Sustainability and Planetary Thresholds Are Focus of New Worldwatch Report

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Sustainability versus "sustainababble" was one of the key themes in *State of the World 2013: Is Sustainability Still Possible?*, published by the nonprofit Worldwatch Institute in Washington, D. C. The report, released 19 April, also discussed passing or approaching planetary "boundaries" for some critical biophysical processes in the Earth's system and how to prepare for a much different world due to climate change and other environmental concerns.

"For years, we have been watching, initially with amusement and then concern and, eventually, dismay at the abuse of the word 'sustainable,'" Worldwatch president Robert Engelman said at a briefing. The term "sustainability" should mean that "whatever you are doing will not undermine the capacity of future generations to have just as good a life as you do," he said. However, he added that the term has been misused to promote products such as cars and seafood, businesses, and even cities. "This is not just a frivolous tactic for greenwashing. It is not just a distraction. It's really a dangerous phenomenon that saps the sense of urgency we need to address what is basically an existential crisis for civilization," he said.

Engelman said the book calls for a more rigorous definition of sustainability and for metrics and measures to help move society toward sustainability. The metrics include using an ecological footprint rather than just the gross domestic product (GDP) to determine progress in development. One measure he mentioned relates to the current shale oil and gas boom. He said that to minimize climate change, "we are going to have to take steps that may be somewhat costly. That may include leaving relatively inexpensive shale oil and shale gas in the ground."

Coauthor Jennie Moore, director of sustainable development and environmental stewardship at the University of British Columbia, Canada, outlined the book's discussion of nine planetary boundaries. She said a "frightening reality" is that "we have probably already passed the threshold in three of those areas": climate change, the rate of biodiversity loss, and the nitrogen cycle. "Getting to sustainability is not looking so good from that perspective," she said. Regarding nitrogen, the book notes that anthropogenic activities now convert more nitrogen from the atmosphere into reactive forms than all of Earth's terrestrial processes combined. Among the other boundaries mentioned in the book are ocean acidification, global freshwater use, land use change, and chemical pollution.

Another section of the book, entitled "Open in Case of Emergency," includes chapters on crisis governance, the promises and perils of geoengineering, climate change and disaster, and shaping community responses to catastrophe.

Too Late to Change Course?

Whether it is too late to change course is not a useful question "because both answers lead to inaction," said coauthor Kim Stanley Robinson, a science fiction writer whose works include the Mars trilogy (*Red Mars, Blue Mars,* and *Green Mars*) and other books that explore ecological sustainability. He said a better question is how much can be saved of the current biosphere. "We are in a moment of extremely high danger, so really the possibility for disaster and dystopia are present and imaginable. But we are also an extremely powerful technological species with a fairly flexible and adaptable culture," Robinson said at the briefing. "What we have to avoid is giving in to an idea that because the situation is dangerous, that we are therefore doomed."

Later, he told *Eos* that dealing with climate change and other current environmental concerns will be a long-term problem and a multi-generational project. "The science community thought that when they raised their hands and said, 'We see a problem and it has to get addressed,' that it would be addressed. When it didn't get addressed, they have to go to a plan B." Instead, "they are still kind of in shock," he said, adding that many in the science community are trying to figure out the best way to get decision makers to take action about these concerns.

Robinson told *Eos* that climate change and other environmental issues trouble him. "I feel scared for my kids. The future generations, I feel, are going to be angry and are going to be in a tough scuffle. I feel a lot of anger myself, but I would like to channel it in useful ways."

Robinson, whose Mars trilogy deals with visiting and inhabiting Mars, also spoke to *Eos* about his fascination with that planet. "I love Mars, and I love the efforts to explore it. But I think that it has to be put in its place, that planetary science is a way to help us through this emergency," he said. "It's good to study the other planets because you get comparative planetology, and there is that famous story that we discovered the hole in the ozone layer by studying the chemistry of Venus's atmosphere. I think it's important, but it's important only at this point as a tool to help us get through this emergency."

He criticized the thinking by some that Mars could be the salvation for humanity. "What's the point of these space places? They are not an escape hatch," he said. "We are not going to be able to say, 'There are 5000 human beings alive on Mars; it doesn't even matter what happens on Earth.' This is a terrible idea out of science fiction. Really, it's my field that promulgates that idea, but it's one of the bad ideas."

For more information about the Worldwatch report, see http://www.worldwatch.org.

—Randy Showstack, Staff Writer