

A virtual visit to a sustainable 2050

by Robert Costanza

There is a new very advanced virtual reality system that just came out (almost like the "holodeck" on Star Trek). The "reality" it is simulating is generated by a cross between a real time systems simulation model of the biophysical environment, an agent-based personality simulator (a super "Sims"), and an advanced "future search" consensus building system. It basically allows participants to create a future world that represents their overlapping hopes and dreams, tempered by the constraints of human natures and biophysical reality. Assumptions about these constraints are programmed in (by mutual agreement of the participants) at the start of the session. For our session, we agreed on a set of "realistic" assumptions both about people and the rest of the world that embodied the latest scientific research findings. We didn't assume any "major" technological breakthroughs, but rather assumed historical rates of technical change. We also assumed that people would not be fundamentally any different than they are now, but that the environments (both physical and social) that they lived in would be very different.

Without actually using the system and visiting the future virtual world yourself, it is, of course, difficult to describe. Like a real world, our simulated future was rich in detail. What follows is an attempt to convey some of that richness and texture by describing my own individual experience in our simulated future world. These experiences covered a lot of different ground, but, taken together, they allow a fairly clear image of the future world we created. We agreed on a rough target date of 2050

What really stuck me about this future world was the overriding sense of calm and peacefulness, but without any tinge of boredom. The best way for me to describe it is the difference between adolescence and mature adulthood. Our current society is adolescent – fixated on physical growth, changing so fast it is difficult to adjust, frenetic, self-absorbed, self-conscious, irresponsible, insecure, taking. This future world was mature – not growing physically and therefore able to focus on development – improving quality not quantity – secure, long-term relationships, responsibility, nurturing, giving. For example, the average "work week" is 20 hours but the distinction between "work," learning, and leisure has become pretty blurred, so it's difficult to make this comparison directly, as you'll see. But the bottom line is that life is not so hectic and people have more time for their families, each other, and the things that really interest them. That's where the calm and peacefulness come from. Since people can pursue what really interests them, they are not bored and their mental health and sense of satisfaction with life is excellent.

The first person I met in the simulation was Susan. I'd wandered into a coffee shop near what was almost certainly a University campus (latte was still on the menu). We struck up a casual conversation about the weather (very warm) and I innocently asked her: "what do you do?" I got a very quizzical expression. I quickly explained that I was visiting from another country and just wanted to know what kind of work she did. She said: "oh, you must be on a travel sabbatical" (I later found out this is a common practice in 2050 where people exchange places for periods of 1 month to a year instead of taking "vacations" in the traditional sense). She told me she worked as a researcher and teacher at the University, but it quickly became apparent that people in 2050

don't define themselves by their job titles to the extent they do today, and at the same time that their lives and their work are more fully integrated. For example, Susan explained that all of her current research projects were also "courses" that she was "teaching." Teaching had become much more problem based, "learning by doing" rather than lecture based. Students and faculty participated in research projects together and everyone learned while attacking real problems. When I asked what department Susan was in at the University, I got that quizzical expression again. She explained that the University had become "transdisciplinary." There were research (and learning) centers focused on particular problems, but the traditional academic departments had disappeared. She suggested that I come along to a seminar she was going to on the "State of the World 2050" report that had just been released by the Worldwatch Institute.

As we walked through the campus on the way to the seminar, I noticed that the age distribution of the people we saw was much different than I'm used to seeing on university campuses. Instead of the mass of young faces punctuated by a few older professors, the population looked to be much more evenly spread over the full range of ages. Susan said that people in 2050 considered learning a life-long activity and now had the time to actually implement that idea.

The seminar room was packed, and we arrived just in time to get seats at the back as the seminar got under way. I asked Susan how long the Worldwatch Institute had been around, and she said at least 70 years or so. It was one of the first NGOs (non-governmental organizations) that were formed at the end of the 20th century. Many of these had survived, grown and diversified to the point where they were now equally, if not more, important, than formal governments in the actual governance of society. They represented one of the many forms of "strong democracy" that seemed to be the buzzword I kept hearing to describe the way society was now governed. More on that later.

The seminar got under way and the speaker spent about an hour summarizing the report. It covered an awful lot of ground, and I started taking notes before I remembered that any notes I took would only be holograms that would disappear when I returned. Anyway some of the things that I can remember were:

- * Global human population was stable at about 8 billion. This was happening because of better education everywhere, excellent elder care at the community level so that people no longer thought they needed many children to take care of them in old age, and a tacit multicultural norm of "replacement only." There was still quite a bit of international migration, but not so much as to stress national borders and in fact national borders were now for the most part open.

- * The "material throughput" of the national and global economy was decreasing slightly but not nearly as fast as in the past (obviously the speaker thought we could do better here). At the same time, the "QOL" (Quality of Life) index was going up at about 2% per year on average. The QOL was assessed annually using a global internet survey that asked people to rank how well their needs in 9 key areas (subsistence, protection, affection, understanding, participation, leisure, creation, identity, and freedom) were being met. The US ranked near the top in subsistence, protection, and freedom, but was below average in the other areas. It's overall QOL rank fell somewhere just above the median (but this had been improving in recent years). The

real efficiency of the economy was now computed as the ratio of QOL to material throughput, and this was also increasing.

* Global biodiversity was making a comeback. Since the human population had stabilized and throughput was decreasing, pressure on the environment had also stabilized and there were concerted and well-funded efforts to protect and enhance biodiversity.

* The biggest problem seemed to be dealing with the continuing effects of climate change. Global CO₂ emissions were decreasing, but they had a long way to go before we were back to pre-industrial levels. New Orleans had already disappeared and the Netherlands was under constant threat. But cautious optimism seemed to be the message here.

As we left the seminar, I asked Susan about the "strong democracy" concept that had been mentioned. The quizzical look again – where had I been? She said it was nothing really new, just the idea that everyone should participate directly in decision-making at all levels, rather than delegating that authority to elected representatives. When I expressed some skepticism that this could ever be practical, she just waved her hand said "well look around – it is working." I never got the full answer, but I think it was a combination of people having more time for participation in politics, a better communications infrastructure using the super version of the internet they had by then, a deep culture of participation that was inculcated from a very young age, and the general "maturity" of the whole system that I mentioned before.

Susan invited me to come over for dinner and meet her husband and children. I gladly accepted this chance to see how domestic life worked in 2050. Her house was an easy 10 min bus ride and 5 min walk from the campus. It was clustered in a group of about 50 houses, along with some shops, and small businesses in what she referred to as a "village" (even though it was in a large urban area). The village shared common green space, gardens, bike and foot paths, and a few other resources. All transport within the village was by bike or foot. She explained that (like most villages) they used an internal LETS (labor equivalent trading system) to keep track of shared labor services within the village. For example, if I spent some of my free time helping someone paint their house, I would rack up "hours" that I could cash in to get help on some project of mine. Again, an overriding sense of calm and peacefulness pervaded the place (probably due to the lack of car noise – replaced by the sounds of birds chirping and children playing in the green space).

Susan's husband, Paul, and their two young daughters, Lisa and Jennifer shared a 3 bedroom house that seemed to be about average by today's standards. In fact, she mentioned that the house had been originally built in 2001 and "retrofitted" with the latest in energy technologies, so that it actually produced more electricity than it consumed. By making almost all buildings into part of the energy production grid, and drastically reducing the need for transportation, the whole economy was now able to run on renewable, sustainable resources.

Susan had to back up Paul in his decision not to let the girls spend the night at a friend's, and I had to inspect the books on their bookshelf while the girls threw a tantrum over this injustice (some things never change). After things settled down, we all sat down to dinner. I explained to the girls that I was on a "travel sabbatical" and was wondering what people did for fun in this

part of the world. The answers were not very dissimilar from what you might hear today including movies, dances, parties, and concerts. The only difference I noted was that most of the activities mentioned were social – people seemed to spend more time interacting with each other rather than staying at home watching TV – and "shopping at the mall" did not come up as a favorite activity – even among teenage girls. In fact, I think malls had all but disappeared – replaced by a combination of internet shopping, local "village" shops, and a general lowering of consumption levels. The dinner, for example, was almost all food grown in the village gardens (the avid gardeners in the village were racking up lots of LETS hours), and the rest was available at the village shop, which was a 5 minute walk from the house. I asked if there were any big problems in the village, and got a litany of typical "neighbor" complaints – one was drinking too much, another had too many loud parties, etc. But in general, these problems were solved by talking with people at village events, rather than calling the police (come to think of it, I don't think I saw a policeman or heard a siren the whole time I was there). People hadn't changed, it seemed, but the "system" had – and this allowed them to solve their inevitable problems in more mature, friendly, and productive ways.

As I left Susan and Paul's house, walking through the clear night back toward the campus, I was thinking that it just couldn't be this simple. There must be a catch. Wouldn't all this social serenity require a suppression of creativity and initiative? How could people be happy and productive in an economy that wasn't growing? But after thinking it through, it was clear that in fact it could easily work. Just like an individual organism that goes through a stage of early rapid physical growth followed by later "development" without further growth, a whole socioeconomic system could do the same. And from personal experience, I could attest that the "teenage" years are often very difficult and not as happy as later years when growth had stopped and one could concentrate on the joys of development. I found that I really liked being an adult in the "adult" society I had been visiting. As I was thinking this, the simulation ended and I returned to the present.

Robert Costanza is the Gordon and Lulie Gund Professor of Ecological Economics and Director of the Gund Institute for Ecological Economics at the University of Vermont (Robert.Costanza@uvm.edu)