



Introduction to **SUSTAINABILITY**

Robert Brinkmann



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Introduction to Sustainability

Robert Brinkmann

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NY, USA

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This book is dedicated to all young people around the world
who are striving to make the world a better place.

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About the author



Robert (Bob) Brinkmann, Ph.D. is the Director of Sustainability Studies and the Director of Sustainability Research at the National Center for Suburban Studies at Hofstra University where he is also a Professor in the Department of Geology, Environment, and Sustainability. He was born in 1961 in rural Wisconsin and was greatly influenced by his experiences growing up in a quaint, small-town environment. As a child he spent many hours in nature hiking, fishing, and canoeing, especially in the wilderness of northern Wisconsin. In 1979, he entered the geology program at the University of Wisconsin at Oshkosh. There, he earned a Bachelor of Science with a focus on lithology, mineralogy, and field geology. During this period, he travelled throughout North America and participated in a geology field school in Alberta, British Columbia, and the Yukon. His first publication, on the formation of the Berlin Rhyolite, was published in 1982.

After graduation, Brinkmann attended the University of Wisconsin-Milwaukee where he earned an MS in Geology in 1986 and a Ph.D. in Geography in 1989.

During this period, he worked in diamond exploration, ice crystallography, and soil chemistry. It was while conducting fieldwork in diamond exploration that Brinkmann began to be influenced by sustainability issues. He started to take courses with the late Forest Stearns, one of the first ecologists to call for research on urban ecosystems, and the late Robert Eidt, a soil scientist noted for his definition and interpretation of anthrosols, or humanly modified soils. Brinkmann began to study a number of topics including heavy metal geochemistry of garden soils in cities, ancient agricultural soils in the Arabian Peninsula, and soil and sediment erosion in mountainous regions. He also took courses with cave and karst expert, Michael J. Day, and noted archaeologist, Lynne Goldstein.

In 1990, Brinkmann became an Assistant Professor at the University of South Florida (USF) where he continued his research on urban sustainability, particularly as associated with soil and sediment pollution in urban and suburban areas and cave and karst research. He published numerous articles and books including the only book on the science, policy, and management of urban street sweeping (with Graham Tobin) and the only book on sinkholes in Florida. He became a Full Professor in 2000 and the first Chair of USF's Department of Environmental Science and Policy. He also served as Chair of the Department of Geography and as Associate Dean for Faculty Development in the 2000s. He arrived at Hofstra University in 2011 to start a new sustainability studies program. The undergraduate program offers a BS, BA, and MA in sustainability.

Over the years, he has designed a number of courses, including ones on sustainability management, wetlands, and community-based sustainability. He is currently involved in a number of projects, including analysis of sustainability efforts in post-hurricane Long Island, evaluation of international sustainability planning with the United Nations, assessment of sustainability in Hainan, China, and sustainability in sports. He is also active with economic development issues on Long

Island and is part of the writing team of the Long Island Regional Economic Development Council that has written the last four economic development plans for the region.

Brinkmann is the Chair of the Board of the National Cave and Karst Research Institute and has served as the co-editor of the *Southeastern Geographer*. He is an associate editor for the *Journal of Cave and Karst Studies* and the Editor of *Suburban Sustainability*. He has served

as an elected officer with a number of national, regional, and local organizations. Brinkmann has appeared on a number of national news outlets as an expert on geologic and environmental issues, including CBS News and CNN. His blog, *On the Brink*, which focuses on environmental and sustainability issues, gets thousands of hits a day. He also has a regular column on *Huffington-post*, and his opinion pieces have appeared on *Newsday* and CNN.com.

About the companion website

This book is accompanied by a companion website:

www.wiley.com/go/Brinkmann/Sustainability

The website includes

- PowerPoint of all figures from the book for downloading

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CHAPTER 1

Roots of the modern sustainability movement

Hurricane Sandy was a superstorm that devastated the coast of the Mid-Atlantic region of the United States in October of 2012. It hit the most populated coastal region of the US near the New York Metropolitan area. Striking at night with deadly force, many were surprised by the strength of the storm and its far-reaching impacts.

In Manhattan, one of the five boroughs of New York City, flooding occurred in many areas, including the famous neighborhoods of the Lower East Side, Chinatown, and The Battery. Subway tunnels flooded and residents were without power for days. In Staten Island and Queens, other boroughs of the city, a storm surge destroyed entire neighborhoods and caused dozens of deaths.

Was this storm caused by global climate change? In just two years, the New York region was hit by two sizable hurricanes. This has not happened in the history of the city, which more typically experiences a sizable storm every half century or so (Figure 1.1).

After the storm, the Mayor of the City, Michael Bloomberg stated, "Our climate is changing. And while the increase in extreme weather we have experienced in New York City and around the world may or may not be the result of it, the risk that it may be – given the devastation it is wreaking – should be enough to compel all elected leaders to take immediate action."

But what action has been taken in the world to try to solve the climate change problem? How did we get to the point that human population is knowingly changing the world's climate? What historical developments have gotten us to this point? While there have always been waves of dramatic climate change over the history of our planet, what specific actions have caused the dramatic changes we have seen over the last 100 years?

The purpose of this chapter is to review the development of the modern sustainability movement from its roots in the nineteenth century to the development of international efforts to improve our

world's environment. However, prior to getting us to this point, it is worthwhile to define the meaning of sustainability.

Meaning of sustainability

Sustainability can be succinctly defined as doing what we can now to preserve the environment for future generations. However, in practice the word has a much deeper meaning. There are three components of sustainability: environment, equity, and economics. The environment is an obvious part of sustainability in that we are striving to preserve and protect the environment. Equity focuses on ensuring that fairness in environmental decision-making are front and center as we move forward in the future. The economics component of sustainability focuses on the reality that we need to ensure that livelihoods are protected and enhanced as we strive to protect the environment for future generations.

These three components: environment, equity, and economics, are often called the three pillars or three "E"s of sustainability. All three should be part of any decision-making to ensure sustainable development for the future (Figure 1.2).

When businesses and green entrepreneurs think about sustainability, they use similar terms, but call them the triple bottom line: people, planet, and profits. For a business to be sustainable in the modern world, the profits are not the only consideration that must be taken. The impacts of actions on people and the planet are part of the mix. Businesses that embrace the tenets of modern sustainability are often considered green businesses.

Some businesses and other organizations try to embrace the popular environmental practices of our day and promote their efforts as green, but in



Figure 1.1 This home was damaged in Superstorm Sandy and is in the process of being lifted up to avoid future damage. Damage from hurricanes is increasing around the world.

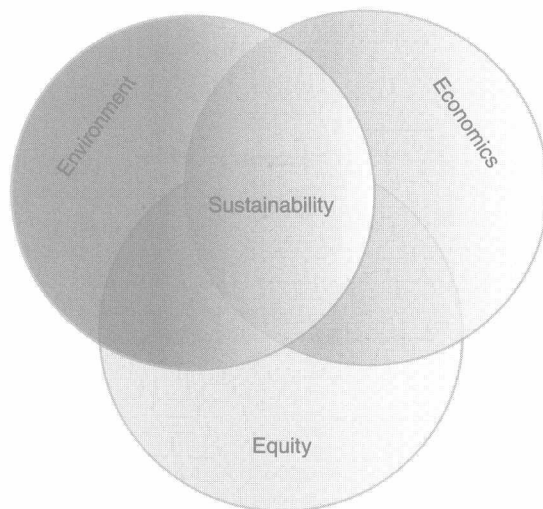


Figure 1.2 The three “E”s of sustainability: Environment, Economics, and Equity. Sustainability is achieved when the three are taken into consideration.

reality follow unsustainable practices. Such discordant behavior is considered greenwashing (Figure 1.3).

In our modern world, it is difficult to avoid impacting the planet in some way. The study of sustainability teaches us how we as individuals, organizations, or

societies can lessen our impacts so that we can leave our planet in better shape for the future.

As we will see in the next section, while the development of sustainability emerges out of the broad environmental movement of the nineteenth and twentieth centuries, it is deeply informed by the development of global economic and environmental agreements that caused deep concerns in the 1980s.

Nineteenth century environmentalism

It could be argued that prior to the western enlightenment and industrial revolution, most people in the world had an intimate relationship with nature. This was, in part, out of necessity. Most of us were farmers or found some way to feed ourselves off of the land and the bounty of nature. At the time, the Earth had a larger spiritual role in the life of man. The cycles of the moon and stars were more dominant in the non-electrified night sky and the life/death/rebirth annual patterns of nature provided metaphors for daily experiential existence in all of the major religions of the world. Such intimacy exists today in some corners of the world