


Executive Summary

Can civilization implement solutions fast enough to keep ahead of the looming challenges?

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. Properly managed biotech, infotech, nanotech, and cognotech breakthroughs currently on the drawing boards and the coming synergies among them will help get humanity through the looming environmental, economic, and social conflicts as we move toward a crowded world of about 9 billion people by 2050. However, we all know that technology is not enough. We need serious global policies, as discussed throughout this report, that are implemented through governments, corporations, education systems, NGOs, United Nations systems, and other international organizations. We also need changes in human values to be discussed within and among religions, media, entertainment, and the arts. We need better decisions and decisionmaking processes. Everyone has a part to play in the great race between increasingly complex problems and the ways to improve the prospects for civilization.

The world economy has proved it is more resilient than most expected; IMF forecasts a 4.2% world economic growth during 2010. With population increasing at 1.15 %, world average per capita income is rising about 3% annually. The G-20-brokered massive stimulus packages helped to turn around the global financial crisis and are improving international financial regulations, market supervision, and accounting rules. Most financial institutions have recovered, and with some exceptions most economies are beginning to grow, but with little growth in employment growth—which is usually the last to improve after a recession.

If current trends in population growth, resource depletion, climate change, terrorism, organized crime, and disease continue and converge over the next 50 to 100 years, it is easy to imagine an unstable world with catastrophic results. If current trends in self-organization via future Internets, transnational cooperation, materials science, alternative energy, cognitive science, inter-religious dialogues, synthetic biology, and nanotechnology continue and converge over the next 50 to 100 years, it is easy to imagine a world that works for all.

Fewer children are dying, more children are going to school, people are living longer, the world powers are at peace, and the U.S. and Russia have signed a nuclear weapons reduction treaty. Yet the numbers of malnourished children in Africa and Asia are increasing; education is poorly preparing the next generation for a more knowledge-oriented future; aging populations will overburden the financial capability to provide retirement benefits and health care without new policies; and the sophistication and diversity of terrorism continues to proliferate. The *2010 Peace Index* shows the risk of war is declining in most areas of the world; however, violent

crime has increased. Nevertheless, the human race seems to be winning more than losing.

A review of the trends of the 30 variables used in the Millennium Project's global State of the Future Index gives a "report card for humanity" in Box 2 below.

A review of the last twenty years of the 20 variables used for State of the Future Index integrated International Futures Model (See Chapter 2) and projecting ten years into the future shows a pattern of where we are winning and where we are losing.

Box 2

Where we are winning

1. Improved water source (% of population with access)
2. Literacy rate, adult total (% of people ages 15 and above)
3. School enrollment, secondary (% gross)
4. Poverty headcount ratio at \$1.25 a day (PPP) (% of population in least developed countries)
5. Population growth (annual %) (A drop is seen as good for some countries, bad for others)
6. GDP per capita (constant 2000 US\$)
7. Physicians (per 1,000 people)
8. Internet users (per 100 people)
9. Mortality rate, infant (per 1,000 live births)
10. Life expectancy at birth, total (years)
11. Proportion of seats held by women in national parliaments (%)
12. GDP per unit of energy use (constant 2005 PPP \$ per kg of oil equivalent)
13. Number of Major Armed Conflicts (number of deaths >1,000)
14. Food availability (cal/cap)

Where we are losing:

15. CO2 emissions (kt)
16. Global Surface Temperature Anomalies
17. People Voting in Elections (% population of voting age- 15 largest countries)
18. Unemployment, total (% of total labor force)
19. Fossil fuel energy consumption (% of total)
20. Levels of Corruption (15 largest countries)
21. People killed or injured in terrorist attacks (number)
22. Refugee population by country or territory of asylum

Where there is little change

23. Prevalence of HIV, total (% of population ages 15-49)
24. Homicide Rate
25. Research and development expenditure (% of GDP)

Where there is uncertainty

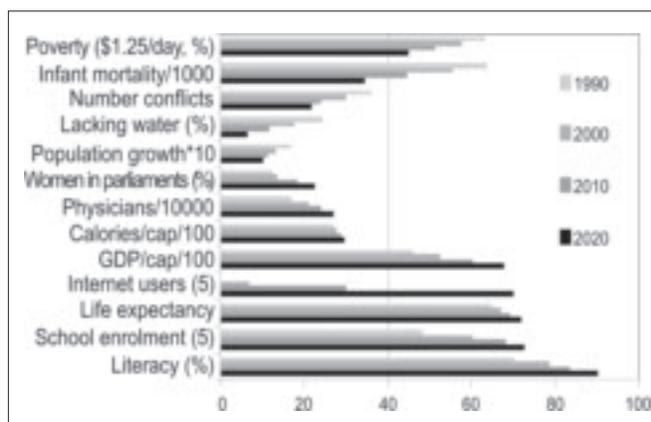
26. Countries having or thought to have plans for nuclear weapons (number)
27. Population in Countries that are Free (percent of total global population)
28. Forest area (% of land area)
29. Total debt service (% of GNI) low and mid income
30. Number of emerging and reemerging infectious diseases

After 14 years of the Millennium Project's global futures research, it is still increasingly clear that the world has the resources to address its challenges. What is not clear is whether the world will make good decisions on the scale necessary to really address the global challenges discussed in Chapter 1.

The volume of change over the foreseeable future is likely to be far greater than that over the past 25 years, because the factors that made those changes are themselves accelerating (computer power, Internet bandwidth, miniaturization, global interdependence, and artificial biology). This should change what we think is possible. For example, Craig Venter's Institute has created life from non-living chemicals designed on a computer—an artificial life form; in 25 years, such synthetic biology is likely to produce thousands of synthetic genomes creating new kinds of life forms not yet imagined. If so, then today we should be exploring alternative futures and impacts, to better inform our decisions about synthetic biology. Today, nearly 30% of humanity is connected to the Internet; within five years about half the world will have Internet access—and on mobile devices. A few years after that, it is reasonable to assume that all of humanity can be connected.

What should be done today to make sure that the best consequences of these changes occur, while inhibiting the worst? To answer this we should know the current situation, trends, potential developments, and possible impacts of the challenges we face today. Chapter 1 explores 15 global challenges in two-page overviews with regional considerations, while more detailed versions totaling over 1,500 pages are in the attached CD.

Figure 1. Where We Are Winning



Some Factors to Consider

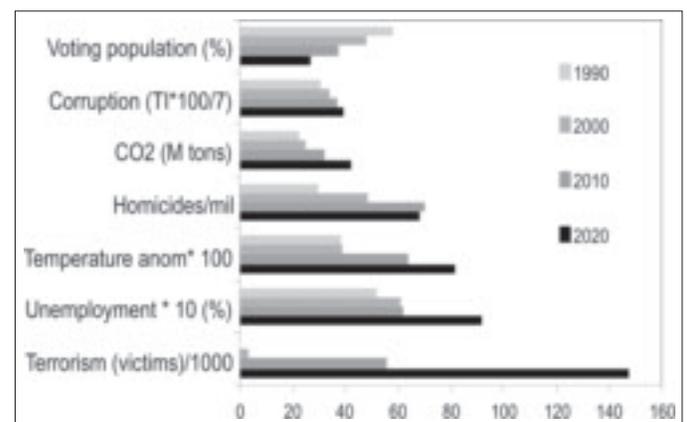
Changes in weather patterns that are occurring now were not expected by the IPCC until 2020. Some “worst case” scenarios are already becoming reality. From 1970 to 2000, the atmospheric CO₂ concentration increased 1.5 ppm each year, and since then it has risen 2.1 ppm each year. Last year it climbed even faster, by almost 3 ppm, reaching 392.4 ppm by April 2010. Consequently, the world is warming faster than the latest IPCC projections. Even the most recent estimates may understate reality, since they do not take into account the permafrost melting. By 2050 another 2.3 billion people could be added to the planet and income per capita could more than double, dramatically increasing greenhouse gases.

Climate change could be accelerated by dangerous feedbacks:

- Melting ice/snow on tundra reflects less light and absorbs more heat, releasing more methane, increasing global warming, and melting more tundra.
- Warming oceans release methane hydrates from the seabed to the air, warming the atmosphere, melting more ice and warming the water, and releasing more methane hydrates.
- The use of methane hydrates or otherwise disturbing deeper sea beds releases more methane into the atmosphere and accelerates global warming.
- Antarctic melting reflects less light, absorbs more heat, and increases melting.

All of which could one day lead to the Greenland ice sheet (with 20% of the world's ice) sliding into the ocean, causing more dangerous environmental feedbacks.

Figure 2. Where We Are Losing



The Copenhagen Accord negotiated during the UN Conference on Climate Change resulted, for the first time, in developing and industrial countries representing over 80% of global emissions setting carbon reduction targets that are internationally verifiable. It focused on international cooperation to limit atmospheric CO₂ emissions, so that global temperature would not rise by more than 2°C by 2100. However, scientists have pointed out that the voluntary targets are not low enough to hold CO₂ to 450 ppm. The world needs to lower CO₂ to 350 ppm or else the momentum of climate change could grow beyond human ability to reverse it. When environmental destruction helped end some earlier civilizations, people simply migrated to new fertile lands. But today that strategy is less feasible.

Some believe there is no way to address global environmental problems without reducing standards of living and economic growth; others believe that growth is essential. For example, China's leadership believes the country would descend into social chaos due to increased unemployment without at least 8% annual growth. Fortunately there is an explosion of innovations—from architectural designs to food production and policy changes—on the way. Still others believe that nothing less than a U.S.–China Apollo-like 10-year goal and global R&D strategy is needed to seriously address climate change.

Over 40 million tons of e-waste is added to the environment every year from phones, printers, televisions, computers, radios, etc., polluting groundwater. This is expected to dramatically increase as the information economy grows around the world.

Water tables are falling on every continent; 1 in 10 of the world's major rivers fails to reach the sea for part of each year; agricultural land is becoming brackish; and urbanization is increasing water demands on aging water infrastructures. Since 1990, an additional 1.3 billion people gained access to improved drinking water and 500 million got better sanitation, yet 900 million still lack clean water and 2.6 billion lack adequate sanitation. Half the world's population lives in countries where aquifers are being depleted faster than they can be replenished. The majority of fresh water is used by agriculture, and most of that is used for livestock production. We could increase vegetarian diets and grow pure meat, rather than growing and killing animals to reduce water drain. According to FAO, raising animals for meat emits about 18% of all greenhouse gas emissions, which is more than produced by all the cars in the world. FAO also estimates that water

for agriculture needs to increase 60% to feed an additional 2 billion people by 2030.

Some 90% of developing countries' wastewater is discharged untreated directly into rivers, lakes, or oceans, contributing to the rapid expansion of de-oxygenated dead zones. Diarrheal disease in children under 15 has a greater impact than HIV, malaria, and tuberculosis combined.

There are 6.9 billion people in the world today. If current trends continue, there will be about 9 billion by 2050. Nearly all the population increases will be in urban areas in developing countries. The global population profile is changing from high mortality and high fertility to low mortality and low fertility. If fertility rates continue to fall, then world population could actually shrink by the end of this century. Over 20 countries—mostly in Europe—have falling populations. This number could reach 44 by 2050. Without major changes in the vitality of older people and their work-retirement patterns, by 2100 the world might not have the ability to support the greatly increased population of elderly retired people. However, scientific and medical breakthroughs over the next 50 years are likely to give people longer and more productive lives than most would believe possible today. Globally, life expectancy at birth today is 68 years; some forecast that at some point it could increase by one year each year.

There is a growing gap between the recent setbacks in democracy and the emergence of a global democratic consciousness driven by new means of communication and growing interdependencies. According to Freedom House's 2010 survey, freedom declined in 40 countries, while it improved in only 16 countries, and the number of electoral democracies decreased by three, to 116 countries. While 46% of the world lives in 89 "free" countries, and 20% lives in 58 "partly free" countries, 34% (over 2.3 billion people) lives in 47 countries with "not free" status. Freedom of the press also declined almost worldwide. Only 16% of the world lives in the 69 countries with "free" press, 44% in 64 countries with "partly free" press, and 40% lives in 63 countries without freedom of the press. Nevertheless, the early forms of a new transnational participatory democracy are emerging via the Internet and mobile platforms. Individuals, groups, and larger institutions self-organize around common ideals, independent of conventional institutional controls and regardless of nationality or languages.

It could be that humanity needs and is ready to create a global multifaceted general long-range view to help it make better long-range decisions. Although there is increasing recognition that accelerating change requires longer-term perspectives, decisionmakers feel little pressure to consider these until disasters strike, like the global financial crisis. The BP oil spill and the cancellation of flights across Europe due to the volcano in Iceland exposed the need for global, national, and local systems for resilience—the capacity to anticipate, respond, and recover from disasters while identifying future technological and social innovations and opportunities. Government future strategy units are being informally connected by the Future Strategy Unit in the Prime Minister's Office in Singapore to share best practices, compare research, and verify assumptions. The UN Strategic Planning Group connects 12 UN agency strategy units in similar cooperation. Eventually, these two networks could also be connected with the Office of the UN Secretary-General to help coordinate national and international strategies and goals to support better long-term decisionmaking.

Nearly 30% of humanity is connected to the Internet, which has evolved from a passive information repository (Web 1.0) to a user-generated and participatory system (Web 2.0) and is morphing into Web 3.0, a more intelligent partner that has knowledge about the meaning of the information it stores and the ability to reason with that knowledge. With 5 billion mobile phone subscriptions, falling prices for smartphones, and the built environment getting multimedia transceivers and a variety of sensors, it is reasonable to assume that the majority of the world—now urbanized—will experience ubiquitous computing and eventually spend most of its time in some form of technologically augmented reality. Meanwhile, Internet bases with wireless transmission are being constructed in remote villages; cell phones with Internet access are being designed for educational and business access by the lowest-income groups; and innovative programs are being created to connect the poorest 2 billion people to the evolving nervous system of civilization.

These and other approaches to poverty reduction are having some impact, as the number and percentage of people in extreme poverty (living on \$1.25/day) is falling. Even with the recent global recession, the world still appears to be on track to halve the 1990 poverty rate by 2015 (except in sub-Saharan Africa). Future forecasts for poverty are still high, but dramatically lower than they were just

a few years ago. Today, the World Bank estimates that the number of people living on less than \$1.25 a day might be about 1 billion in 2015 and 826 million in 2020.

According to the IMF, the world economy shrank by 0.6% during 2009, per capita income fell about 2% to \$10,500, and global unemployment reached 9%. But this is turning around. The IMF estimates a 4.2% growth in 2010. Much of this recovery is led by the developing world, with expected growth of 6.3% in 2010 and 6.6% in 2011–13, compared with growth in advanced economies at 2.3% and 2.4% in those years. The contribution of Brazil, Russia, India, and China to world GDP in 2009 was over 23.5%.

Although the vast majority of the world is living in peace, half the world continues to be vulnerable to social instability and violence due to the global recession, to aging populations and decreasing water, food, and energy supplies per person, to climate change, and to increasing migrations due to political, environmental, and economic conditions. Nevertheless, conflicts actually decreased over the past decade, cross-cultural dialogues are flourishing, intra-state conflicts are increasingly being settled by international interventions, and there were 14 conflicts with 1,000 or more deaths in 2010. These occurred in Africa (5), Asia (3), the Americas (2), and the Middle East (3), with 1 conflict classified as worldwide anti-extremism.

The world spends over \$1.5 trillion (\$1,500 billion) on the military; the largest spender is the U.S., followed by China and France. SIPRI estimated that some 8,100 nuclear warheads are operational in the U.S., Russia, China, the United Kingdom, France, India, Pakistan, and Israel. This is down from 20,000 in 2002 and 65,000 in 1985. Although the number of nuclear weapons is 300 fewer today than a year earlier, around 2,000 of them were still “on high alert”—ready to be launched within minutes.

The International Atomic Energy Agency reports that between 1993 and the end of 2009, the Illicit Trafficking Database recorded 1,784 nuclear trafficking incidents (222 during 2009), ranging from illicit disposal efforts to nuclear material of unknown provenance. There are approximately 1,700 tons of highly enriched uranium, and 500 tons of separated plutonium that could produce nuclear weapons, all needing continued protection.

Women account for over 40% of the world's workforce but earn less than 25% of the wages; however, they control over 70% of global

consumer spending. The ratio of women in national parliaments has increased from 13.8% in 2000 to 18.9% in 2010. Some 100 countries have mandatory or voluntary gender quotas for their legislatures. Countries with smaller gender gaps have better development opportunities, superior education, healthier children, and greater social stability. Half the university students in the world are women, and in many countries they outnumber men.

Yet men attacking women is the largest war today, as measured by death and casualties per year. About one-third of women suffer gender-based violence during their lives, and one in five have been a victim of rape or attempted rape, especially during armed conflicts. About 2.5 million people from 127 different countries are being trafficked around the world, out of which approximately 70% are women and girls and up to 50% are minors. There are more slaves now than at any time in human history; estimates are that as many as 27 million people are forced to work without pay and are not free to leave.

International organized crime continues to grow in the absence of a coherent global strategy to counter it. Best estimates for counterfeiting and intellectual property piracy is about \$300 billion to \$1 trillion, global drug trade is \$386 billion, trade in environmental goods is \$63 billion, human trafficking and prostitution is \$141 billion, and weapons trade is \$12 billion. The FBI estimates that online fraud cost U.S. businesses and consumers \$560 million in 2009, up from \$265 million in 2008. These figures do not include extortion or organized crime's part of the \$1 trillion in bribes that the World Bank estimates is paid annually or its part of the estimated \$1.5–6.5 trillion in laundered money. Hence the total income could be \$2–3 trillion—about twice as big as all the military budgets in the world. Governments can be understood as a series of decision points, with some people in those points vulnerable to very large bribes. Decisions could be bought and sold like heroin, making democracy an illusion.

Energy is on top of the global agenda today, fueled by the BP oil spill, climate change negotiations, and rising energy prices. World energy demand is expected to increase by nearly 50% over the next 25 years, with the vast majority of the increase being in China and India. Auto manufacturers around the world are racing to create alternatives to petroleum-powered cars. U.S. billionaire Warren Buffett and Germany's Daimler have teamed with China's BYD to accelerate electric

car production. Exxon has invested \$600 million in biofuel production from algae. The total global renewable energy investment for 2010 is estimated at \$200 billion, up nearly 50% from 2009, and is expected to continue to increase. Japan plans to have a working space solar power system in orbit by 2030; such systems could meet the world's electricity requirements indefinitely without nuclear waste or GHG emissions. However, without major policy and technological changes, fossil fuels will continue to dominate energy sources for the foreseeable future, making large-scale carbon capture, storage, and/or reuse a top priority to reduce climate change.

As the growth and power of the Internet continues to surprise much of the world, the syntheses among the sciences and the resulting technological breakthroughs may have even greater impacts on the human condition. The ability to invent life has been demonstrated. Synthetic biologists forecast that as computer code is written to create software to augment human capabilities, so too genetic code will be written to create life forms to augment civilization. Computers are being constructed with the processing power of the human brain. The woolly mammoth's DNA has been used to create living blood cells like those that lived in this extinct animal. Nanotechnology-based products have grown by 25% in the last year to over 800 items today for the release of medicine in the body, thin-film photovoltaics, super-hard surfaces, and many lightweight strong objects. A global collective intelligence system is needed to track all these S&T advances, forecast consequences, and document a range of views so that politicians and the public can understand the potential consequences of new S&T.

The acceleration of S&T innovations from improved instrumentation, communications among scientists, and synergies among nanotechnology, biotechnology, information technology, cognitive science, and quantum technology continues to fundamentally change the prospects for civilization. However, what are the ethical issues involved? Should science be allowed to explore anything? Do we have the right to clone ourselves? Should the market determine what technological applications are acceptable? Who has the responsibility for the consequences—even the unforeseen consequences?

Greed and profit may have driven unsafe and unethical decisions that led to the BP oil spill. The global financial crisis demonstrated the interdependence of economics and ethics.

Collective responsibility for global ethics in decisionmaking is embryonic but growing through corporate social responsibility programs, ISO standards, and international treaties that are defining the norms of civilization. News media, blogs, mobile phone cameras, ethics commissions, and NGOs are increasingly exposing unethical decisions and corrupt practices.

But improving ethics in decisionmaking is limited by the effectiveness of decision processes. Many of the world's decisionmaking processes are inefficient, slow, and ill informed. The total or partial closure of 313 European airports (75% of the European airport network) during 15–21 April 2010 due to the ash cloud following the eruption of Iceland's Eyjafjallajökull volcano affected over 100,000 flights and 10 million passengers and resulted in a loss of €2.5 billion (\$3.31 billion). The concurrent

decisionmaking chaos exposed the lack of an adequate international framework and coordination strategy to deal with such large-scale disruptions (natural or humanmade).

Today's 15 Global Challenges discussed in Chapter 1 cannot be addressed by governments, corporations, NGOs, universities, and intergovernmental bodies acting alone; hence, *trans*institutional decisionmaking has to be developed and common platforms have to be created for transinstitutional strategic decisionmaking and implementation. Individual decisionmaking will be increasingly augmented by the integration of sensors imbedded in products, in buildings, and in living bodies with a more intelligent Web. Institutional and personal collective intelligence software could help us receive and respond to feedback for improving decisions in the increasingly intense future.



State of the Future Index

So, is the future getting better or worse? What do we mean—specifically—if we say it is getting better? What are the indicators? What variables could be measured over time to show progress or regress? Can they be put together into some kind of index like a cost of living index? And be projected into the foreseeable future? These are some of the questions put to an international panel of experts chosen by The Millennium Project Nodes around the world to help create the annual State of the Future Index. The results have been published in the annual *State of the Future* since 2001. Until recently, the annual global SOFI showed that the general future was getting better, yet it was not improving as rapidly as it had over the previous 20 years. Last year, due to the financial crisis and the world recession, the SOFI showed little progress in the near-term future.

SOFIs have also been created for some Latin and North American countries to compare progress, but some variables are more important in some countries than in others. As a result, unique sets of variables have been created for other countries such as in South Korea, Turkey, and Kuwait.

This year, The Millennium Project and the University of Denver's International Futures modeling team cooperated to introduce SOFI calculations into their model. This permits the model to calculate and compare baseline SOFIs for 183 countries. Chapter 2 explains this process, and the detailed results can be found in the CD Chapter 2.

Collective Intelligence

The explosion of knowledge and acceleration of change coupled with the bewildering and continuous information overload makes previous information systems for decisionmaking increasingly inadequate. One approach is to create collective intelligence systems. These are systems that facilitate the interaction and feedback among human judgments, information, and software so that each can change in realtime.

Chapter 3 gives two applications. The first is for the Global Climate Change Situation Room in Gimcheon, South Korea. The second is for the Early Warning System for the Prime Minister's Office of the State of Kuwait. Having one application for an issue and another for a country's leadership will give the opportunity to abstract what is in common to both that might be applied for other situations—from business to the United Nations system.

Collective intelligence can be defined as an emergent property from synergies among data/information/knowledge, software/hardware, and experts (those with new insight as well as recognized authorities) that continually learns from feedback to produce (nearly) just-in-time knowledge for better decisions than these elements acting alone.



Latin America 2030

Between 2010 and 2030, most countries of Latin America will celebrate 200 years of independence in multiple bicentennial celebrations. As these countries look back over their first two centuries, it seemed appropriate to take this opportunity to explore future possibilities for Latin America. The Chairs of The Millennium Project Nodes in Latin America used a Real-Time Delphi that collected the judgments of 552 knowledgeable individuals about the likelihood and impacts of developments that might affect Latin America over the next 20 years and the potential course of variables important to the region. Chapter 5 shares the results of that study, which will also be used to produce several regional scenarios next year. The full details of the study are available in the attached CD.

Some potential developments by 2030 from this year's research that should be taken into account in writing scenarios on the future of Latin America by 2030 are:

- A 50% chance that within the next 20 years Latin American countries will follow the European Union model
- Food prices will double
- Wireless broadband communications will connect all major cities
- Great increases in tourism
- GDP per capita increased by 50%
- Region will become and remain the world's leading producer of biofuels
- Possibility that organized crime becomes more powerful than some governments
- Large growth in CO₂ emissions
- The threat of rising protectionism
- Great uncertainty in the ability to reduce corruption

Considering the Latin American developments that were indicated as both likely and significant, several common or repetitive explanations were given by the respondents. For example:

- Assuming that food prices double in real terms, respondents tend to affirm that this will be unavoidable, but it can be solved to some degree by means of synthetic foods. Furthermore, some respondents focus on the value of education and skills in order to soften the negative effects of this assumed trend.

- Assuming that regional organized crime is going to be more powerful than some Latin American governments, respondents believe that this is now concentrated (and it is going to remain concentrated) in certain regions (mainly Colombia and Mexico). Drug trafficking and arms trading are identified as the two main components of "organized crime" in Latin America. The value of education is emphasized in order to solve such problems.
- Assuming that 90% of the world's population over 11 years of age will use the Internet, portable devices are considered a priority. This will facilitate achieving specific social objectives, such as bringing these devices to poor communities.
- Assuming that human migrations at twice today's levels will occur from causes such as water shortages, abundant natural resources in Latin America will be an important factor both to the region and to the world as a whole.

There was a wide range of inputs and estimates of likelihood and importance about variables to measure change and developments that might affect those variables. The Real-Time Delphi produced information on threats and opportunities concerning the future of Latin America and beyond. The full details are available in the CD. The bicentennial independence celebrations are a good time to consider the next 20 years, and even to ponder the next 200 years. This study and the scenarios it generates are contributed to help efforts across Latin America to rethink and plan for a better future.

Environmental Security

The traditional nation-centered security focus is expanding to a more global one due to geopolitical shifts, the effects of climate change, environmental and energy security, and growing global interdependencies. UNEP reports that since the mid-twentieth century more than 90% of major armed conflicts took place in countries that contained biodiversity hotspots and over 80% occurred directly within a hotspot area. The U.S. Pentagon's *Quadrennial Defense Review 2010* specified climate change for the first time as a key issue "that will play a significant role in shaping the future security environment." Since conflict and environmental

degradation exacerbate each other, unless they are addressed together their scope and severity could expand. Environmental damages that people and organizations got away with in the past are less likely to escape exposure and punishment in the future.

The Millennium Project defines environmental security as environmental viability for life support, with three sub-elements:

- preventing or repairing military damage to the environment
- preventing or responding to environmentally caused conflicts
- protecting the environment due to its inherent moral value.

Chapter 4 presents a summary of recent events and emerging environmental security–related issues organized around this definition. Over the past several years, with support from the U.S. Army Environmental Policy Institute, The Millennium Project has been scanning a variety of sources to produce monthly reports on emerging environmental issues with potential security or treaty implications.

More than 300 items have been identified during the past year and about 2,000 items since this work began in August 2002. The full text of the items and their sources, as well as other Millennium Project studies related to environmental security are included in Chapter 9 on the CD and are available on The Millennium Project’s Web site, www.millennium-project.org.

Futurist Views Around the World

What are futurists in various locations and institutions around the world working on today? What do they think should be studied that is not well researched now?

To answer these questions, a survey was conducted among the Nodes of The Millennium Project, a uniquely diverse group of futurists around the world. A Millennium Project Node is a group of individuals and institutions that connect future-oriented efforts from universities, private businesses, NGOs, governments, and international organizations. Their work and perspectives represent a considerable share of global futures research.

The German Node conducted a qualitative survey of the other Nodes to find out what they consider the key issues to be, where there are gaps in research, and in general what governs the minds and work of global futures research. There were 34

Nodes in early 2010, at the time of the survey, and 32 responded with complete answers. One major insight from the analysis was that almost all Nodes consider cultural and social issues to be underserved. The call for what is referred to as “soft issues” is becoming louder in the Foresight community. One colleague summed it up as follows: “It is ‘peopleware’ that is crucial to any sustainable shift in consciousness necessary to finding a new path for humanity.”

Chapter 6 summarizes the survey’s key results and offers an insight into the agenda of futures research, although without making a claim to be representative. More than 130 different topics were received, which were clustered into nine categories: sciences/technology, politics/globalization, environment/resources, foresight methodology, business/economy, transfer/education, sustainable development, society, and regional topics.



This year’s annual *State of the Future* is an extraordinarily rich distillation of information for those who care about the world and its future. There are many answers to many problems, but we are flooded with so much extraneous information every day that it is difficult to identify and concentrate on what is truly relevant. Since healthy democracies need relevant information, and since democracy is becoming more global, the public will need globally relevant information to sustain this trend. We hope the annual *State of the Future* reports can help provide such information.

The insights in this fourteenth year of The Millennium Project’s work can help decisionmakers and educators who fight against hopeless despair, blind confidence, and ignorant indifference—attitudes that too often have blocked efforts to improve the prospects for humanity. Ridiculing idealism is shortsighted, but idealism untested by pessimism is misleading. We need very hardheaded idealists who can look into the worse and best of humanity and can create and implement strategies of success.