
The Faulty Three-Legged-Stool Model of Sustainable Development

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Introduction

Solutions to the many environmental problems facing humanity can only be effective if they are based on sound science, that is, on what we believe to be “true” to the best of our knowledge. These “truths” may be improved upon as research provides new insights, and when that occurs we can modify our solutions accordingly. However, natural laws provide the inviolate foundation on which effective solutions rest, and we ignore them at our peril.

To build on a foundation of science, we also have to change the way we think. To paraphrase Einstein, we can't solve today's problems with the same thought processes that created the problems in the first place. This change has to come about not only in the way we solve problems but also in the way we as a species relate to the biosphere and the other organisms that share the planet with us.

We often develop models as metaphors to describe some new understanding of a problem because they organize and simplify our understanding and suggest a seemingly reasonable way of solving it. As a result, the models are often “picked up” and used without the benefit of much consideration. Before long, they can become part of the mythology of the culture.

This isn't necessarily bad. If a model is well thought out and accurate, it can be an effective way to encourage people to recognize faulty concepts, which could help shift their thinking. If the model itself is faulty, however, the fact that it sounds reasonable may do more harm than good. Used repeatedly, it attains the status of fact when, in reality, it is simply another myth.

Here we discuss a current model for sustainable development that we believe is based on faulty science and faulty logic. As such, it perpetuates an even older myth

that the environment is something apart from humanity, humanity's economy, and its social well-being. We do not discuss whether sustainable development itself is an oxymoronic concept. We do assume that sustainable development represents a real change in the way humans choose to live so that the viability and subsistence of all living species and their places are ensured.

Faults of a Sustainable Development Model

The following is an example of a model that is often used in the discussion of sustainable development:

A simple way of picturing sustainable development is to think of it as a stool with three legs, representing the environment, the economy and society. If any leg is more or less important (i.e., shorter or longer) than the others, the stool will be unstable (but perhaps still usable—at least for a while). If any leg is missing, the stool simply will not work. But if all three legs are the same length (i.e., environmental, economic and social considerations have been given equal weight), the result will be a well balanced stool which will serve its purpose indefinitely—a sustainable stool (Scottish Environment Protection Agency 2002).

An Internet search for “three legs of the stool” and the similar “three pillars of sustainable development” as models for sustainable development revealed over 4000 instances of their use. We chose Internet examples—although these analogies are also in the scientific literature (e.g., Young 1997)—to demonstrate their widespread use.

Users ranged from local, regional, and national governments (e.g., LeMay 1999; City of Austin 2001; Berry 2002; Dobriansky 2002) and businesses (e.g., Price 2000; Procter & Gamble 2001) to international organizations such as the World Business Council for Sustainable Development (World Business Council for Sustainable Development 2002), World Health Organization (Bruntland 2002), and the United Nations (United Nations Environment Program 2002).

All the examples of this sustainable development

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Paper submitted November 4, 2002; revised manuscript accepted December 4, 2002.

model emphasize two main points. (1) To achieve sustainable development, we must consider the environment, social well-being, and economy as the legs sustainable development stands upon. (2) We must consider each leg equally—although the three legs are separate, they are of equal importance.

It is encouraging to many that the environment is finally to be considered up there alongside the economy. Certainly were we to consider the environment even on an equal footing with the economy and social well-being, it would be a considerable improvement over what we have done in the past. All too often, environmental concerns are relegated to afterthoughts if they are considered at all.

Indeed, most of our western decision-makers still regard sustaining development at the expense of the environment as “sustainable development.” This often leads to an economy that is vibrant but without equitable social well-being (Brink & Zeeman 1997; Curry-Stevens 2001) or a healthy environment—thus the necessity for the creation of the three-legged-stool model.

However, using the three legs of the stool as a model for sustainable development will not help solve these problems because, with this model, humanity is once again placed outside the environment. Like the current neoclassical economic model that has no connectivity to the biosphere (Daly 1996)—and thus places no value on biodiversity or the ecosystem functions that enable life itself—this model fails to encourage us to recognize our place within the biosphere. Worse, it suggests that if we can only find an equal balance between our economic needs, our social well-being, and the environment, we can simply continue to tread our current path, business as usual.

What is wrong with this model? Simply put, humanity can have neither an economy nor social well-being without the environment. Thus, the environment is not and cannot be a leg of the sustainable development stool. It is the floor upon which the stool, or any sustainable development model, must stand. It is the foundation of any economy and social well-being that humanity is fortunate enough to achieve.

Therefore, it follows that the environment must be considered at a different, more significant level than either the economy or our social well-being because it is the source of both these necessities to humanity. Until each of us, and particularly the decision-maker, truly knows and acts upon this concept, we will see little progress being made in moving ourselves toward sustainable use of the ecosystems that support humanity and all other life on Earth.

Where Do We Go from Here?

We believe that conservation biologists have important roles to play in correcting these faulty models. We are

the ones with at least a basic understanding of ecology and how it affects our lives. As Orr (2002) notes, “. . . we need more accurate models, metaphors, and measures to describe the human enterprise relative to the biosphere.” Inaccurate models, such as the three legs of the stool or the current neoclassical economics model, should be exposed at every opportunity for the faulty models they are.

Science has taught us that humanity is here today only because of the myriad services that the ecosystems of the earth have provided. Where would we or our economy be without healthy agricultural soils; sustainable forests; pollinating insects; clean, abundant fresh water; biologically productive oceans; or reasonably stable climates? The fact that our western culture has placed a higher priority on economic growth than it does on environmental health can explain much of the present deteriorating state in which we find the environment and thus ourselves.

Will we ever understand our place on this planet and choose to live within the limits set by the biosphere? Perhaps, but not by using the “three legs of the stool” as a model for sustainable development. Why? Because it continues to place us outside those limits. And while we may be able to think outside the limits, we cannot live outside the limits.

Acknowledgments

D. Ehrenfeld kindly reviewed the manuscript.

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