

October 29, 2008

*Sustainability and Context*

To me, any system, whether it is a water delivery system or something else, is sustainable if the following six criteria apply:

- (1) it functions essentially without significant consumption of nonrenewable resources;
- (2) it is essentially pollution-free in all aspects of its operations and has no significant negative impacts on the environment;
- (3) it is affordable by those who must pay for it (without risk of bankrupting anybody or forcing anyone out of their home, including our less fortunate citizens);
- (4) it fulfills all of its intended purposes, including all quality-control parameters;
- (5) it works efficiently and cost-effectively for its intended lifetime, without significant unanticipated maintenance problems or cost-overruns; and
- (6) it does not allow for a temporary overexpansion of human population beyond the carrying capacity of the environment, only to be followed by a catastrophic collapse, as has occurred with past civilizations, discussed by Jared Diamond in his book *Collapse* (2005, Viking, 575 pp.).

In case this definition seems restrictive for our society, let me set the perspective with a few simple facts. Planet Earth has existed for more than 4.6 billion years. Life, in one form or another, has been evolving for more than 3.5 billion years. To set this to a time-scale to which we can relate, consider the 3.5 billion year history of life as occurring within one 24-hour day. The first living cells appeared at a fraction of a second after midnight. The first terrestrial animals with a backbone appeared about 360 million years ago, or about 9:32 p.m. The clock has ticked away past noon and dinnertime, and people aren't here yet. On this time-scale a dinosaur of one kind or another existed for over an hour of life's history (between 10:28 and 11:31 p.m.). Our species, human beings, have been here for only the last 12.4 seconds before midnight, and the Industrial Revolution, with all its consequences for the global environment, has raced through the last 1/200th of a second.

If high-quality human life is going to be sustainable for the first hour after this new midnight, we must get our act together, and this is your opportunity to influence the process.

Charles J. Cole, 6381 W. Sweetwater Dr. Tucson 85745; 520-743-3402.