



# SUSTAINABILITY

WHAT EVERYONE NEEDS TO KNOW®

PAUL B. THOMPSON and  
PATRICIA E. NORRIS

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## ACKNOWLEDGMENTS

This book is the product of an extended collaboration with many people who have influenced us, joined with us in allied projects, and helped us bring the manuscript to its final form. It would never have been possible but for the creation of the Sustainable Michigan Endowed Project, affectionately known locally by the acronym SMEP. SMEP was the brainchild of Sandra Batie, Emeritus Elton R. Smith Chair in Food and Agricultural Policy at Michigan State University (MSU) and the first person we need to thank. It began in 2002 when funds from Michigan State University's College of Agriculture and Natural Resources (CANR) were pledged to match a gift from the W. K. Kellogg Foundation. The project was intended to support research and graduate training related to sustainability in the context of Michigan. Sustainability was not popular then, and very few CANR researchers were willing to organize or advertise their activity under the banner of sustainability. Our anecdote about sustainable agriculture in chapter 1 dates back to those days.

At first, the main activity of SMEP was an informal seminar/workshop series that Batie organized with MSU faculty in CANR holding endowed chairs. The function of this group was to plan and guide the expenditure of SMEP funds, which required extensive discussion and brainstorming about the shape that a sustainability-oriented program might take

at MSU. At the outset, in addition to Batie and Thompson, this group included Richard Bawden, Visiting Distinguished Professor; David Beede, the Clinton E. Meadows Professor in Dairy Management; Mike Hamm, the C. S. Mott Professor of Sustainable Agriculture; Chris Peterson, Homer Nowlin Chair of Consumer Responsive Agriculture; and Joan Rose, the Homer Nowlin Chair in Water Research. Within a few years, others joined the group, including Norris; Jim Detjen, Knight Professor in Environmental Journalism; Jianguo “Jack” Liu, the Rachel Carson Chair in Sustainability; Tom Dietz, Director of the Environmental Science and Policy Program; and Mark Skidmore, the Morris Chair in State and Local Government Finance and Policy. Those were the originals, but additional MSU faculty joined as some retired or new endowed positions were created. They include Rick Foster, Eric Freedman, David Hennessy, Bill Porter, Jim Tiedje, Kyle Whyte, Felicia Wu, and Jinhua Zhao. We should also note MSU colleagues who were important collaborators and influences during these early years, even if they did not participate in SMEP. They include Larry Busch, George Byrd, David Schweikhardt, and Stuart Gage. All of these people have shaped the understanding of sustainability that informs this book. This is not to say that all of them would agree with us.

The second main activity that preceded our collaboration on this book was the development of a new undergraduate course for MSU’s Department of Community Sustainability. The department was created through the merger of three separate programs in 2003. Representing a wildly diverse set of academic interests and expertise, faculty worked diligently to discover where the new academic unit might locate its intellectual core. By 2010, faculty recognized that the idea of sustainability provided the basis for a common intellectual core, and the department decided to reorganize the undergraduate program around three core courses and a series of learning outcomes deemed necessary for any student of sustainability. Theoretical Foundations of Sustainability was to be the core

course focusing on the principles underlying sustainability as the concept would be developed and applied in subsequent courses. We worked on the course for three years, including one year during which we taught it together. The process refined the thinking we had done in SMEP, and it also involved substantial input from colleagues in the Department of Community Sustainability: Robby Richardson, Mike Hamm, and Laura Schmitt-Olabisi, among others. Our Department of Community Sustainability has been fortunate to recruit a number of young faculty to join our grand adventure, and they have contributed mightily to advancing departmental work on sustainability and to our own understanding of this field of study: Maria Claudia Lopez, Jenny Hodbod, Lissy Goralnik, and Steven Gray, among others.

The other thing that teaching a course forced us to do was find literature that could support our teaching. Hands down, the most influential thing was Donella Meadow's posthumously published *Thinking in Systems*. Our course evolved as one that would augment Meadow's chapters on stock and flow systems modeling with enough background in ecology, economics, development theory, and applied environmental policy studies that students could see how a common notion of sustainability was running through each of these domains. Our course emphasized the systems thinking process and used Meadow's graphic representation of stocks, flows, and feedbacks in lieu of mathematical models. This reflected Thompson's training in philosophy and our agreement that moving too quickly to the quantitative representation alienates many students and prevents them from grasping what the math is actually about.

There are also people who influenced our thinking either through personal interactions or through our reading. Glenn Johnson, Dave Ervin, Bryan Norton, and Michael O'Rourke would be high on the first list, while John Gowdy, Herman Daly, Elinor Ostrom, Kenneth Boulding, C. West Churchman, Aldo Leopold, John Dewey, Jane Addams, Heñáka Sápa, and

Henry David Thoreau are high on the second. Both lists could go on and on; we've been at this business for a while.

We began to think about a book collaboration in 2017 at the suggestion of Lucy Randall at Oxford University Press (OUP). Lucy sent us a few titles from Oxford's What Everyone Needs to Know® series and invited us to prepare a prospectus that would be consistent with the series' question-and-answer approach. We had already reviewed other books intended to provide a non-textbook introductory treatment, as well as new literature from authors suggesting that we should forget about sustainability and start working on resilience. We incorporated our thoughts on these titles into a prospectus for a book that would take the same philosophical approach as the course we had developed, while avoiding the typical vices of academic publishing. Lucy has been especially helpful as our project has moved from a proposal to a manuscript, reviewing early chapter drafts for tone and accessibility and then, with OUP's Hannah Doyle, editing the first draft of the book. We want to thank Lucy and Hannah, as well as the external reviewers of the prospectus recruited by OUP.

We also recruited a number of colleagues to read individual chapters in their areas of specialization. We would like to thank Dan McCole, Robby Richardson, Laura Schmitt-Olabisi, Eric Scorson, and Laurie Thorp from MSU and Kurt Stephenson from Virginia Tech for valuable suggestions that have almost certainly prevented us from looking like total idiots. In the same vein, we thank Dane Scott, OUP's external reviewer, who provided comments on the entire manuscript. Of course, we take full ownership of anything we got wrong or places where readers may strongly disagree with us.

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# **SUSTAINABILITY**

**WHAT EVERYONE NEEDS TO KNOW®**



# 1

## WHAT IS SUSTAINABILITY?

### *What is sustainability?*

Sustainability is a measure of whether (or to what extent) a process or practice can continue. This is a very general characterization. People flesh it out in many ways. The process or practice can be very ordinary, such as going to the grocery store to do your weekly shopping. Or it can be exceedingly complex and comprehensive: the entire system of production and exchange that makes up the global economy, for example. Sometimes you can measure how long or to what degree something can continue by collecting data. Other times, you just estimate whether something is sustainable, making a seat-of-the-pants kind of judgment. One way or another—whether precisely or generally—people can analyze sustainability for an exceedingly large number of different activities. We can assess the sustainability of a particular farming method or of the entire food sector. We can determine the sustainability of one particular building or architectural design, but we can also look at the built environment for a city. Given the right data and theoretical tools, one can evaluate the sustainability of a company's business practice or an entire sector of the economy. Specialists can compute ratings for the sustainability of alternative types of packaging and even apply the concept

## 2 SUSTAINABILITY

to natural processes, such as a population of organisms or a volcanic eruption.

While people talk meaningfully about the sustainability of many different processes or practices, in this book we emphasize sustainability of systems. Big systems, like the economy or a regional ecosystem, are composed of smaller-scale practices that affect one another. Trying to understand how they fit together leads one to think about connections and connectedness. Or to put it another way, it leads us to understand seemingly isolated and unconnected activities or processes as occurring within a system. The answer to questions about whether any process or practice can continue depends on the larger system in which it is embedded. Continuity of the smaller systems it depends on also matters. This has led people who focus on the sustainability of a business enterprise, a community, an ecosystem, or a way of life to develop a general approach to systems thinking: conceptualizing things in terms of the larger and smaller systems on which they rely and probing the ways in which seemingly disparate activities and happenings are connected to one another.

The flexibility with which systems can be described leaves some people dazed and confused. One person may have a very narrow understanding of a given practice or process, while someone else may understand it more broadly. If one car gets better gas mileage than another one, for example, it can be said to be more sustainable because it goes further on a gallon of fuel. But some would say that *any* combustion of fossil fuel is unsustainable because our supply of petroleum is finite and will eventually run out. Even more generally, the idea of sustainability has been advanced as a broad, comprehensive social goal over the last four decades. In this sense, people are thinking about a large interconnected set of practices that are fundamental to our current way of life, and sustainability is a measure of whether (or to what extent) that way of life can continue. If this larger social context is what someone has in mind, the sustainability of a more specific practice or process

(such as driving a car with low or high gas mileage) has to be assessed in terms of whether it promotes the continuance of a particular way of life or inhibits it.

Getting a handle on what makes a particular practice sustainable is useful for people who have an interest in it. Yet sustainability would not have become a buzzword except for the way that it often implies something about the totality of practices and processes on which everyone depends. This is the sense in which sustainability is a *big idea*. To get a handle on sustainability as a big idea, one must imagine all the different meanings and activities associated with the way people live today and then ask how they connect to form a total system of practices and processes. Like most big ideas, what any given individual thinks is important reflects that person's experiences and life goals. When people start to think about things that connect to our way of life, they start from different places. Differences among individuals' starting points—their experiences and life goals—explain much of the disagreement about what sustainability is.

***If everything is interconnected with everything else, where do you start?***

This is a challenge. You could say that it doesn't matter much where you start in systems thinking, because thinking through connections will eventually lead you to consider the larger context. But choosing a starting point is important for launching a conversation (or writing a book) because the entry point into sustainability that is obvious for one person will seem obscure (or boring) to someone else. We (or most of us) care deeply about the continuation of *some* things that can be understood in systems terms: the company we work for, the community we live in, the church we attend, the forests and streams where we like to hike, camp, or fish. But people may not immediately consider how all these things are connected to each other or how continuing one of them might affect another. Some people

*do* think comprehensively about the earth as one big system, but the planet earth may continue even as places and institutions within it that other people care about vanish. However, you can learn a lot about the principles of sustaining a church, a community, or a favorite natural area by examining what it takes to sustain a business—or at least that’s the premise of our book. We start by thinking about what it takes to sustain a business. Getting the hang of these principles is what we, your authors, think everyone should know about sustainability.

### *Is sustainability always about the environment?*

As will become clear when we start to look at some examples, many processes and practices draw upon natural resources or depend upon services produced by the earth’s ecosystems. It would be meaningless to estimate the sustainability of such practices without taking their use of and effects on natural systems into account. What is more, much of the impetus for interest in sustainability derives from growing awareness of natural resource depletion and damage to the quality of the water people drink and the air that people breathe. Sustainability is, in many people’s minds, primarily defined in terms of environmental impact.

Yet there are other ways in which people evaluate sustainability that are only indirectly related to the environment. As will become clear later, part of the reason sustainability became a watchword in international politics was that poorer countries were resisting global initiatives to constrain economic development in the interest of environmental protection. They were more comfortable with the idea of *sustainable development* precisely because they saw this notion as recognizing the priority of meeting crucial human needs. Even more generally, the sustainability of some practices depends on whether they have a secure financial base. When administrators in government, universities, charitable foundations, and other large organizations ask whether a new program will be sustainable,

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