAFETY			OTHER											
	Roads, bridges, & related infrastructure	Subway, rapid transit	Other	Schools	Downtown, CBD, historic district	Public spaces	Harbor, port, airport	Stormwater system, power plant	Other	Power lines	Phone lines	Water treatment plant	Other	Houses to be repaired	Houses damaged beyond repair	Other	Commercial buildings damaged/destroyed	Businesses disrupted	Unemployment	Loss of work force	Other	Riverine, beach, & dune erosion	Toxic air, water, soil, wellheads	Tree loss, habitat loss	Other	Medical facilities damaged	Social & family services, daycare disrupted	Victims, population traumatized	Other								
4 Enhance Environmental Quality																																					
Preserve/consERVE/restore natural resources	x	x		x	x	x	x	x			x		x	x								x	x	x													
Protect open space						x	x				x		x			x						x	x	x													
Manage stormwater							x	x			x		x						x			x	x														
Prevent/remediate pollution	x			x	x	x	x	x	x	x	x	x	x	x									x						x								
Others																																					
5 Incorporate Disaster Resilience/Mitigation																																					
Make buildings & infrastructure damage-resistant	x	x		x	x	x	x	x	x	x	x	x	x	x		x						x				x	x										
Avoid development in hazardous areas	x	x		x	x	x	x			x	x	x		x		x						x		x		x											
Manage stormwater							x	x			x		x							x			x	x													
Protect natural areas	x				x	x	x							x		x						x		x													
Promote & obtain hazard & other insurance	x			x	x								x	x		x	x									x		x									
Others																																					
6 Use a Participatory Process	Use a participatory process in conjunction with all the other principles of sustainability, and in every disaster recovery situation in which it is appropriate.																																				

Sticking with Sustainability

Once a community is well along in its recovery from the disaster, it will want to periodically assess its sustainability progress.. For example, suppose that in the course of rebuilding a portion of a community's flood-damaged housing inventory, energy efficiency was incorporated into the new homes. As the years pass, the community will want to monitor the continuing energy efficiency of those structures to ensure that it is still enhancing environmental quality by reduced energy consumption. This might be done by periodically measuring the community's total and per capita energy use; or by measuring the heat loss from those buildings.

There are many ways of measuring the different aspects of sustainability within a community and a community can develop indicators that are unique to its situation. What is important is that the concept of a sustainable community is gradually integrated into the community's normal way of life.. The chapters in this manual discuss ways that different aspects of sustainability could be measured over time within a community.