

Box 14.1 How to Define Well-Being

Much attention has been paid over the past few years by some academics to the concept of well-being. Dissatisfied with an earlier claim that people are doing well just to the extent that they believe they are—which is a highly subjectivist way to think about the issue—some have turned to more objective measures. These include some of the items listed just above, like access to education, the chance to participate in political decision-making, and so on. It should be obvious how these things are objective. If we put them on the list of what is needed in order to thrive, then whether any individual has them or not is not, as it were, up to them. They either do or do not. It is important to put the point this way because doing so allows us to say that even if they were, hypothetically, very happy with their life but lacked these objective measures of well-being, then we could say they are not really doing well. That sounds odd to say, but there's a good reason for thinking this way.

This way of thinking is rooted in Aristotle's theory of happiness. As we saw in the Introduction to this book, Aristotle understands happiness in a way that does not tie it to anyone's psychological state. This is usually how we think of the notion of happiness, as the *feeling* of cheerfulness or peacefulness or whatever. For Aristotle, however, this gets things all wrong. What we translate from his work as "happiness" is the Greek word *eudaimonia*. A better translation would be "flourishing" or "well-being." Aristotle thought that humans were like knives or apple trees or lions in one crucial respect: each of these kinds of things has a function that is proper to it. Knives cut, apple trees produce apples, and lions hunt gazelles (among other things). Now, if asked whether or not any particular knife or apple tree or lion were faring well, none of us would be tempted to wonder about the psychological state of the thing in question (supposing this even made sense). We would ask, rather, whether the thing was performing its unique function the way it was meant to: cutting things, producing apples, and hunting gazelles. And if this kind of explanation works for knives, apple trees, and lions, why not for humans too?

Indeed, this kind of explanation did work for humans until very recently. But in the nineteenth century, utilitarians changed our moral discourse by claiming that psychological states were crucial in identifying whether or not a thing was flourishing. This is why utilitarians believed the question literally makes no sense when applied to things without an inner life. Economics, which is grounded in utilitarianism, took this idea and ran with it to the point that we have a difficult time thinking any other way now. Maybe it is time to rediscover a more objective conception of well-being, one that ties it to the sustainability of the rest of the biosphere?

Sources: Guy Fletcher, *The Routledge Handbook of Philosophy of Well-Being* (London: Routledge, 2016); Justin Fox, "The Economics of Well-Being," *Harvard Business Review*, January 2012 <https://hbr.org/2012/01/the-economics-of-well-being>.

THE CONCEPT OF SUSTAINABILITY

C. Tyler DesRoches

I. Introduction

American philosopher Wilfrid Sellars once said that "the aim of philosophy, abstractly formulated, is to understand how things in the broadest

possible sense hang together in the broadest possible sense." My main question is this: within the context of contemporary sustainability science, how does the concept of "sustainability" in the broadest possible sense of the concept hang

together in the broadest possible sense?¹³ I will answer this question by advancing two new explicative definitions of sustainability that jointly constitute *a unifying concept of sustainability*. This meta-level concept accommodates most of the central meanings conventionally assigned to “sustainability” by sustainability scientists and scholars, offers a useful division of labor between scientists and scholars, and makes explicit value judgements commonly associated with the concept of sustainability.

II. Sustainability Is Polysemous

While political philosophers have generally taken “sustainability” to be a matter of intergenerational justice,¹⁴ environmental philosophers, including Sahotra Sarkar and Bryan G. Norton, have long recognized that whatever “sustainability” is, it is a thick concept—one that combines evaluative and non-evaluative elements.¹⁵ To claim that something is sustainable is not merely to describe it as possessing certain features, characteristics, or qualities but to make a value judgement about the comparative goodness of the thing—typically a state of affairs—in question. Invariably, a sustainable state of affairs is one that is desirable or good in some way, even if there remains wide-ranging disagreement about what makes it so.¹⁶

Certainly, no sustainability scientist would claim that it is bad for the Earth or parts of the Earth to be sustainable, even if they disagree on what the concept of sustainability means or denotes. This entanglement of normative and descriptive elements pervades every major conception of “sustainability.”

Consider, for instance, the tripartite Venn diagram, made famous by the 2005 UN World Summit, and the three concentric circles endorsed by many ecological economists. The Venn diagram, depicted in Figure 14.1, appears to suggest that whatever sustainability is, it is located where the so-called “three Es” (environment, equity, and economics) coincide. Figure 14.2, by contrast, depicts a series of concentric circles, the environment, society, and the economy. On this latter conception, the environment is seen as the foundation of sustainability, with society and the

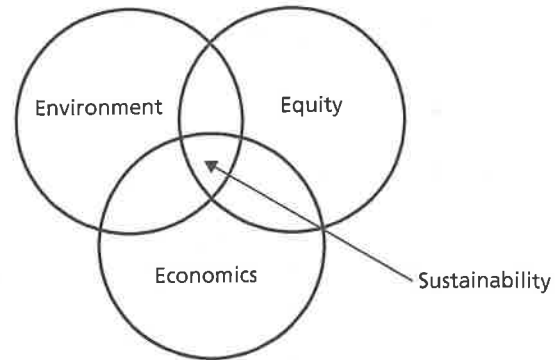


Figure 14.1 The “Three Es” of Sustainability

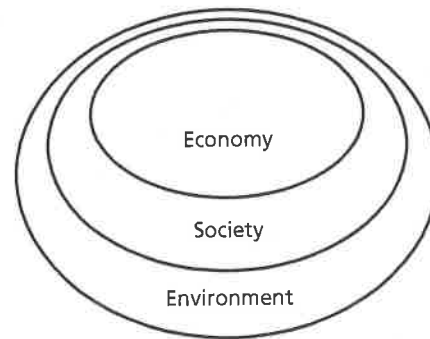


Figure 14.2 The Embedded Economy

economic system embedded within it.¹⁷ While these two models lack precision, are notoriously ambiguous, and admit a large number of mutually incompatible definitions of sustainability, no sustainability scientist or scholar denies that sustainability is something desirable or good.

Beyond these renowned images, the most famous definition of sustainability (sustainable development) is due to the World Commission on Environment and Development’s 1987 *Our Common Future*, also known as the Brundtland Report. On this account, sustainable development is “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs.” This definition not only commits to a claim about *who* matters—members of the present and future generations—but *what* matters, too: the ability for these intergenerational subjects to meet their own basic needs.

Motivated by the Brundtland Report’s definition, the so-called social scientific approach¹⁸

to sustainability was pioneered by resource economists.¹⁹ On this approach, the Nobel-Prize winning economist Kenneth Arrow shows²⁰ that a sustainable economy provides the current standard of living across generations as long as each generation bequeaths to its successor at least as large a quantity of an economy's "productive base," which is composed of three kinds of capital assets: human, natural, and manufactured capital.²¹ More specifically, Arrow and colleagues show that inter-temporal social welfare, $V(t)$, is sustainable if and only if this variable is equal to or greater than zero over time ($dV/dt \geq 0$). Unlike the Brundtland Report's definition of sustainable development, which focuses on meeting basic needs, resource economists maintain that an economic system is sustainable if and only if human well-being (*qua* preference satisfactionism) is non-declining over time.

Finally, another dominant conception of "sustainability" is the so-called "The Resilience Paradigm," which was originally inspired by the earlier work of Donella Meadows et al.'s *The Limits to Growth* (1972) and Lance H. Gunderson and C.S. Holling's *Panarchy* (2002).²² On this view, a given system—whether social-ecological, coupled human-natural, or complex adaptive—is sustainable insofar as the system is "resilient" or capable of withstanding internal and external threats.²³

The objective of this brief section has not been to provide an exhaustive overview of the extant definitions of sustainability, let alone compare and scrutinize them. Instead, the only two aims of this section have been to acknowledge the polysemous nature of sustainability, a bromide detailed by others, and to recognize that sustainability is a thick concept.²⁴

III. Clarifying Our Question

The concept of sustainability is polysemous. So what? Even if the polysemy of sustainability is fruitful for the purposes of sustainability science and scholarship, one might still ask the following question: what, if anything, do the main conceptions of sustainability share? Moreover, might there be a meta-level concept of sustainability that unifies them?²⁵

For the purpose of this article, clarifying the concept of sustainability amounts to adopting a process similar to what the German language philosopher Rudolf Carnap had in mind when he referred to an "explicative" definition. For Carnap, an explicative definition is unabashedly pragmatic.²⁶ It involves transforming an inexact concept, which could be an everyday or prescientific concept, into an exact concept. My aim is *not* to eliminate any of the main usages of "sustainability" but to propose a meta-level concept that helps to explain what these usages share in common.

We will see that the two complementary explicative definitions proposed below capture the most common or essential uses of sustainability among sustainability scientists, including those who endorse the Brundtland Commission's definition of "sustainable development," resource economists who model sustainable development, and sustainability scientists who conduct research on resilience and complex adaptive systems. The meta-level concept of sustainability on offer is general, precise, and fruitful. Moreover, it unifies sustainability research under a single canopy, identifies a rough division of labor among sustainability scientists and scholars, and makes explicit the implicit value judgments that are frequently associated with sustainability.

IV. A New Unifying Concept of Sustainability

Sustainability scientists and scholars agree that the whole Earth or parts of the Earth can be sustainable, even if they disagree about the conditions that must be satisfied to make it so. Arguably, any satisfactory unifying concept of sustainability should reliably denote sustainable states of affairs over time—it should track the truth of states of affairs that are sustainable, much like a reliable thermometer tracks the truth of temperature across different environments and times. That said, sustainability scientists do not generally speak of "sustainable states of affairs" but "sustainable systems," such as human, natural, or hybrid human-natural systems. As a preliminary attempt, one might consider the following explicative definition of sustainability:

Sustainable System (SS): A target system is sustainable if and only it persists over some time period, $t_1 \dots t_n$.

According to SS, sustainability is a property of some systems. SS simply states that for any system to be sustainable it must exist over some period of time, which is to say that sustainable systems are *intertemporal* phenomena.

SS is a good start but has several shortcomings. For starters, no system persists forever. Eventually, our sun will transform into a giant red star and consume the Earth *in toto*. Any satisfactory explicative definition of sustainability should acknowledge that a sustainable system persists over a finite and acceptable timeframe, even if disagreement remains over what is acceptable. Second, SS appears to be too general for our purposes. Why? *Alpha Centauri* qualifies as a sustainable system under SS, but no sustainability scientist worries about the persistence of this star system. Because the objective of this chapter is to propose an explicative definition of sustainability that is consilient with sustainability science, SS ought to be restricted to the systems conventionally targeted by sustainability scientists, such as human systems (i.e., economic), natural systems (i.e., ecosystems that remain relatively detached from intentional human agency), coupled natural and human systems, ecological-economic systems, and complex adaptive systems.

Moreover, SS should be restricted for another reason: it denotes all systems that persist over time, but few (if any) sustainability scientists would be willing to describe a system that, for example, perpetuates intergenerational injustice as “sustainable.” Instead, sustainability scientists universally agree that sustainable systems must be “good” for some beings in some way, as detailed above. One way to capture the inherent goodness of sustainable systems is to suppose that they consist of a set of (non-pecuniary) goods, such as well-being, justice, and equality. While there might be rampant disagreement over which goods are essential to sustainability and how they ought to be distributed within and between generations, one thing is clear: any system worthy of the label “sustainability” must yield them.

Given the foregoing shortcomings of SS, one might refine the explicative definition of sustainability as follows:

Ideal Sustainable System (ISS): A target system is ideally sustainable if and only if it (1) persists over some acceptable and finite period of time, $t_1 \dots t_n$, and (2) realizes a non-empty set of goods, G_p , for the beings worthy of moral consideration, B_i .

ISS is a regulative ideal. Unlike SS, ISS is restricted to systems typically analyzed by contemporary sustainability scientists. Moreover, ISS acknowledges that no sustainable system persists forever and must yield some set of goods for those deemed worthy of moral consideration. While there is no consensus on the values of the main variables that constitute ISS, this explicative definition of sustainability serves to make explicit a set of questions, some of them philosophical, that are sometimes left implicit by sustainability scientists and scientists:

Which target system?

Which goods (G_p) are essential to sustainability (and how should they be distributed among those who deserve moral consideration)?

Which beings (B_i) deserves moral consideration?

How long must a system persist over time ($t_1 \dots t_n$) to qualify as “sustainable”?

How might sustainability scientists answer these questions (1–4)? Consider, for example, the resource economists who model sustainable development. These researchers generally model the sustainability of an economic system as one that yields non-declining aggregate utility, a proxy for well-being, over time. According to such models, members of the species *Homo sapiens* are the only beings worthy of moral consideration and human well-being is, ultimately, the only relevant good. In this way, wittingly or unwittingly, resource economists answer questions 1–4, above.

Of course, different sustainability scientists from different disciplines might answer these questions differently. Why not target an ecological-economic system as opposed to a purely economic

one, for example? Why not insist that justice and equity, in addition to well-being, are separate and distinct goods that must also be realized over time? Moreover, why not maintain that *all* sentient beings (creatures capable of feeling pleasure and pain) are worthy of moral consideration, not merely the members of our species?

One might reasonably object that ISS makes sustainability practically impossible to achieve. After all, if $G_i =$ "perfect justice for all" and "perfect justice for all" is infeasible then, according to ISS, no system is sustainable (or could become sustainable). This conclusion is incompatible with the best sustainability science, which maintains that some systems are sustainable or, in the very least, can be made sustainable. ISS appears to set the bar too high.

One way out of this predicament is to propose a *non-ideal* explicative definition of sustainability that complements ISS. For instance, consider the following:

Non-Ideal Sustainable System (NISS): A target system is non-ideally sustainable if and only if it (1) persists over some acceptable finite period of time, $t_1 \dots t_n$, and (2) realizes a subset of G_i (beyond some minimal threshold), for a subset of beings worthy of moral consideration, B_i (beyond some minimal threshold).

The main difference between ISS and NISS is that the former states a sustainable system requires G_i be realized for B_i , while the latter only requires that a subset of G_i , beyond some minimal threshold, be realized for a subset of B_i . Together, NISS and ISS are complementary explicative definitions of sustainability, neither of which is designed to be self-sufficient. They constitute a new meta-level concept of sustainability. While ideal sustainable systems can be difficult or impossible to achieve, non-ideal sustainable systems can always be improved.

Arguably, ISS and NISS are sufficiently general to capture the main usages of sustainability described in Section II. Moreover, ISS and NISS are precise and fruitful as well, especially because they serve to unify the concept of sustainability for sustainability science and scholarship under

the same conceptual umbrella. Many issues remain, however. After all, ISS and NISS do not specify *how* a non-ideal sustainable system might be transformed into an ideally sustainable system. Sustainability scientists and scholars generally suppose that a sustainable system requires a corrective or intervention of some kind, whether through human action or omission. ISS and NISS remains neutral on this question.

Perhaps a system can be made ideally sustainable with transformative institutions, behaviors, technologies, or social norms. But perhaps not. Whatever closes the gap between NISS and ISS, such factors are central to sustainability science and beyond the scope of this article.²⁷

V. Two Objections and Replies

Let us consider two objections. First, one might object that ISS and NISS are false. After all, they fail to capture everything sustainability scientists and scholars do and, therefore, should be rejected. In response, it is critical to recognize that ISS and NISS are not designed to capture everything sustainability scientists do, such as accounting for every definition ever proposed by sustainability scientists. Instead, they are complementary and unifying definitions of sustainability designed to capture *most* sustainability science and scholarship. Any particular mismatch between them and actual usages of "sustainability" among sustainability scientists is not a decisive objection against them. When judging an acceptable explicative definition, including ISS and NISS, what is most important is not antecedent meaning alone, but *function*.²⁸

In this case, the primary function of ISS and NISS is to unify disparate definitions of sustainability under a single umbrella concept. Clearly, whether ISS and NISS execute this function depends crucially on the purpose and context for which they were designed. There may be competing explicative definitions of sustainability capable of unifying sustainability science and scholarship that are better than ISS and NISS. Such definitions should be given full consideration. Yet, simply because ISS and NISS do not account for every definition of sustainability, this fact does not automatically disqualify them as good explicative definitions.²⁹

The second objection is that ISS and NISS leave too many unanswered questions. After all, neither definition specifies, for example, the set of goods G_i essential for sustainable systems. Suppose that, for example, three goods—equality, justice, and human well-being—were judged to be essential for a system to be sustainable. Who has the authority to make this decision? What makes these three goods, and not others, essential to sustainable systems? What is the value of these goods? Are these values commensurable or incommensurable? How might one handle trade-offs between such non-pecuniary goods? How are these three goods to be distributed, and among whom?

Moreover, what *are* “equality,” “justice,” and “well-being”? One might speak of equality along any number of dimensions. Equality of income, wealth, opportunity, capabilities, rights, treatment, resources, or something else? What is justice? Must sustainability scientists decide between, for example, Rawlsian and Nozickian theories of justice? If so, which theory is correct? If not, why not? What is human well-being? Competing philosophical theories of well-being include hedonism,³⁰ desire satisfactionism,³¹ and objective-list accounts,³² but there is no consensus on the correct theory of well-being. Does this philosophical challenge pose a problem for sustainability scientists who model sustainable development as non-declining human well-being over time?

In the end, this objection confuses the central function of ISS and NISS, which is, again, to unify sustainability science and scholarship, not resolve substantive debates within sustainability science and scholarship. ISS and NISS reveal underlying philosophical (and scientific) questions associated with the concept of sustainability, the likes of which should be tackled *explicitly* by sustainability scientists and scholars.

VI. Conclusion

This article proposed a new concept of sustainability that, I argued, helps to unify sustainability science and scholarship under the same conceptual umbrella. The concept of sustainability on offer is constituted by two explicative definitions of sustainability, ISS and NISS. Jointly, these complementary definitions accommodate the central meanings assigned to sustainability and explain what they share. ISS and NISS also underscore a coherent division of labor among sustainability scientists and scholars. While many sustainability scientists construct models that target specific systems (with some degree of resilience), sustainability scholars, especially philosophers of sustainability science and environmental philosophers, address inescapable philosophical problems associated with the concept of sustainability.

This is a subtle analysis of the current discourse of sustainability. For one thing, it suggests that although the concept of sustainability has become extremely cheapened in our culture such that it seems to have lost all substance, we should not abandon it altogether. The concept retains a core meaning that is both clear and valuable in our current environmental predicament. Living sustainably involves intertwining ourselves with the natural world to a greater degree and more consciously than we do now. The ISS and NISS models of sustainability provide us with models of how to understand this task.

It is often pointed out that ecological sustainability should not be pursued in the absence of social and economic sustainability. Many philosophers and ecologists are determined not to sacrifice whatever is of importance in the natural world for the achievement of human ends, but it works the other way too: there are genuinely important human ends that should not be sacrificed in an effort to live as close to the natural bone as we can get.

Let's put this another way, a way that has a distinctly Aristotelian ring to it. Social and economic sustainability are important because of the *goods* they are meant to protect. Social sustainability protects things like the equitable distribution of social benefits and burdens, a