Two Cheers for the Millennium Project

by Michael Marien

Fellow, World Academy of Art & Science;
Director, Global Foresight Books

2013-14 State of the Future (17th Edition)

Jerome C. Glenn[*] (Director, Millennium Project), **Theodore J. Gordon** (Senior Fellow, Millennium Project), and **Elizabeth Florescu** (Director of Research, Millennium Project). Washington: The Millennium Project, April 2014, 247p (6x9"), $39.95pb. PDF in English or Spanish, $29.95. www.themp.org [Note: Various comments by the reviewer are set off within brackets.]

For better and for worse, there is nothing quite like The Millennium Project (MP), an awesome but unwieldy distillation, of trends, forecasts, and proposals largely concerning 15 Global Challenges. This is backed up with a distinctive organization of 50 "Nodes" (up from 18 Nodes in 2003 and 35 Nodes in 2010), including groups in Argentina, Australia, Bolivia, Brazil, the Caribbean, China, Egypt, the Persian Gulf Region, Israel, Japan, Kenya, Malaysia, Mexico, Peru, Romania, Russia, Silicon Valley (US), Turkey, UAE, etc. The Nodes participate in creating the **State of the Future** (SOF) report, and in turn are its ready-made audience.

The purposes of the MP are 1) to assist in organizing futures research; 2) to improve thinking about the future; and 3) to "make that thinking available through a variety of media for consideration in policymaking, advanced training, public education, and feedback, ideally in order to accumulate wisdom about potential futures."

What is new from the last time I reviewed a **State of the Future** report, in 2010, is a changed format (247 pages in 6x9" size vs. 88 pages in 8x11" size with attached CD) and biannual publication of the hardcopy in contrast to annual publication for the first 16 editions. This is enabled by continuous online updating of MP's Global Futures Intelligence System (GFIS). On the GFIS website, each of the 15 Global Challenges is given a more detailed treatment in a 12-point menu: **Situation Chart** (current situation, desired situation, and policies to close the gap), **Overview** (summary and 100-300 pages of details), **Digest** of latest information**, Updates** (scanning important information that impacts the Challenge), **News** relevant to the Challenge, **Real-Time Delphi Questionnaire**, **Discussion** by subscribers, **Comments** from users, **Interactive Computer Models**, **Questions** for experts, and **Resources** (relevant websites, books, videos, and articles). Subscription to GFIS is $100/year for individuals, $400/year for universities, $800/year for the UN and other international organizations, $850/year for governments, and $2100/year for corporations. The four classes

---

[*] Jerome C. Glenn is a Fellow of World Academy of Art & Science

of organization subscriptions allow 10 free users, and charge $25 for each additional user. It's complicated, but so are the SOF and the GFIS.

1. The 15 Global Challenges

Since 1996, the bulk of each MP report has always been the 15 Global Challenges, which are "transnational in nature and transinstitutional in solution." This time each Challenge is introduced by a rather confused two-page graphic highlighting key data and trends (a new feature), a 4-5 page global overview (concluding with potential actions), and 3-4 pages of "Regional Considerations" in Africa, Asia and Oceania, Europe, Latin America, and North America. The problem-riddled Middle East, which deserves a separate category, is sometimes included in Africa, and sometimes in Asia. The Arctic region, due to low population, is not mentioned at all, but is increasingly important for resources made available by melting sea ice *and* for the methane released by melting tundra and sea ice which could overtake CO_2 as the major greenhouse gas. Methane is mentioned (pp.23-24) but "warming ocean water releasing methane hydrates from the seabed" has yet to happen [if it ever does to any substantial degree, humanity is finished].

The 15 Challenges, presented here in a more logical order than in the Report, are as follows:

Sustainable Development and Climate Change. The world continues to warm, and global ecosystem services are being depleted faster than nature can resupply them. "A major study reports that climate change costs $1.2 trillion per year and causes 400,000 deaths annually." (p.24). [No source is mentioned, although sources are mentioned for some of the data cited.] Suggested remedies [with no distinction in any Challenge as to cost, feasibility, acceptability, or imminence] are a US-China Apollo-like 10-year crash program to address climate change, suing for damages caused by GHGs, and new technologies like saltwater agriculture, maglev trains, sunshades in space, and growing pure meat without growing animals.

Clean Water without Conflict. Over 2 billion people have gained access to safe drinking water since 1990, but global water demand could rise to 40% above the current supply by 2030. Remedies include breakthroughs in desalination, less costly pollution treatment, hydroponics, vertical urban agriculture, more vegetarianism, fixing leaking water pipes, and drip irrigation.

Balancing Population and Resources. World population is expected to grow another 1 billion by 2025, with the UN mid-projection of 9.6 billion by 2050. "If fertility rates continue to fall, world population could actually shrink to 6.2 billion by 2100." (p.42). [On the other hand, watch upward "projection creep" of official estimates; world population may be well over 10 billion by 2100 or even 2050 if various medical breakthroughs are realized, especially "longevity technologies," mentioned only in passing by SOF, p.45.] To keep up with population and economic growth, food production should increase 70% by 2050.

Rising Energy Demands. "Innovations are accelerating": drilled hot rock geothermal, solar farms, concentrator photovoltaics, plastic nanotech photovoltaic devices (PVs) printed on buildings, waste heat from power plants and human bodies, microbial fuel cells, metal-air

batteries, using halophytes and algae to produce food and liquid fuels, low-energy nuclear reactors, high altitude wind power, etc. "Yet global energy-related CO_2 emissions increased 1.4% in 2012, (and) without major breakthroughs…the majority of the world's energy in 2050 will still come from fossil fuels." (p.154). Nearly two-thirds of new gas supply to 2035 could come from shale gas; "however, the process of fracking to get the gas may release methane" (p.156) and "could contaminate groundwater" (p.33). [There is no doubt whatsoever that fracking releases methane and pollutes water; the only question is how much and where.]

> *"More participatory democracy may grow from e-government and a better-educated world public."*

Peace and Conflict. The Stockholm International Peace Research Institute (SIPRI) estimates global military spending at $1.76 trillion in 2012. Interstate wars may be disappearing, but growing populations and economies drain natural resources and degrade the environment, leading to conflict. "Future effects of climate change could create up to 400 million migrants by 2050, which could further increase conditions for conflict." (p.120). Remedies include good governance, sound economies, equitable distribution of resources, human rights, low levels of corruption, new technologies enabling better monitoring and cleanup, non-lethal weapons, and destroying stockpiles of biological and chemical weapons. "The probability of a more peaceful world is increasing…" (p.117). [This conclusion is deeply problematic, especially in recent months.]

Ethical Market Economies to Reduce Rich/Poor Gap. 1.2 billion people still live in extreme poverty, half of them in fragile states (World Bank estimate) and 1.7 billion people live in multidimensional poverty (UNDP). The number of working poor is declining globally (ILO), but growing income disparity is seen by the World Economic Forum as the most likely global risk in the next decade. New technologies and innovations are empowering people worldwide, to create new forms of business with potential to reduce these disparities. "By 2030, the global middle class is expected to grow by 66% – about 3 billion more consumers with increased purchasing power and expectations… (but) almost 48% of all employment in 2013 is vulnerable employment." (pp. 86-87) [Source not indicated]. The remedy is a long-term strategic plan for a global partnership between rich and poor, using "the strength of free markets and rules based on global ethics." [Conflict between "free markets" and "global ethics" is not considered.]

Democratization. "An educated and truthfully informed public is critical to democracy." (p.54). But, according to Freedom House, world political and civil liberties deteriorated for the eighth consecutive year in 2013, and press freedoms have also declined over the past several years. "Some argue that democracy is increasingly threatened by monetocracy… although the long-range trend toward democracy is strong." (p.52). [This, too, is very problematic.] More participatory democracy may grow from e-government and a better-educated world public. But the World Bank estimates that $1-1.6 trillion is paid annually in bribes.

Transnational Organized Crime (TOC). "Total organized crime income could be over $3 trillion — about twice as big as all the military budgets in the world." (p.142). Estimates of

cybercrime alone range from $300 million to $2 trillion per year. The War on Drugs has failed, costing the US $2.5 trillion over the past 40 years, and the popularity of new psychoactive substances is growing rapidly. Money laundering continues unabated, despite the OECD Financial Action Task Force. Remedies include a new financial prosecution system and an international campaign by all sectors of society to develop a global consensus for action.

Global Ethics. "Acceleration of scientific and technological change seems to grow beyond conventional means of ethical evaluation." (p.172). Corporate social responsibility programs, ethical marketing, and social investing are increasing. Global ethics are also emerging worldwide through evolution of ISO standards and international treaties. Yet "corruption remains prevalent throughout the world" and the abuse of power is spreading seriously. Better incentives are needed for ethics in global decisions, as well as ethical and spiritual education growing in balance.

Empowerment of Women. Changing the status of women is one of the strongest drivers of social evolution, and is essential for addressing all global challenges. Women are increasingly engaged in political and economic decision-making, yet the 2012 Gender Equity Index shows that none of the 154 countries assessed has narrowed the gender gap to an acceptable level. Most countries are making only slow progress, discriminatory social structures persist, about 70% of people living in poverty are women, and 35% of women worldwide have experienced physical and/or sexual violence.

Health: New and Reemerging Diseases. The incidence and mortality of infectious diseases are falling, but antibiotic resistance, malnourishment, and obesity are increasing. Poverty, urbanization, travel, and concentrated livestock production move infectious organisms to more people in less time than ever before, and could trigger new pandemics. Current high risks of epidemics include resistant superbugs, MRSA, flu in its many forms, Corona Virus, food-borne epidemics, cholera, drug-resistant TB, a new HIV strain, and dengue. [Note: Ebola not mentioned, underscoring the importance of a long list of game-changing wild cards, but has been acknowledged in the GFIS.] New problems may come from unregulated synthetic biology laboratories of the future.

Science and Technology (S&T) to Improve the Human Condition. "Continued acceleration of S&T is fundamentally changing what is possible, and access to this knowledge is becoming universally available." (p.162). Discusses synthetic biology enabling lower-cost biofuels and pollution clean-up, "smart dust" wireless sensors to monitor chemicals and biologicals, DNA scans enabling customized medicine, a new anti-virus strategy, nanoscale robots, the falling cost of 3D printers, and the need for a Global Collective Intelligence System to track S&T advances and forecast potential consequences.

Global Convergence of IT. Nearly 40% of humanity uses the Internet, and "it is reasonable to assume that the majority of the world will (soon?) experience ubiquitous computing and eventually spend much of its time in technologically augmented reality…collaborative systems, social networks, and collective intelligences are self-organizing into new forms of transnational democracies…giving birth to unprecedented international conscience and action." (p.74) The Internet of Things is expected to connect 75-80 billion items to the Inter-

net by 2020 [source not provided]. However, acceleration in automation is a serious threat to future employment, and multitasking with smartphones may cost the world economy billions per year in lost productivity. Universal broadband access should become a priority for all countries.

Education and Learning. How can humanity become more intelligent, knowledgeable and wise to address its global challenges? "Google and Wikipedia have become the foremost source for public education. The Internet is reinforcing curiosity and lifelong learning. The ideal of excellent curricula and excellent teachers available to all is a possibility within sight." (p.110). [All three of these statements are problematic.] Youth and adult literacy rates are improving, and brain functioning could be improved by better nutrition, drugs, software, etc. "Ministries of Education should declare increasing intelligence as a national goal of education, which could speed up learning." (p.111) But in North America, university tuition fees are increasing, and many graduates end up with high debts but poor job prospects.

Improved Global Foresight. Decision-making is based on beliefs about the future, but "judging information about the future is increasingly difficult due to the acceleration, complexity, interdependence, and globalization of change." (p.62) Moreover, the growing number of people and cultures involved in decisions also increases uncertainty and ambiguity. We have far more data, research evidence, and computer models to help make decisions, but also far more information overload and excessive proliferation of choices. "Humanity needs a global, multifaceted, general long-view of the future with long-range goals to help it make better decisions" (p.63), and governments are increasingly creating some form of future strategy units.

The next set of UN Millennium Development Goals and each of the 15 Global Challenges could provide a basis for trans-institutional coalitions that address a specific challenge or goal.

2. Bouquets and Brickbats for the Big 15

The above overview of the 15 Global Challenges is necessarily very condensed, with a focus on what this reviewer judges to be some important highlights of each. There is much to commend this ambitious overview, but also much to question.

On the positive side, a huge amount of information is assembled in these 15 categories, much of it from respected international organizations such as various UN agencies, OECD, IEA, World Bank, Transparency International, and Freedom House. An effort is made to show both positive and negative trends, to discuss new technologies [which are too often absent from many global overviews], and to look at regional developments [albeit superficially]. The Challenge of Transnational Organized Crime is distinctive, important, and too often ignored by others.

On the negative side, the presentation leaves much to be desired. Some statements are referenced, but many are not, and the lack of full reference leaves the reader in the dark as to when cited data were published [presumably they are up-to-date, but this should be explicit]. Overall, there is a relative lack of attention to environmental issues [e.g., ignoring or only casually mentioning ocean pollution and acidification, air and freshwater pollution, soil loss

and degradation, pressures on key ecosystems, and pollution from toxic chemicals]. The concept of "planetary boundaries" is ignored, as well as associated risks of surprises, tipping points, and threshold effects that many climate scientists worry about (See Anders Wijkman and Johan Rockström, *Bankrupting Nature: Denying Our Planetary Boundaries: Report to the Club of Rome;* Routledge, 2012). Another major area that is ignored is the need for a new 21st century economics that pays attention to human, social, and natural capital and goes beyond 20th century fixation on growth of GNP.

In contrast to under-attention to the environment, there is over-attention to new technology, which in most instances is treated uncritically. A good example is the Energy Challenge, where there are many interesting new technologies to promote energy efficiency or supply cheap, safe, and abundant energy. But simply to say that all of these "innovations are accelerating" is an overgeneralization. Rather, a full list of possibilities should be presented, along with some sense of their current and probable development, time to commercial application, and possible side effects. Other examples of unrestrained techno-exuberance are the Infotech Challenge [the downside of infoglut is mentioned only in connection with the Global Foresight Challenge] and the Education Challenge, where increasing intelligence is cited as a national goal, even as millions of college graduates remain unemployed or underemployed. In turn, this raises the question as to why Decent Employment for All is not one of the Global Challenges—a growing concern, as robots replace human workers (which is acknowledged).

An index is badly needed, at least to major topics, as well as critical editing to avoid naïve and insensitive comments such as "Because youth unemployment is growing, more people have more time to do something about this abuse." (p.2) Better presentation is also needed to avoid long paragraphs with multiple unrelated topics, e.g. in describing sustainable development for North America, a single paragraph covers California's cap-and-trade program, temperature increases in northern Alaska, falling honeybee populations, air pollution costs for children's health, planned investment to clean up the Florida Everglades, Bank of America's $50 billion green investment program, continuation of Canada's ugly tar sands exploitation, and a new Sustainability Merit Badge announced by the Boy Scouts. (p.28). These tidbits would be better presented with bullets, and some sort of categorization and synthesis if possible.

Finally, the pervading sense of certitude should be modified by a list of improbable wild cards (so-called "black swans"), regular wild cards (roughly 2% probability) and not-so-wild cards (10-30% probability). The sudden eruption of the Ebola crisis, the emergence of the Islamic State (a.k.a. ISIS), and serious tensions in Ukraine after Russia's takeover of Crimea illustrate the need to be aware of a broad range of possibilities, many of them unpleasant, and to be humbly alert to new developments not anticipated by MP or anyone else (e.g. fracking).

The GFIS update, however, does mention these developments.

3. Progress or Regress: A "Happy Thumb" on the Scale?

The bottom line of this ambitious exercise is to ask whether, all things considered, humanity is really making progress or moving backward, and to speculate on the outlook for the

future. As SOF describes it, "The world is in a race between implementing ever-increasing ways to improve the human condition and the seemingly ever-increasing complexity and scale of global problems. So, how is the world doing in this race?" (p.4). It all depends on what indicators are assembled.

Since 2000, the Millennium Project has produced a global "State of the Future Index" (SOFI) based on 30 variables for which there are "at least 20 years of reliable historical data." These are categorized into three groups: 1) *Where We Are Winning*: greater life expectancy, slower rate of world population growth, less undernourishment, lower infant mortality rate, improved water sources, more secondary school enrollment, higher adult literacy rate, more electricity from renewables, higher energy efficiency, more Internet users, more physicians per 1000 people, more health spending per capita, declining number of wars, more foreign direct investment, less poverty below $1.25 per day, more gross national income per capita, and more seats held by women in national parliaments. 2) *Where We Are Losing*: growing ecological footprint/biocapacity ratio, greater income inequality, more terrorism incidents, more corruption, more CO_2 emissions from fossil fuels and cement production, less forested area, and less renewable freshwater per capita. 3) *Where Things Are Unclear or Little Changed*: unemployment, voter turnout, freedom rights, R&D spending, prevalence of HIV, and number of countries that have nuclear weapons or intend to build them. The overall assessment offered is: "*slower progress since 2007, although the overall outlook is promising*" (p.6; italics added).

However, the overall outlook would not be nearly as promising if certain indicators are adjusted and others (with less than 20 years of reliable data) are added. First, insofar as the higher adult literacy rate, this refers only to very basic skills. A more relevant measure would be "functional literacy" to get around in today's world (roughly equivalent to a high school degree), and by this measure we are falling behind. The "declining number of wars" should be amended with a qualitative assessment, e.g. Syria's vicious civil war has displaced nearly half of its 22 million population. And if *under*employment is added to "*un*employment," this indicator would very likely deserve to be listed in the "losing" group. "Freedom Rights" also seems quite problematic, and a fairly good candidate for the "losing" group in recent years. The MP insists that "the long-range trend toward democracy is strong" (p.9) despite Freedom House reports of declining political and civil liberties in the past eight years — which could be a downward turning point. "Increasing numbers of educated and mobile phone Internet-savvy people are no longer tolerating the abuse of power," (p.9) but discontent and protests have not resulted in much positive change so far (and note that terrorists are quite skilled at using the Internet and social media to pursue their ends). Finally, we are losing even more if we consider growing methane emissions from the Arctic, which could displace CO_2 as the leading greenhouse gas.

The outlook looks even less promising if indicators are added on the declining state of the oceans, biogeochemical loading (interrupting the nitrogen and phosphorus cycles), pollution from toxic chemicals, atmospheric aerosol loading (soot particles, nitrates, sulphates), more frequent and extensive wildfires, more frequent and dangerous storms, rapidly melting glaciers, more droughts and desertification, biodiversity loss, degradation of land and wildlife

habitats, rapidly growing cyber-attacks (see SOF, p.80), transnational organized crime (SOF, pp140-149), unhealthy food and drink (see below), vulnerable coastal areas (see below), more lone-wolf terrorism (see below), growing fundamentalism in religion and politics, fragile economies, increasing legal and illegal drug use and misuse, rapid growth of information overload (see Mark Andrejevic, *Infoglut: How Too Much Information Is Changing the Way We Think and Know;* Routledge, 2013), and disintegrating and/or inadequate infrastructure (water systems, railways, highways, and especially bridges) . All of these are "unhappy" indicators, and all seem quite likely to worsen, at least in the short term.

It is time for a serious re-think of the SOFI that removes the "happy thumb" bias on the progress/regress scale, and includes all important indicators, many of which have less than "20 years of reliable historical data." If futures research is ever to be taken seriously, it should pursue an ethic to "tell it like it is," not pull punches, and restrain idealized speculation about possible tech fixes.

4. Other Chapters in the Report

The State of the Future Index and the Global Challenges are the mainstay of the SOF report. But there are other chapters in each report. This current edition includes four, each deserving consideration:

- *Hidden Hunger: Unhealthy Food Markets in the Developing World* discusses growing concerns that 2 billion people are getting sufficient calories but lack proper vitamins and minerals, due to industrial agriculture and expanding monoculture, low income to food price ratio, water scarcity, food waste, dietary culture, nutritional ignorance, expanding fast food chains, and more processed foods. This MP Real-Time Delphi conducted for the Rockefeller Foundation concludes with some 80 policy proposals such as taxing unhealthy foods, regulating soft drinks and low-quality food, incentives to market healthy foods, and global organic food quality standards. [Note: Unlike the discussion of the 15 Global Challenges, this chapter does include proper footnoting. It can be done by MP! But the proposals are not prioritized.]

- *Vulnerable Natural Infrastructure in Urban Coastal Zones*, another Real-Time Delphi for the Rockefeller Foundation, explores degrading of natural infrastructure due to coastal urbanization, pollution, and lack of urban planning. Also includes a long list of policy proposals such as land zoning, better public information, ISO standards for coastal environmental management, and increased taxes and fines for polluting practices.

- *SIMAD and Lone Wolf Terrorism Prospects and Potential Strategies to Address the Threat,* a Real-Time Delphi study conducted by the MP Israeli Node, considers the increase of Single Individual Massively Destructive (SIMAD) actions using a variety of weapons, and prevention strategies such as monitoring social media and purchases of critical materials. Minimizing such threats is "a long-time continuous effort."

- *Global Futures Intelligence System and Some Conclusions* asserts that "collective intelligence is becoming the next big thing in information technology." It is defined as

improving information and synergies among groups of experts and the public, hardware/software, and data/information/knowledge. But there are thousands of experts on the various Global Challenges, and many thousands of relevant books, reports, and articles. Which experts and ideas are to be included in "collective intelligence," and which will be ignored? Despite the impressive 50 Nodes of the MP, there are many more experts that could and should be included in a GFIS, despite clashing worldviews and data. The extent of the growing universe of expertise and how to assess and select is not considered. GFIS is still a work in progress. We do not yet know if it is even a minimally adequate "global information utility" that fairly represents all responsible thinking.

"Our world is evolving at an ever-faster pace, and the Millennium Project must keep improving and evolving to keep pace, and rise to a higher level."

---

5. Some Final Comments

In reviewing the 2010 SOF report, I concluded that it was "the best introduction—by far—to a broad range of major global issues and long-term remedies." SOF remains the best introduction because there is nothing like it. But, on deeper reflection, introduction must be stressed. The report gives a unique taste of many trends, forecasts, and policies, but it deserves only "two cheers" at best. It could do a much better job of conceptualizing the Global Challenges and the SOFI, and presenting these in a more user-friendly format.

The 15 Global Challenges should be expanded to include Decent Livelihoods for All (encompassing jobs, entrepreneurship, and various forms of self-sufficiency), Higher and Continuing Education for All, Food and Agriculture, Sustainable Cities, and Humane Criminal Justice. If this adds too many challenges, IT and Sci/Tech could be combined.

The 30 indicators of the State of the Future Index, currently constrained by overly rigid criteria, should be expanded by a dozen or so more, as explained above. SOFI is clearly not a reliable summation of where we are and where we are headed. Expansion adds complexity and involves painful changes, but it is necessary for a more balanced and honest perspective. Collaboration with the Worldwatch Institute's annual "Vital Signs" effort might be fruitful.

Presentation of this cornucopia of information would be greatly aided by shorter paragraphs, bulleted points, boxes, tighter editing, footnotes to important data and forecasts, better graphics, identification of each Challenge at the top of the page, and—above all—by adding indexes for handy access. It may be impossible to capture every idea, organization, and nation mentioned, but some index of selected ideas would be far better than none at all.

This review was concluded on Election Day 2014 in the United States, which produced an outcome quite different from the globalist-progressive views expressed in this MP report.

Despite the many wonders of the Internet, I know of no evidence to suggest that the voting public is better informed now about current affairs and global challenges. Arguably, with the marked decline in newspaper circulation and foreign affairs coverage, and abundant infoglut, the public is less well-informed. And there is virtually no futures education in schools and colleges. Far better education about Global Challenges is greatly needed. Our world is evolving at an ever-faster pace, and the Millennium Project must keep improving and evolving to keep pace, and rise to a higher level.

Author contact information
Email: mmarien@twcny.rr.com