

THE THREE CIRCLES MODEL OF SUSTAINABILITY

Gene Bazan and Tania Slawecki

Original text as prepared for the PSU Center for Sustainability, 2002

A key context for our organization is the debate that has attended the use of the term “sustainability”. The term has become so compromised that forward thinkers have already abandoned it. Paul Hawken has defined sustainability as midway between destruction and restoration. John Haberern, president of The Rodale Institute, has qualified its use in the phrase “sustainable agriculture” by calling for a “regenerative agriculture,” one that “raises the bar.” For him, “organic” no longer goes far enough, and this just as the USDA has adopted the country’s first organic food standards.

We think the term can be salvaged if certain clarifications are accepted. It is with these clarifications that we use the term “sustainability”.

The Three-Circle Model of Sustainability

The 1987 UN report *Our Common Future* launched the word “sustainability” into vernacular use. The report defined “sustainable development” as a good thing, meaning “satisfying the needs of the present generation without compromising the ability of future generations to meet their needs”. The word and the phrase were immediately corrupted, turning the concept of sustainability into amoeba-like mush. The phrase was borne of a compromise between Southern hemisphere nations who wanted a bigger piece of the economic pie (“development”), and Northern hemisphere environmentalists who wanted to “sustain” (keep in existence, protect) key ecosystems (e.g., rainforest). Northern environmentalists were accused of trying to deny Southern hemisphere nations a right to economic growth, and were told to protect their own forests in the Pacific Northwest, for example. The business sector tried to get on top of the issue by coining the phrase “sustainable growth”, but withdrew its use when others pointed out that it was even more of an oxymoron than sustainable development.¹

A coincident discussion was underway in agricultural circles, where the phrase “sustainable agriculture” came into use to describe “healthy farming systems” after a U.S. Department of Agriculture (USDA) research and education grants program called Low Input Sustainable Agriculture (LISA) was started in 1988. Several years later, LISA was renamed SARE (Sustainable Agriculture Research and Education), since improving management practices, rather than simply reducing inputs, was increasingly recognized as the core of ecologically sound farming.”²

Given the economic struggle many farmers were facing, the phrase approached in meaning that which the business community ascribed to sustainability – namely, how to keep the economic juggernaut going full throttle (i.e., how to sustain growth). For many farmers, this juggernaut (effectively, “how to keep farmers in business”) represented aspiration rather than reality. Moreover, since farmers largely believe they already are stewards of the land, the suggestion that their practices are not “sustainable” or sensitive to environmental protection but are in need of improvement, raises their hackles.

¹ Bartlett, Albert A. “Reflections on Sustainability, Population Growth, and the Environment”. *Population and Environment*, vol. 16, No. 1, Sept. 1994, pp. 5-35. Wolfgang Sachs, *Global Ecology*. Zed Books. Fernwood Books, Halifax, Nova Scotia.. 1993, especially Part II “Confusion Over Sustainability”.

² Vernon P. Grubinger. *Sustainable Vegetable Production From Start-Up to Market*. Natural Resource, Agriculture, and Engineering Service (NRAES), Coop. Extension, 152 Riley-Robb Hall, Ithaca, NY 14853. 1999.

We will not get involved in this debate, but merely note that the Pennsylvania Association for Sustainable Agriculture (PASA) has moved more closely to an environmentalist perspective. Perhaps its members, feeling more secure about staying in farming, can now confront the bigger environmental issue. If we don't save the land (some estimate that we have less than 50 years of topsoil left world-wide), there will be nothing worth farming. DuPont recognized something similar. Its VP for Safety and the Environment, Paul Tibo, noted that DuPont had to take its environmental impacts seriously or else they would have no customers. This observation, aptly put, is less crass than that of the consultant who conducted a study at the behest of Philip Morris for the Czech Republic and touted that one of the benefits of smoking was the lower numbers of older people requiring social security and medical benefits (“ ‘cause they would die earlier!”).

Conceptually, sustainability is most often diagrammed as three intersecting circles representing the sectors of the Economy, the Environment, and Society (upper diagram of Figure A1). Disciples of this framework assert that sustainability is a matter of balancing the needs of the environment with those of the economy and of society. Followers often use the phrases “sustainable economy”, “sustainable communities”, or “sustainable environments”. Such uses are imprecise, as they export to the sectors a condition that can be satisfied only within the bull's-eye intersection of all three circles. The bull's-eye, by definition, is not achieved by a tug-of-war, trade-offs or compromise; rather, *it is the condition of satisfying the requirements of all three sectors simultaneously!*

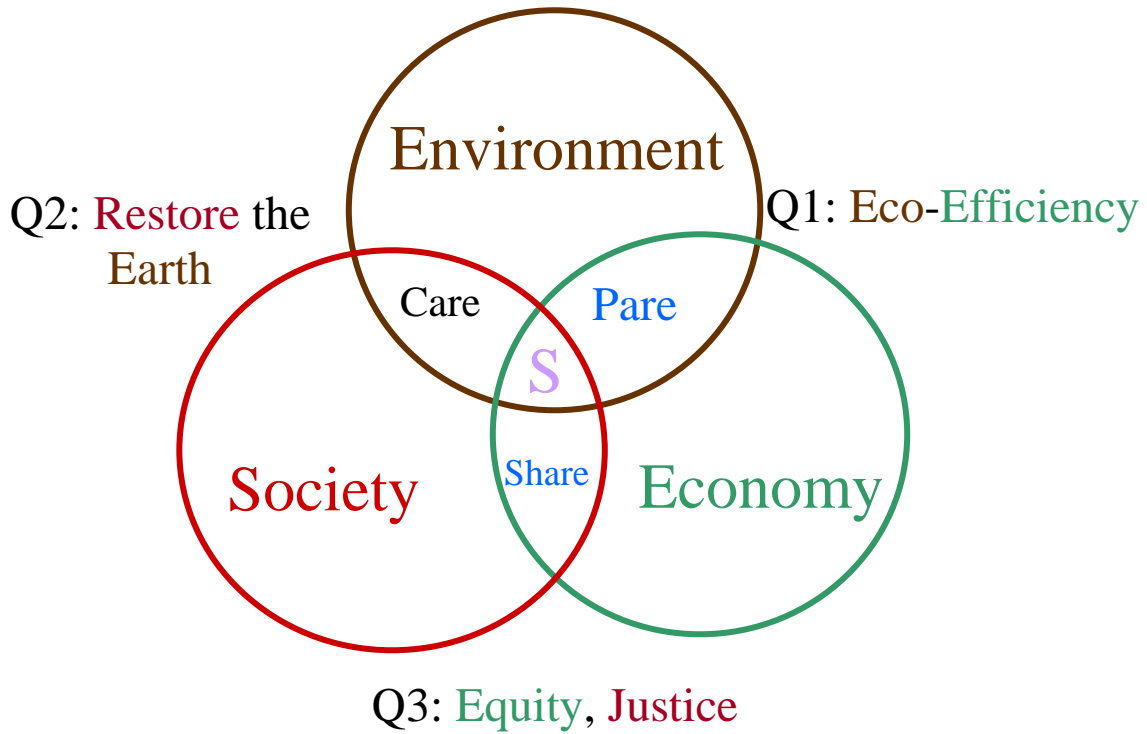
There are several difficulties with the Three Circles model. The first is that the economy is treated as a living entity and given its own right to exist in equal part with society and the environment. The “needs” of the environment are the needs of all the living creatures and the natural cycles that support them. Society's existence depends on the environment to support it and is therefore a subset of the environment. Its “needs” can be described as “food, clothing and shelter” which also depend on the environment (clean air, water, good soil) and were satisfied for many thousands of years without what we term today “an economy”. To say that Nature has an economy is to attempt to equate natural cycles with monetary exchange – in which case, it is redundant to even mention economy as a separate circle. What are the “needs” of the economy? Unlike the environment and society, the economy is an abstract entity. To claim that the economy has “needs”, if you think about it, doesn't make much sense.

The second difficulty with the Three Circles model is made clear by examining dependencies of each arena on one another. The Economy cannot exist without the Society that invented it and uses it, nor the Environment on which Society and all life depends. However, the Environment could exist without Society or the Economy – in fact, it would be a lot healthier without these intrusions. The concentric circles model to the lower left of Figure A1 depicts this dependency-ordering of the three arenas. To the lower right is the inverse of this arrangement, representing the dysfunctional operation of our society: our decisions are economically driven (the dominant circle) to which we are subservient (middle circle) at the expense of the environment (smallest circle – central to our existence, but generally not considered priority in most decisions). The consequences of this latter model driving our decisions are dire and affect all living things.

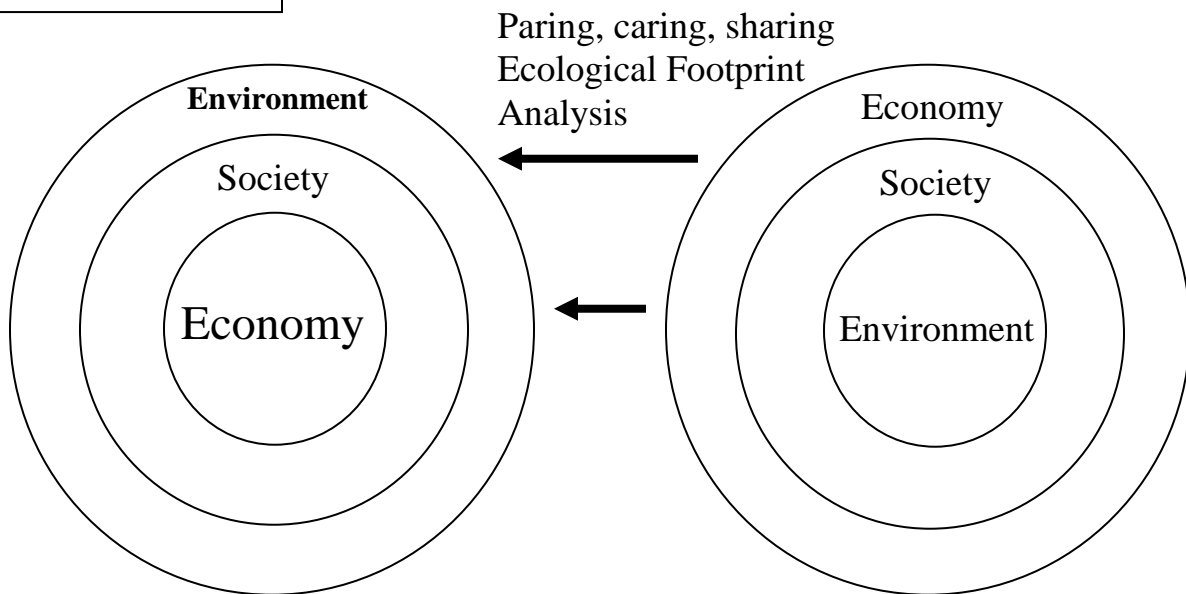
We can use the concentric circles model constructively in our planning by overlaying an ecological assessment framework on our decision-making process. Ecological Footprint Analysis, together with the paring-caring-sharing framework described below, can be employed to drive the dysfunctional inverted concentric circles model to the healthier dependency-ordered system in which the economy is properly utilized as a simple tool that is subservient to society (with its real needs) and the environment. These concentric circles models illustrate the value of ecological assessment tools.

Figure A1
SUSTAINABILITY FRAMEWORKS

The Three-Circles Model



Concentric Circles Model



The Three Circles model is redeemed by its three implied questions, derived by examining the significance of the overlapping areas between the circles.³ The intersect of Economy and Environment represents (eco)efficiency efforts: what we read about as “green” technology, living more lightly on the earth, reducing our resource consumption or “ecological footprint”⁴ or what we call “**paring.**” The intersection of Society with Economy represents “justice”. The “social justice” movement seeks to bring attention to the way in which minority groups often get the short end of the stick: toxic dumps end up in their communities, for example, rather than in those of CEOs. This movement is about achieving equity, and more broadly living in harmony with other living things, or what we call “**sharing.**” Finally, the intersect of Environment and Society is represented by such concerns as health, safety, restoring damage the human family has caused and regenerating the earth, or what we call “**caring.**”

From this we can summarize the three implied questions of sustainability:

- Q1: Environment/Economy intersect – How do we tread more lightly on the earth? (eco-efficiency, green, reducing our ecological footprint, or what we call **PARING**);
- Q2: Environment/Society intersect – How do we restore, regenerate the earth? (health, safety, or what we call **CARING**);
- Q3: Economy/Society intersect – How do we live in greater harmony (cooperation rather than competition) with other living things? (justice, equity, or what we call **SHARING**).

We refer to this framework as the “Paring-Caring-Sharing” model and actively engage it by asking, “How does an opportunity, project, solution, action address the three Q’s?”, recognizing that anything which addresses all three is “sustainable.” Two good examples of sustainable practices that address all three Q’s are Bill Mollison’s Permaculture framework, and John Jeavon’s Biointensive Mini-farming. *Most* proposed “sustainable” solutions fall under the “paring” category but do not effectively address the other two Q’s.

In contrast to this action-oriented use of the Three Circles model, the Halifax Declaration passed in 1997 has utilized the “balancing” version of this model and has challenged all Canadian universities to reduce their impact environmentally, economically and socially. When Kara Ko of the University of British Columbia’s Sustainability Office visited the Center for Sustainability in June 2002, she described the great strivings they made in reducing the university’s environmental impact. When asked what they were doing to reduce their impact economically and socially, she could only answer that they were doing the easiest thing first. Pressed further, she could not clarify what the authors of the Halifax Declaration have in mind for economic and social reduction of impact: make less money and decrease population? The shortcomings of models are evident in their application.

Consider, by contrast, how the three Q’s of sustainability can be used to address sustainability in agriculture:

- Q1: How can we encourage farming that is lighter on the earth for all concerned? (green, eco-efficient, reduced energy cost, reduced inputs, or **paring**).
- Q2: How do we restore the earth, regenerate the soil, repair the damage caused to our ecosystems by our industrial society, which also includes industrial agriculture? (healthy food, people, plants and animals, respect or **caring**);

³ Intersection labels from New Jersey Future. “Measures and Means. Background Paper: Leadership Conference on Indicators for Sustainable Development in New Jersey”. May 8, 1997.

⁴ Mathis Wackernagel and William Rees. *Our Ecological Footprint: Reducing Human Impact on the Earth*. New Society Publishers, Philadelphia, PA 1996. Our “ecological footprint” is the total number of acres each living person requires for total life support, including the land and ocean area required to act as sinks for wastes. This varies from nation to nation, being 26 acres of so for each American and 1 acre per person in India.

Q3: How do we live in greater harmony with other living things, distribute our collective wealth fairly to all, including farmers to whom we must provide a proper livelihood if we are *all* to eat *well* (justice, fairness or **sharing**);

Expanding on these questions, and keeping with the application to agriculture, a sustainable agriculture must do more than keep the farmer in farming. *First*, it must produce food eco-efficiently. Industrial agriculture requires 10 kilocalories of energy for every kilocalorie of food it produces. This is largely due to the fossil fuel inputs at every stage of production and consumption, from the mid-western farmer with his tractors to the grain elevators, millers, bakers and supermarket intermediaries. We deliver the final insult and drive to the supermarket to pick up a loaf of bread. Had our ancestors farmed with those negative returns, we wouldn't be here today. If we continue farming this way, will our grandchildren be here? On this first point, producing food eco-efficiently means producing food closer to consumers. It means regional food production and eating in season, not whatever you want whenever you want. It means getting off fossil fuel and fossil water.

Second, a sustainable agriculture must also protect and restore the land. This means protecting and restoring soil and ecosystems on which the well-being of all plant and animal life, ours included, depends. Pennsylvania contains some of the best and most fertile soils in the country. Chester and Lancaster counties are renowned worldwide for having some of the best non-irrigated agricultural land *in the world*. Other parts of the Northeast were not as well endowed, and this perhaps is why past farming practices quickly depleted these soils.

Third, a sustainable agriculture must be consonant with distributive justice, with making sure we are all fed. It cannot, for example, turn a blind eye to child slave labor on the cocoa farms of Ivory Coast. Three hundred years ago Europeans didn't ask how sugar was produced. Today Mother Nature and the media now make our actions visible and our values transparent – immediately. Similarly, we must give our own farmers equal time on the front page. We, of course, are not talking corporate agribusiness. In the lingo of our defining American sport, we must, as a culture, step up to the plate – and connect with the ball. John Haberern, President of The Rodale Institute, has put it in another compelling way: we must “raise the bar.” Here, he was speaking about moving beyond organic to regenerative agriculture.

C.V. Seshadri points out that the technological West, owing its ascendancy to the heat engine, has emphasized efficiency (Q1) as its driving criterion of success.⁵ In the age of sustainability *eco*-efficiency has become the post-modern heir to efficiency. We denigrated and drove to extinction cultures which did not have heat engines, but merely subsisted with their own labor coupled with a vast knowledge of how their local ecosystems worked (American Indians, Inuit, !Kung, Penan, nomadic and rainforest tribes, indigenous peoples the world over). Ironically, it is to these groups that we moderns are increasingly turning for their knowledge and cultural uses of plant compounds for healing purposes.

What the Center Means by “Sustainability”

The Center for Sustainability is concerned with *sustaining the health and balance of our life-sustaining ecosystems, without which it would not be possible for human life and our invention, “the economy”, to exist*. Because many reputable indicators show that planetary health is in decline at present, to achieve sustainability will require a concerted *restoration* effort - to restore soil health, biodiversity, freshwater supplies, clean air, and reduce human impact on the environment. The use of terms such as “restore” and “regenerate” indicate that there is much work to be done, and we employ these terms in many of our efforts, such as “regenerative/net-energy agriculture” rather than “sustainable agriculture”, because it is not possible to “sustain” much of what is currently termed “sustainable agriculture”. We choose to continue to use the term “sustainability” even though it is over-used and misused by the public and officials alike, and even though it means different things to different people,

⁵ From Claude Alvares' chapter on “Science”, in Wolfgang Sachs, *The Development Dictionary*. Zed Books, London. 1992.

because it is the starting point for educational dialogue with others, as we are often asked, “What do you mean by ‘sustainability’?” We also choose to use the term “sustainability” because this is the state we wish to achieve: a state of healthful living, healthy ecosystems and balance between human needs and Nature’s needs that can be sustained indefinitely (barring great geophysical changes in the planet, asteroid collisions or the death of the sun in several billion years). The sustainability models and assessment frameworks reviewed above provide us with useful tools to employ in this endeavor.