

ATTACHMENT B.3. REVIEW OF NARRATIVE SCENARIOS

[Section B.3.a and B.3.b are from Hayes (2004); Section B.3.c is new material.]

In this section we review several sets of scenarios that are presented largely in narrative form. First we look at five sets of scenarios prepared during the 1960's, 1970's and 1980's that focused on the period up to 2000. We assess how well these captured important aspects of the relevant history that actually came to pass, and what lessons we can learn from these efforts.

Next we review 26 sets of scenarios constructed after 1990 that look beyond the year 2000. The purpose is to identify those driving forces or trends, and critical topics, that have appeared most frequently when analysts have attempted to project developments over the coming decades. We use these to identify topics for further and more detailed consideration.

B.3.a. SCENARIOS OF THE 1960's, 1970's AND 1980's, LOOKING TO 2000

Box IB-1 shows the scenarios presented by Kahn and Weiner in their 1967 book, *The Year 2000: A Framework for Speculation on the Next Thirty-Three Years*. This book introduced scenario planning to a wide audience and was very influential. The authors claimed that the trends listed in their Standard World Scenario had been underway for several centuries, largely in the West, and could be expected to continue and to spread to the rest of the world in the coming decades. A set of Alternative Scenarios was presented that had the standard scenario trends in common but reflected different geo-political possibilities, largely turning on the relative dynamism of the Communist world and the West, and on the prospects for war and peace.

Box IB-2 shows projections of economic growth for the period 1965-2000 made by Kahn and Weiner. Their preferred estimates were mostly based on extrapolations of high growth rates following World War II. They also prepared estimates for several major economies based on the longest time series data available, beginning as far back as 1900.

Notably absent in *The Year 2000* was any consideration of environmental issues. The years immediately following its publication saw an explosion of environmental concerns, and in Kahn's 1976 book, *The Next 200 Years*, these figured prominently. He identified four scenarios, shown in **Box IB-3**, that reflected different empirical judgments and normative preferences concerning economic growth, the environment, and technology.

Kahn's work inspired new efforts in the field of future studies. Among the most influential were studies done at the Stanford Research Institute (SRI). Whereas Kahn was aligned with military and generally conservative interests, the analysts at SRI were aligned with the liberal movements of the time, in particular the environmental movement. In 1975 SRI analysts prepared a set of scenarios for the US Environmental Protection Agency (EPA) that captured

BOX IB-1. KAHN AND WEINER (1967) - *THE YEAR 2000*

I. STANDARD WORLD SCENARIO:

- * increasingly empirical, secular, humanistic, pragmatic, utilitarian, contractual, hedonistic
- * bourgeois, bureaucratic, meritocratic, democratic (and nationalist?) elites
- * accumulation of scientific and technological knowledge
- * institutionalization of research, development, innovation and diffusion
- * worldwide industrialization and modernization
- * increasing affluence and (recently) leisure
- * population growth
- * urbanization and (soon) the growth of megalopolises
- * literacy and education
- * increasing capacity for mass destruction

II. ALTERNATIVE SCENARIOS:

1. *More integrated world*: relatively peaceful, prosperous, arms-controlled worlds with relatively high consultation and coordination among nations
 - a. *status-quo oriented*: coordination exists among the advanced powers, with little concern for developing nations
 - b. *development oriented*: coordination is inclusive of developing nations
2. *More inward-looking*: almost as peaceful and prosperous as above, but with little arms control or coordination
 - a. *with an eroded Communist movement*
 - b. *with eroded democratic morale and some Communist dynamism*
 - c. *with a dynamic Europe and/or Japan*
3. *Greater disarray*: relatively troubled and violent worlds, but in which no large central wars have occurred.
 - a. *with an eroded Communist movement*
 - b. *with eroded democratic morale and some Communist dynamism*
 - c. *with a dynamic Europe and/or Japan*

Note: the “Alternative Scenarios” are alternatives to one another, not to the “Standard World Scenario.” The trends shown as the “Standard World Scenario” are common to all of the “Alternative Scenarios.”

BOX IB-2. KAHN AND WEINER - PROJECTIONS OF ECONOMIC GROWTH, 1965-2000

[sources: Kahn and Weiner (1967); United Nations Development Program (1997)]

Table 1. By Country	Kahn & Weiner's 1967 forecasts for per capita GDP growth, 1965-2000 based largely on trends since 1945	Actual per capita GDP growth, 1965-1993 (UNDP)	Difference (forecast less actual)	Kahn & Weiner's 1967 growth rate projections for 1965-2000, based largely on trends of the preceding 40-60 years
Japan	6.8	4.3	2.5	3.7
Israel	4.2	2.9	1.3	
W. Germany	4.1	2.6	1.5	1.8
Italy	4.1	2.7	1.4	2.4
OECD	3.7	2.3	1.4	
UK	3.7	2.1	1.6	1.5
France	3.7	2.7	1.0	1.6
China	3.5	6.0	-2.5	3.1
Thailand	3.3	5.3	-2.0	
Canada	3.1	2.4	0.7	1.6
US	3.0	1.8	1.2	1.8
India	2.9	2.2	0.7	2.1
WORLD	2.9	1.5	1.4	
Argentina	2.8	0.7	2.1	
Australia	2.4	1.9	0.5	
Pakistan	2.2	2.4	-0.2	
Mid East/No Afr.	2.2	1.9	0.3	
Sub-Sahara	1.8	0.0	1.8	
So Africa	1.7	1.6	0.1	
Southeast Asia	1.7	3.9	-2.2	
Brazil	1.7	3.5	-1.8	
Latin America	1.6	1.3	0.3	
Nigeria	1.2	2.2	-1.0	
Mexico	1.1	1.7	-0.6	
Indonesia	0.6	4.7	-4.1	

Figure 1. Regression of Forecast and Actual Per Capita GDP Growth Rates, 1965-2000

[forecasts: Kahn & Weiner, 1967; actual: UNEP, 1997. p(.95)= .216; R² = .025]

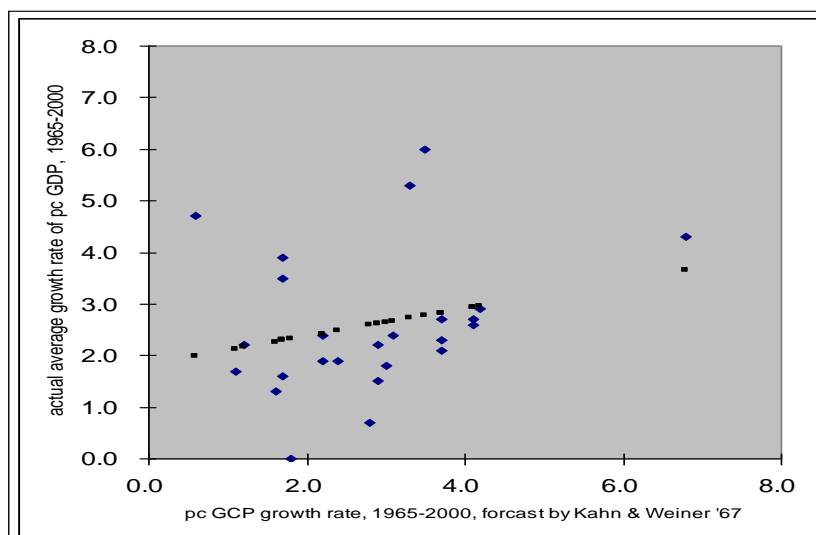


Table 2. By Region	Kahn & Weiner's 1967 forecasts for per capita GDP growth, 1965-2000	Actual per capita GDP growth, 1965-1993 (UNDP)	Difference (forecast less actual)
So. & East Asia, w/o China	4.3	n/a	n/a
OECD	3.7	2.3	1.4
WORLD	2.9	1.5	1.4
Middle East & No. Africa	2.2	1.9	0.3
Sub-Saharan Africa	1.8	0	1.8
Southeast Asia	1.7	3.9	-2.2
Latin America	1.6	1.3	0.3

BOX IB-3. HERMAN KAHN (1976) - *THE NEXT 200 YEARS*

FOUR WORLDVIEWS

1. *Convinced Neo-Malthusian*: Finite resources will reach limits within 50 years; the complexity of natural systems will overwhelm our attempts to manage them; techno-fixes won't work or will backfire; continued growth benefits the rich more than the poor. Wisdom calls for a rapid transition to a no-growth world. If we don't do this billions may die from starvation, pollution and wars over scarce resources.
2. *Guarded Pessimism*: Resource limits are uncertain but we are better off being cautious. Techno-fixes at best may delay the inevitable. Wisdom calls for a slow but steady transition to a no-growth world. Policies to ensure an equitable income distribution are imperative to avoid class warfare. The LDC's should avoid the mistakes of the developed world and emphasize community-oriented enterprises. The developed world should emphasize Quality of Life rather than further growth in GDP.
3. *Guarded Optimism*: Technology and wise management should allow growth to continue. Policies to internalize environmental externalities should be adopted. Industrial development is the only real hope for alleviating poverty. Absolute incomes will increase for all but isolated populations. The world economy will need to be carefully monitored so that policies can be adopted to ensure steady, even growth, if necessary.
4. *Technology and Growth Enthusiast*: There is no need for worry, the faster the rate of technological innovation and growth, the more benefit to humankind. A rising tide lifts all boats. At the high levels of material prosperity available to all, distributive differentials are not a major source of social tension. Policies to "soften" the impacts of a dynamic growth economy will do more harm than good.

much of the sense of crisis and opportunity of that period. In 1982 a modified version of this set of scenarios was published as *Seven Tomorrows*. The set of driving trends used to construct the EPA scenarios are shown in **IB-4**. Summaries of the scenarios from both efforts are shown in **IB-5**. Quantitative projections from *Seven Tomorrows* are shown in **IB-6**.

Although the analysts at SRI were sympathetic to liberal and environmental values they were by no means anti-capitalist, and their studies tended not to address issues of political economy. Students of future studies in Europe and the Third World, by contrast, gave political economy much attention. **IB-7** shows a set of scenarios prepared in 1984 by British analysts aligned with the European labor-left.

Assessment

A review of these five sets of scenarios prompts these observations:

* The core trends identified in Kahn and Weiner's 1967 Standard World Scenario have indeed continued over the past 33 years, as they predicted. Further, although none of their Alternative Scenarios exactly capture the politico-economic conditions of 2000, Alternative 1b and condition "a" of Alternative 2 can be combined to aptly summarize it: "A more integrated, development-oriented world with an eroded Communist movement."

* Kahn and Weiner's forecasts for economic growth between 1965 and 2000 were in general too high. They believed that the 3% world per capita income growth rates of the post-war period could be sustained, but after the turbulence of the 1970's and 1980's the average for the period was closer to 1.5%. With the end of ideological contention in the 1990's, analysts envision long term average per capita growth rates of about 2%.

* Kahn's four "worldviews" shown in IB-3 succinctly characterize the range of opinions people hold regarding the growth/environment/technology debate, even today, nearly three decades after they were proposed.

* Of the 1975 Elgin *et al.* scenarios the one that best described the course that events in the United States actually took over the following 25 years is Scenario #1, "Hitting the Jackpot."

* Of the 1982 Hawkins *et al.* scenarios the narrative description that best characterized the subsequent events is Scenario #1, "The Official Future," tempered by elements from Scenario #3, "Mature Calm," and Scenario #2, "The Center Holds." Per capita GNP growth rates for the U.S. over the period 1980-2000 were projected at 2% and 1.8%, respectively, for "The Official Future" and "Mature Calm," very close to the historical rate of 2.1%. All the other scenarios projected rates of growth near or below zero. World per capita GDP growth rates for the first three scenarios, which assumed less profound economic

BOX IB-4. DRIVING TRENDS OF THE SRI SCENARIOS FOR 1975-2000

Source: Alternative Futures for Environmental Policy Planning, 1975-2000. Duane S. Elgin, David C. MacMichael, and Peter Schwartz. Stanford Research Institute, 1975.

A. Energy Use:

1. continued high growth: 4%/yr
2. controlled growth: 1-3%/yr
3. unsuccessful high growth: energy growth begins high but collapses by 2000.
4. zero or declining growth: 0 to -1%

B. Climate:

1. favorable: as usual
2. variable: sometimes good, some bad, unpredictably
3. worsening climate: global cooling leads to drought, floods, shortened growing season

C. Food:

1. high prices/no shortage
2. moderate prices/no shortage
3. high prices/food shortage

D. Values:

1. achievement values: population emphasizes material things: status, fame, affluence, on the personal level and growth, bigness, competition on the system level. Mechanistic, materialistic, individualistic, secular, centralized, scientific empirical.
2. survival values: achievement values are held but material circumstances prevent them from being readily realized. The consequences are frustration, dogged endurance, emphasis on security and survival aspects of achievement values.
3. frugal values: voluntary simplicity of the exterior aspects of life in order to attain greater riches of inner aspects. Includes a self-realization ethic and an ecological ethic, or combinations of these (survival/frugal split; achievement/survival split; three way split; etc.)

The four key variables and the thirteen alternative ways they may change over time define a four-valued matrix of 108 potential scenarios ($4 \times 3 \times 3 \times 3 = 108$). Of these the authors chose 10 for elaboration into full narrative scenarios. In Box IB-5 we show nine of these (two are very similar).

BOX IB-5. THE EPA/SEVEN TOMORROWS SCENARIOS

I. Alternative Futures for Environmental Policy Planning, 1975-2000 (1975)

1. *Hitting the Jackpot*: “The Kahnian future: growing prosperity for all through markets and technology.”
2. *Not-So-Great Expectations*: “Energy and environmental stresses motivate moderately frugal life-styles and business efficiencies that successfully allow growth to continue.”
3. *Apocalyptic Transformation*: “Overconfidence in markets and technology, and rapid climate change, leads to economic collapse in the mid-1980’s. From the ruins arises a transformed society based on simple living.”
4. *Journey to Transcendence*: “Awareness of pending limits to growth motivates a spiritual evolution that gradually replaces acquisitive values with holistic, frugal values.”
5. *The Center Holds*: “Energy and environmental crises nearly topple the established institutions. However, in the late ‘80’s new technological breakthroughs win the day for the establishment.”
6. *The Boom Years*: “A protracted recession leads to evolution of a large frugal living population, but by the late 1990’s new technological breakthroughs restore prosperity.”
7. *The Industrial Renaissance*: “Clumsy attempts to impose energy conservation lead to an extended recession. The technological elite rally and develop techniques that allow both conservation and growth.”
8. *The Dark at the Top of the Stairs*: “Clumsy attempts to impose energy conservation lead to an extended recession. Social cohesion is weakened and despair spreads, leading to a depressed, authoritarian world by 2000. “
9. *Toward the Jeffersonian Ideal*: “Large numbers of people realize that the desire for affluence must be tempered if the earth and society are to survive. The transition to a sustainable, frugal world begins in the late ‘70’s, builds through the ‘80’s, and is largely complete by 2000.”

II. Seven Tomorrows (1982) Scenarios for 1980-2000.

1. *The Official Future*: “Technological triumph. Soviet power is checked. More people more affluent than ever. More personal computers and world trade. The environment deteriorates and crime rises, but people accept these as tradeoffs.”
2. *The Center Holds*: “The ‘80’s begin strong but run into problems of energy supply, recession, food shortages. Survivalist movements flourish but are suppressed. A corporate/state commitment to technology manages to restart the economy by 2000.”
3. *Chronic Breakdown*: “The energy crisis of 1983 triggers a cascade of dominos: food shortages, economic recession, international conflict, domestic turmoil. The social fabric is frayed and people withdraw into escapist pursuits. Cults and communes flourish. “
4. *Mature Calm*: “In the face of growing resource constraints conservative Republicans adopt much of the philosophy of the environmental left. Ecological catastrophe is avoided, small town values are revived, children stay in school and stop using drugs. By 2000 everyone wonders what the big scare in the late ‘70’s was all about.”
5. *Apocalyptic Transformation*: “By the early 90’s both the US and USSR have nuclear-armed space shuttles in orbit. A series of miscalculations brings the world to the brink of nuclear holocaust. The narrow escape sparks a world spiritual revival that leads to disarmament and a commitment to build a peaceful world.”
6. *The Beginning of Sorrow*: “After a decade of mounting energy shortages and economic turmoil a catastrophically frigid winter of ’87 leads to breakdown of authority. Survivalist militias control large parts of the country and the economy spirals down, with no end in sight.”
7. *Living Within Our Means*: “Climate change, soil depletion and mismanagement lead to severe food shortages in the early ‘80’s, which, on top of higher energy prices, leads to a deep recession. People are forced to begin growing their own food, traveling less, buying less consumer goods. A frugal, de-centralized, sustainable rural society and culture evolves.”

BOX IB-6. QUANTITATIVE PROJECTIONS FROM SEVEN TOMORROWS

[Hawken, Ogilvy and Schwarz, 1982]

	Actual values		SCENARIOS for 2000*						
	1980 (1995 US\$)	2000 (1995 US\$)	OF 1	CH 2	MC 3	CB 4	AT 5	BS 6	LWM 7
	World Population (millions)	4430	6051	6797	6800	6350	5921	5900	5000
U.S. Population (millions)	227	282	268	268	268	253	253	226	268
World per capita GDP	4,384	5,654	7,195	6,631	7,101	4,760	5,254	3,664	4,473
growth rate, WpcGDP, 80-00 (%/yr)	-	1.3	2.5	2.1	2.4	0.4	0.9	-0.9	0.1
US per capita GDP	21,000	31,730	31,345	20,897	29,942	21,111	21,284	9,531	14,780
growth rate, USpcGDP,80-00 (%/yr)	-	2.1	2.0	0.0	1.8	0.0	0.1	-3.9	-1.8
Average World Energy Prices**	65	25	50	80	60	40	100	100	100
US Energy Consumption (quads)	78	99	123	86	100	78	80	40	70
US Energy Supply (quads):									
oil	35	38	48	30	36	23	26	16	22
gas	20	24	19	16	19	14	16	10	14
coal	17	22	40	23	25	32	20	11	18
nuclear	3	8	11	9	10	4	8	0	3
renewables	3	6	5	8	10	5	10	3	13
Energy Supply (% of total)									
oil	0.45	0.38	0.39	0.35	0.36	0.29	0.33	0.40	0.31
gas	0.26	0.24	0.15	0.19	0.19	0.18	0.20	0.25	0.20
coal	0.22	0.22	0.33	0.27	0.25	0.41	0.25	0.28	0.26
nuclear	0.04	0.08	0.09	0.10	0.10	0.05	0.10	0.00	0.04
renewables	0.04	0.06	0.04	0.09	0.10	0.06	0.13	0.08	0.19
Variance betw. energy supply actual and scenario values***			37	20	16	40	26	58	42
Variance betw. economic actual and scenario values****			0.18	0.28	0.16	0.25	0.28	0.93	0.44

*codes:

- 1 = OF = "The Official Future"
- 2 = CH = "The Center Holds"
- 3 = MC = "Mature Calm"
- 4 = CB = "Chronic Breakdown"
- 5 = AT = "Apocalyptic Transformation"
- 6 = BS = "The Beginnings of Sorrow"
- 7 = LWM = "Living Within Our Means"

** prices shown are for 1 bbl crude

***values shown are the sums of the absolute differences between actual and scenario values for each energy source in 2000.

****values shown are the averages of the absolute percentage differences between actual and scenario values for world and U.S. population and per capita GDP, and for energy prices and consumption, in 2000.

Sources:

World and U.S. population and economic growth values for 1980 and 2000 are from World Development Indicators-OnLine (<http://publications.worldbank.org/WDI>). Scenario values have been normalized using the WDI tables to 1995 US\$ from their original presentation in 1980 US\$. World energy prices in 2000 are from the Energy Administration Administration's World Oil Market and Oil Price Chronologies, www.eia.doe.gov/emeu/cabs/chron.html. Energy consumption and supply figures for 2000 are from the Energy Information Administration at www.eia.doe.gov/emeu/aer/tst/ptb0103.html.

BOX IB-7. COLE AND MILLER – GLOBAL AND REGIONAL SCENARIOS TO 2000

[S. Cole and I. Miller (1984)]

I. GLOBAL SCENARIOS

1. *Liberal International Order*: free markets, multinational corporate dominance.
2. *Reformed International Order*: market economy, social contracts between and within countries.
3. *Collective Self-Reliance*: developing nations disengage from inequitable global structures and cooperate for mutual development.

II. REGIONAL SCENARIOS

A. High & Middle Income OECD

1. *Corporate Society*
2. *State Capitalism*
3. *Democratic Socialism*
4. *Decentralism*

B. Centrally-Planned Industrial Economies

1. *Scientific-Technological Revolution*
2. *Stagnation*
3. *Reform*
4. *Democratization*

C. Newly Industrializing Countries, Semi-Peripheral

1. *Military-Authoritarian*
2. *Developmentalism*
3. *Populism*
4. *Socialism*

D. Lower Middle Income and Poor Countries

1. *Neo-Colonialism*
2. *Liberal Developmentalism*
3. *State Capitalism*
4. *Bureaucratic Planning*
5. *Socialist Construction*

E. OPEC

1. *Western-Oriented Development*
2. *State Capitalism*
3. *Neo-Traditionalism*
4. *Endogenous Socialism*

Note: Cole and Miller's presentation suggests a dynamic relation between global and regional scenarios. If all or most of the regions adopt, say, a more or less socialist political economy, or a more or less liberal capitalist one, then the global scenario would be of that same type and might be thought of as the sum of the regional scenarios. On the other hand, if all but one or two regions have adopted a particular political-economic orientation, the non-conforming regions may experience pressure to adopt that orientation as well. In that instance some regional scenarios may be thought of as being influenced by the global scenarios.

disruption over the period 1980-2000, averaged 2.3%, while the final four scenarios, which envisioned various forms of breakdown, averaged close to zero. The historical rate for the period was right between these values, at 1.3%.

* None of the Hawkins et al. scenarios foresaw the dramatic drop in energy prices and the counterintuitive increase in energy efficiency that occurred during the 1980's and 1990's in the wake of the oil crises of the 1970's. In the higher growth scenarios energy prices varied up or down by about 20% from 1980 prices, and in most of the lower growth scenarios energy prices increased by 53%. In actuality, real world energy prices *declined* by 60% over this period.

* The Hawkins et al. "Mature Calm" scenario pegged United States energy consumption in 2000 at 100 quads, almost precisely the value of 99 quads that actually occurred, and came close to estimating the correct shares of energy supply provided by different sources. However, it underestimated the growing role of natural gas and somewhat overestimated the growth of renewables.

* In the two decades since the Cole and Miller scenarios were developed, neoliberal economics and politics (Cole and Miller's *liberal international order*) have prevailed over Third World socialism (roughly their *collective self-reliance*), over social democracy (their *reformed international order*), and over most of the more particular systems described on a regional basis. Neoliberalism is today partially contested in regions with a tradition of Confucianism, and more strongly so in Islamic regions. Neoliberalism is subject to a large set of reformist demands from working class constituencies in the developed countries, Latin America, and elsewhere. For the most part, however, the set of viably contending political-economic systems sketched in the Cole and Miller scenarios has been dramatically reduced.

Further discussion

To some extent the history of the past 30 years vindicates the judgment of those analysts, such as Kahn and Weiner, who believed that the institutions of Western democratic capitalism would be able to successfully accommodate or repulse various challenges to its ascendancy and dominance. During this period neither the worst fears nor the heartfelt dreams of the left or of the Greens—or for that matter, of the authoritarian right—came to pass. Capitalism did not immiserate the workers, start a nuclear war or trigger an ecological holocaust. The world of 2000 did not find new socialist men and woman collectively managing bustling factories and farms. Neither did it find ecotopian communities living in self-sufficient harmony with the flora and fauna of their bioregion.

Of course, it's a mistake to conclude that the success of neoliberal capitalism over the past thirty years necessarily entails its continued success for another thirty years, much less for 150 years. Without an explicit analysis of the causes and dynamics of stability and change, no firm judgments in this regard are possible.

In the next section we review scenarios that reveal the hopes and fears of various authors regarding political, social and cultural concerns, as well as environmental and equity concerns, for the decades following 2000. This review will help us select topics for further analysis that might cast light on the prospects for global stability and global change during this period.

B.3.b. SCENARIOS FROM THE 1990s, LOOKING BEYOND 2000

Box IB-8 shows a general set of scenarios prepared during the 1990s that address many of the critical topics that are commonly evoked when people speculate about the early-middle decades of the 21st century. **IB-9** summarizes three additional sets of scenarios of this sort. **IB-10** shows four sets of scenarios mostly focused on geo-political concerns. **IB-11** shows four sets of scenarios focused on economic systems. The four sets of scenarios in **IB-12** give special attention to culture and gender issues. **IB-13** shows ten sets of scenarios that address a wide range of issues concerning particular nations and regions. In all we show 26 sets of scenarios containing a total of 130 individual scenarios. [**IB-14** is an addendum added in 2015 for completeness. The Great Transitions scenarios draw heavily on the earlier Hyperforum Scenarios shown in Box IB-8.]

What are the major themes that these scenarios express? Some important recurring themes are shown in **IB-15**. We see that to a large extent a scenario of continued economic growth, technological innovation, and global economic integration is taken to be the reference or business-as-usual scenario. Other scenarios are distinguished largely by the extent to which one or another element of this reference scenario falters.

B.3.c. SCENARIOS FROM THE 2000s-2010s, LOOKING BEYOND 2020

Panels IB-1 through **IB-6** show twenty sets of scenarios prepared in 2000-2017 that look to the rest of the 21st century and beyond. What major themes do these scenarios express, and in what ways are they similar to or different from those expressed in scenarios prepared 10-20 years earlier, as generalized in Box IB-15?

The major themes and variations are largely the same: economic growth continues or it doesn't, globalization continues or it doesn't, technological advance continues or it doesn't, the environment is saved or it isn't. Themes such as concern over inequality, the impact of new technologies, the roles of major emerging countries and regional country blocs, and global terrorism may be given a bit more specific attention in the later scenarios, but can still be found in one or another of the earlier scenario exercises – e.g., Barber's prescient framing of "Jihad vs McWorld" (1996; Box IIB-12). The 1990s scenario exercises were conducted when the post-1989 neo-liberal consensus was at its peak, and many of the business-as-usual scenarios have a triumphalist sheen – growth continues unproblematically, inequality is *decreasing*, global harmony is *increasing*, technology is saving the environment, and so forth. The post-2000 scenario exercises are mixed in these regards, and the tone is less certain. Several topics that have drawn much attention and concern in the last 3-5 years (i.e., ~ 2012-2014) don't appear in many of the most recent scenarios examined. These topics include the growth and success of populist/nationalist parties and leaders in many countries world-wide, the possibility of secular economic stagnation, and the rapid decrease in fertility world-wide.

BOX IB-8. HYPERFORUM SCENARIOS ON SUSTAINABILITY

Between 1995 and 1997 the California Institute of Technology, RAND, and World Resources Institute sponsored a collaborative project to develop global scenarios for the period 2000 to 2050 focused on the topic of “sustainability.” Fifty experts from thirty-four think tanks, universities and other organizations were involved. Most of the collaboration was done using new Internet technologies. The complete record of the project can be found at www.hf.caltech.edu/HF. Here is a summary of the major scenarios they developed:

1. **CONVENTIONAL WORLDS:** Industrial development is gradual and steady. The world becomes more integrated economically and culturally. Technology allows productivity to grow and environmental and equity problems to be addressed satisfactorily.

- a) *Reference Case:* Few policy interventions are needed to keep things on track. Consumerism and possessive individualism endure as the primary human motives. Inequality increases and the environment deteriorates, but not enough to motivate people to seek alternative systems.
- b) *Balanced Growth:* comprehensive and vigorous public policies developed by the techno-managerial elite successfully steer the system away from destabilizing social and environmental problems.

2. **BARBARIZATION:** Conflicts present in the Conventional Worlds scenarios overwhelm the coping capacity of markets and management institutions. Rich/poor tensions dominate national and global affairs. Technological change works to the advantage of the privileged and marginalizes the rest.

- a) *Social Breakdown:* unregulated global competition leads to increased inequality, mass migrations, global crime waves. Instability, xenophobia and police state mentalities follow, causing economic growth and trade to slow and then decline, leading to a general collapse of social, cultural and political institutions.
- b) *Fortress World:* Wealthy sectors cooperate to keep the international system functioning for themselves but seek to abandon the rest of the world to poverty.

3. **GRAND TRANSITIONS:** global society matures to a higher stage of social development, neither stuck in its present adolescent, competitive phase nor descending into anarchic chaos.

- a) *Global Governance:* a growing collective realization of the mutual benefits of cooperation leads to strengthening of global governance institutions and a strengthening of civil society. Leadership is provided by multinational corporations and a dense network of NGO's.
- b) *New Sustainability Paradigm:* the rapid spread of technology and capitalism benefits only a few, but with widespread communications resources the masses are able to inspire and coordinate with one another to work out collective response. A disenchantment with the ethos of competition and materialism is nurtured and matures into a new sustainability paradigm for the planet.

Several participants in the project felt the final scenarios underplayed the positive contribution that technological innovation could make in the decades to come and overestimated the likely severity of environmental degradation. Jesse Ausubel of Cal Tech prepared this additional scenario:

Technology Spares the Environment: “...accelerating technological advances, driven in part by market competition, boost industrial efficiencies, prosperity, and environmental sustainability through most of the world. The world economy meets human needs with less land, pollution and natural resources. Dire warnings of food shortages, pollution, overpopulation and environmental depletion never materialize.”

BOX IB-9. THREE SETS OF GENERAL GLOBAL SCENARIOS

Peter Schwartz. Art of the Long View (1991) Three Global Scenarios through 2005.

1. *New Empires*: “Nations protect their threatened cultural identities by regionalizing their interests... they create bureaucratic but decentralized multinational power blocs that dominate world politics.”
2. *Market World*: “a free market, entrepreneurial, multi-cultural world run not by governments but by ‘associations:’ international rule-making, standard-setting, conflict resolution and system management groups that collectively form an informal ‘global commons’...”
3. *Change Without Progress*: “the dark side of Market World: fast-paced economic activity, ruthless self-interest runs rampant, environment decays, inequality grows.”

Lawrence Wilkinson, Global Business Network. Four Global scenarios to 2020 (1995)

Wilkinson and his clients focused on two critical uncertainties to develop the four global scenarios for the year 2020 shown below: will people be more *individual* or more *community* oriented? and will society provide *coherence* or will it be *fragmented*?

1. *I Will* [individual/fragmented]: The world fragments into a working pandemonium of individuals, organized by jobs rather than geography. Physical infrastructure stagnates, personal spaces and the Net thrive. Technology is the global culture. Ethnic and group differences dissolve into a patchwork of individual variety. Europe is wracked with civil strife as its socialistic civilization unravels.
2. *Consumerland* [individual/coherent]: The world is populated by consumers rather than citizens...served by highly evolved companies conscious of the market’s whims. Leisure increases, dissent withers. Governments are virtual corporations, with their heavy lifting privatized. The have-nots get spending vouchers. The US and Europe become large theme parks. Russia exports neo-religious cults and mafioso.
3. *Ecotopia* [community/fragmented]: Communitarian values triumph. Slim, digitized governments win popular trust. Corporations show civic responsibility. High-tech makes urban living very resource-friendly. Europe becomes a moral beacon. Asia and Latin America become lifeboats for the young and restless of the developed world who find the environmentalism and communitarianism too dogmatic and stifling.
4. *New Civics* [community/coherent]: A world of small, powerful city-states. Rural areas are second-class but are heavily wired. Europe breaks into 57 countries. Gangs in developing countries and old inner cities transform into law-and-order machines. General health improves. Civic pride blossoms. Corporations are reigned in by civic regulations. Conglomerates fund most UN-type activities.

Jerome Glenn and Theodore Gordon 1997 State of the Future (1997)

1. *Cybertopia*: “Free markets, technology and globalization generate unprecedented economic abundance. Individuals act like holding companies, investing their time in diverse activities, inventing careers, granting access to others as nations used to grant visas. A majority of human waking hours are spent in cyberspace.”
2. *A Mean World*: “Education and training could not keep up with technology, and joblessness became endemic the world over. Economies tottered, nations formed trading blocs, people turned to fundamentalist ideologies, and economic warfare gave way to lethal warfare. Nineteenth century geopolitics, twentieth century ideological passions, and twenty-first century technology.”
3. *The Aftermath*: “The globalized, high-tech economy collapsed in 2010 due to over-confidence, sheer greed, sabotage by a techno-criminal elite, and a weak global regulatory structure. Developing nations that had just begun to grow were reduced to subsistence. In the wealthier nations many reverted to rural, self-sufficient modes of production.”

BOX IB-10. FOUR SETS OF GEO-POLITICAL SCENARIOS

Samuel P. Huntington. The Clash of Civilizations (1996)

1. One Harmonious World
2. Two Worlds: Us and Them
3. 184 States, More or Less
4. Sheer Chaos
5. The Clash of Civilizations
 - a) peaceful coexistence; respect for civilizational boundaries; self-affirming, unified cultures
 - b) conflict; universalist and imperialist pretensions; internal stresses due to multiculturalism

Robert Z. Lawrence et al. A Vision for the World Economy (1996)

1. *Invisible Hand*: the market suffices
2. *Global Fragmentation*: the market does not suffice, and nations pull up the drawbridges to survive
3. *Imperial Harmony*: a hegemonic Triad of the US/Europe/Japan agrees on rules for the global economy
4. *Community of Nations*: gradual evolution of multilateral structures for coordination and accountability

Ann-Marie Slaughter. “The Real New World Order” (1997)

1. *Liberal Internationalism*: straight translation of structures of representative governance from national to international levels, and eventually to some type of world federalism.
2. *The New Medievalism*: hollowing-out of the nation state as its functions, sovereignty and authority are replaced by a patchwork of overlapping private, quasi-private, national, supranational and transnational formal and informal structures.
3. *Transgovernmentalism*: informal but structured cooperation among bureaucrats, technicians and officials of different countries allows necessary coordination in an interdependent world but maintains accountability through the nation-state.

Hugh de Santis. Beyond Progress (1996)

1. *communitarian socialism*: “the self-contained cosmopolitan order of premodern times”
2. *perpetual anarchy/new Dark Age*
3. *ordered chaos*: Huntington’s clash of civilizations
4. *perpetual peace and harmony*:
 - a. Fukuyama: via liberal democratic techno-capitalism
 - b. norm-based transnationalists:
 - i. Richard Falk: supranational state, complete with parliament, judiciary, police powers.
 - ii. Ervin Laszlo: “resolution of common problems will foster a self-regulating order of peace and international harmony”
 - iii. Rajni Kothari: third world unity as prerequisite for world federalism.
 - iv. Peace-Studies types:
 - a. Johan Galtung: international communitarianism
 - b. Richard Smoke: similar to Laszlo.
 - c. Harry Hollins
5. *mutualism*: “a community of interests in which diverse peoples and states bounded by geographical, historical and cultural affinities productively commingle in localized social, political and economic associations reinforced by the acceptance of shared risks and rewards.”

BOX IB-11. FOUR SETS OF ECONOMIC SCENARIOS

Robert Heilbroner. 21st Century Capitalism (1993) Five scenarios grounded in economic theory, named after their founding analysts.

1. *Adam Smith*: “a world of economic growth, resource restraints, economic decline from a growing population and shrinking resources.”
2. *Karl Marx*: “a world of growth with periods of economic crisis and restructuring, with labor ultimately gaining control of the economy.”
3. *John M. Keynes*: “a world of market driven societies creating lasting underemployment and the need for social investment.”
4. *Joseph Schumpeter*: “capitalism grows through creative destruction but will decline from moral decay.”
5. *Robert Heilbroner*: “capitalism can grow with right social investment, if it overcomes tax phobia and reduces the deficit” A “slightly imaginary Sweden.”

John Roemer. A Future for Socialism (1994) Four feasible market socialisms.

1. An economy of *revenue-maximizing labor-managed firms*.
2. “*Keiretsu*” *socialism*: groups of profit-maximizing firms ally with a single large bank and hold shares of each others’ stock. Dividends from other firms are distributed to workers.
3. *capitalism without class power* (Fred Block): restrictions on large capital movements across borders; quasi-nationalized banking system; employee/consumer representation on boards.
4. *associative socialism* (Joel Rogers): representative constituency groups (consumer, neighborhood, environmental, union, etc.) have bargaining and quasi-veto rights regarding corporate decisions.

S.P. Udayakumar. The Futures of the Poor (1995)

1. *Hand-outs but no Help-outs*: “donors lack political will or sense of justice to remedy the situation permanently.”
2. *Waiting for Godot*: “the poor long for consumerism and comfort; the fittest survive, the rest perish.”
3. *Preach the Gospel to the Poor*: “the rich reinvigorate their patronizing policies; states become economies, societies become markets and the poor become more miserable.”
4. *Viva Zapata*: “rebels with nothing to lose demand justice” (but gains are few and temporary).
5. *View from the Mountain Top*: “the rich embrace a simple and less selfish lifestyle” (but subtly retain their class prerogatives).
6. *To Be or Not To Be*: “the poor renounce modernity, recognize their cultural roots, and return to former ways of life, with traditional technology.”
7. *One Species, One Destiny*: “both the rich and poor realize that the well-being of the poor demands cooperation of the rich, and the safety of the rich relies on justice for the poor.”

Fredrick Pryor. Economic Evolution and Structure (1996) Scenarios of alternative capitalisms.

Business as usual:

1. *Steady maintenance*
2. *Stagnation*

Scenarios of change in the organization and control of production:

3. *Remodeled Capitalism*: very highly skilled workers are the source of economic dynamism.
4. *Atomistic Capitalism*: most economic dynamism is provided by smaller, entrepreneurial corporations.
5. *Third Party Capitalism*: institutions, rather than individuals, effectively control most capital
 - i) *Finance Capitalism*: Financial intermediaries take over and control corporate policy.
 - ii) *Corporatism*: management, government and labor set policy for individual corporations.
 - iii) *Nonprofit Dominance*: economic dynamism relies on human capital, i.e., on services provided by non-profit education, health, and welfare institutions.

BOX IB-12. FOUR SETS OF SOCIO-CULTURAL SCENARIOS

Benjamin Barber. Jihad vs McWorld (1996)

1. *Jihad*: people find strength and community through intense adherence to the values, norms and life-styles of a particular region, ethnicity, or religion. Outsiders are seen as infidels.
2. *McWorld*: People the world over share a common set of modern, technological, and consumerist values, norms and life-styles. Others are seen as backward.
3. *Both Jihad and McWorld*: an elite trans-national caste lives in McWorld; the rest live in Jihad.
4. *Civil Society*: Global norms of mutual respect allow both modernist and traditional values to co-exist and support one another.

Eleonora Masin (UNESCO). The Future of Cultures (1994)

1. *Pessimistic*: “All cultures becomes bastardized, or reduced to a museum role.”
2. *Dual-track Scenario*: “Core elements of cultures remain strong” while societies modernize.
3. *Resistance*: “The many cultures fend off the dominant one.”
4. *The Gaia Scenario*: “all cultures recognize that no culture is complete in itself”
5. *Babel*: “fostered by communications and biotechnologies, people will move among cultures.”

Walter Truitt Anderson. Reality Isn't What It Used To Be (1990) Seven stories for the future.

1. *The Western story*: steady progress through technology and economic growth.
2. *The Marxist story*: an egalitarian world in which workers control the means of production.
3. *The Christian fundamentalist story*: a society governed by biblical belief and faith in God's love.
4. *The Islamic fundamentalist story*: a society governed by Koranic belief and faith in God's wisdom.
5. *The Green story*: a society grounded in ecological values and a rejection of industrialism.
6. *The New Paradigm story*: a sudden, deep, holistic transformation of human values & ways of living.
7. *The Post-Modern story*: a recognition that stories that justify human endeavor are social constructs; none are objectively privileged over any of the others.

Pamela McCorduck and Nancy Ramsey. The Futures of Women: Scenarios for the 21st Century, (1996). four scenarios to 2015.

1. *Backlash*: In a depressed, no-growth global economy discrimination against women increases, in both developed and developing countries. The religious right champions back-to-the-home.
2. *Golden Age of Equality*: “Western notions of individual rights, rule of law and personal privacy take hold and prevail in a globally integrated growth economy. A profound shift in consciousness permits both women and men to begin to think of women as different from, but not less than, men. The search for equality in the workplace brings about a new balance between family and work.”
3. *Two Steps Forward, Two Steps Back*: “Western notions of individual rights prevail but the world economy is depressed, with huge international migrations as people search for jobs and food. Basic needs of the world's women, including nutrition, child spacing, protection from domestic violence, and workplace safety, are hard-pressed to be addressed.
4. *Separate—and Doing Fine, Thanks*: The global economy booms but in order to maintain stability the developing world adopts the Singapore model and imposes authoritarian social controls, including controls on women's work opportunities and on personal and public behavior. In the West the continuing boom allows affirmative action, training and placement programs to be implemented without resistance.

BOX IB-13. TEN SETS OF REGIONAL AND NATIONAL SCENARIOS

Sohail Inayatullah. The Futures of South Asia [summary] (1992)

1. *continued chaos and collapse*: ethnic violence and breakup into small nations
2. *hegemony* by one or more of the following:
 - a. India
 - b. market industrialism
 - c. bureaucracy-led governance
3. *return to communitarian life*: spiritual values, local knowledge, enviro [basic needs approach]
4. *transformation/rupture*:
 - a. new South Asia confederation of autonomous provinces
 - b. new identity
 - c. new theory of growth/distribution
 - d. new theory of knowledge/science
5. *nuclear war scenario*
6. *village high-tech*: by-passing modernity via computers, genetic engineering, etc.

Sohail Inayatullah. The Futures of South Asia (1992) Five scenarios for Pakistan:

1. *Disciplined capitalist society*: “military and strong centrist civil service create conditions for development of a national bourgeois”
2. *Islamic Socialism*: “basic needs met through state control of economy, but cultural and religious needs remain syncretist and personal”
3. *Return of the Ideal*: “return to original intention of Pakistan as the land of the pure and the search for the ideal Islamic polity that existed at the time of the Prophet.”
4. *End of Sovereignty*: “military intervention by India, cultural intervention by USA, breakdown into many states.”
5. *No Change*: “continuation of the grand disillusionment, grand malaise.”

Hans van Zon. Alternative Scenarios for Eastern Europe (1992)

1. *Laissez-Faire/Capitalist Path*: “driving force is the wish to create favorable conditions for free enterprise.”
2. *Populist-Authoritarian Path*: “a weak nationalist bourgeois supported by the army pushes market institutions but keeps them protected from the world economy.”
3. *Leaning-Upon-The-West*: “weak governments follow the lead of the EC, IMF, other western institutions.”
4. *Sustainable Development*: “environmental clean up gets high priority, serves to build national solidarity.”
5. *Muddling On*: “market and political reforms are half-hearted; old bureaucracies remain powerful.”

Godwin Sogolo. AFRICA: Three Scenarios (1992)

1. *Giving Up*: poverty, war, ethnic struggle continue, and Africans just give up.
2. *Retracing the past*: traditional precolonial institutions are revived, particularly the extended family.
3. *Continuity with Change*: technology is grafted on to local culture. “Core traditional cultures continue but Africa adapts to external cultures. Both traditional and modern medicine coexist.”

[More...]

BOX IB-13. Regional/National Scenarios (cont.)

Herbert Adam and Kogila Moodley. Forecasting Scenarios for South Africa (1993)

1. *Another Zimbabwe*: “authoritarian populism, high corruption, pseudo-patronage system where white minority retains economic privilege while a black bourgeois dominates the political scene.”
2. *Another Yugoslavia*: “black youths turn away from the liberal, compromising ANC, right-wing whites declare an independent Boerstaat, Natal secedes as Zulu nationalist state.”
3. *Another Germany*: “social-democratic pact between business, labor and key state bureaucracies; co-determination with a wage pact to increase exports; in return for increased education, health, and housing, the unions abandon antagonistic labor relations and class warfare.”

William C. Smith. Democracy, Markets, and Structural Reform in Latin America (1993)

1. *Organic Crisis Revisited*: “government failure, stagnant income base, threat of authoritarian regression.”
2. *Fragmented and Exclusionary Democracy with Neoliberal Economics*: “majoritarian political coalitions hold, debt renegotiated, state enterprises become private monopolies.”
3. *Inclusionary Democracy*: “democratic deepening, state reform, strengthening of collective actors, expansion of citizen rights, more equitable outcomes.”
4. *Dual Democratic Regimes*: “state elites establish alliance with a strategic minority of the opposition so as to exclude the majority of remaining social actors. Economy grows but very slowly.”

J. H. El-Issawy. The Future of the Arab Nation (1993)

1. *Division*: continuation of current trends
2. *Co-ordination and Cooperation*: regional groupings and agencies
3. *Unity*: one currency, one foreign policy, one army, one school system

Michael Lind. The Next American Nation (1995)

1. US evolves away from status as nation-state, becomes either:
 - a) multi-cultural state
 - b) democratic universalist state
2. US evolves to enhance its status as a nation-state, becomes either:
 - a) nativist state
 - b) liberal nationalist state

Hugh De Santis. Beyond Progress (1996) -- regional scenarios

East Asia: conflation of market economics and Confucian authoritarianism (China becomes like Singapore)

Middle East: democracy circumscribed by the laws of *sharia* and power of oligarchies and autocrats

Africa: collectivist, consensual rule of village elders rather than adversarial forms of government

Latin America: democracy will probably be a hybrid of liberalism and statism

Maggie Powell. WRI Hyperforum Scenarios (1997) - Five Scenarios of China to 2030

1. *Revolt of the Urban Masses*: “urban turmoil as growth rate slows
2. *The Famine Returns*: “turmoil as global warming changes rainfall patterns, agriculture collapses.”
3. *Loss of Control*: “continuing economic growth leads to loss of central control and ability to enforce one-child policy. Population explodes, civil war narrowly averted but growth stagnates”
4. *The Siberian Excursion*: “Military assumes control of China, invades Siberia, after a long struggle they retreat but economy is in shambles.”
5. *Solar China*: “China invests heavy in solar research following oil price hikes and global warming. Genetic engineering allows China to feed its population.”

ADDENDUM: BOX IB-14. GREAT TRANSITIONS INITIATIVE

In 1995 the Tellus Institute and Stockholm Environmental Institute began a global scenarios project that in 2002 proposed a set of six scenarios to inform discussion and research. In 2012 the Tellus Institute formed the Great Transitions Initiative to actively promote scenario III.B, the *New Sustainability Paradigm*. Recent short descriptions of the scenarios are shown below.

I. CONVENTIONAL WORLDS

A. MARKET FORCES – “[P]owerful global actors advance the priority of free markets and economic expansion, relying heavily on technological innovation to reconcile growth with ecological limits. The problem of resolving the social and environmental stress arising from global population and economic growth relies heavily on faith in the self-correcting logic of competitive markets.”

B. POLICY REFORM – “[G]overnments are able to forge comprehensive initiatives to align the economy with environmental and social goals. Incremental change is achieved; fundamental change is absent. The critical uncertainty is how, within a Conventional Worlds cultural and institutional framework, sufficient political will can emerge for such a coordinated and sustained global effort.”

II. BARBARIZATION

A. FORTRESS WORLD – “[A]s the systemic global crisis deepens, powerful international forces are able to impose order in the form of an authoritarian system of global apartheid with elites in protected enclaves and an impoverished majority outside.”

B. BREAKDOWN – “[T]he authoritarian forces of Fortress World are unable to counter spreading chaos as environmental and social crises spiral out of control, conflict spreads, and institutions disintegrate.”

III. GREAT TRANSITIONS

A. ECO-COMMUNALISM – “[I]ncorporates the green vision of bio-regionalism, localism, face-to-face democracy, small technology, and economic autarky. Although a strong current in some environmental and anarchist subcultures, the emergence of a patchwork of self-sustaining communities from our increasingly interdependent world seems implausible, except in recovery from collapse.”

B. NEW SUSTAINABILITY PARADIGM – “[T]he variant embraced by GTI, sees globalization not only as a threat but also an opportunity to construct a planetary civilization rather than rely on the incremental forms of Conventional Worlds or retreat into localism. It envisions the ascendance of new categories of consciousness – global citizenship, humanity-as-whole, the wider web of life, and the well-being of future generations – alongside democratic institutions of global governance.”

See the Tellus Institute website, www.tellus.org, for full descriptions and more.

BOX IB-15. CRITICAL CONCERNS AND TRENDS ADDRESSED IN THE 26 SETS OF SCENARIOS

I. Economic and Political Economic Concerns

- | | |
|--|---|
| 1. Economic growth continues steadily | Economic growth falters, could crash |
| 2. Global economic integration continues smoothly and is generally welcomed | Global economic integration generates conflict, and stalls |
| 3. The power of multinational corporations is satisfactorily regulated by institutions of global governance. | Multinationals accumulate immense powers and subvert attempts at regulation |
| 4. Inequalities of income and wealth are kept within socially acceptable bounds | Inequalities of income and wealth explode |
| 5. The poorest countries and the transition countries successfully integrate into the growing global political economy | The integration of poor and transition countries stalls and they are left behind. |

II. Concerns about Social Structure, Social Relations and Values

- | | |
|---|--|
| 1. Diverse social groups successfully cooperate in civil society | Diverse social groups see one another as adversaries |
| 2. The world becomes increasingly individual-centered and materialist | Communitarian and post-materialist values flourish |
| 3. The world becomes increasingly secular/scientific | The world becomes increasingly religious/spiritual |

III. Concerns about Technology

- | | |
|--|---|
| 1. Technological innovation continues steadily and fuels continued economic growth | Technological innovation stagnates |
| 2. The new technologies are generally safe and socially benign, and when necessary can be successfully regulated | The new technologies are dangerous and socially divisive, and resist regulation |

IV. Environmental Concerns

- | | |
|--|---|
| 1. Environmental problems are successfully addressed through technology, markets and public policies | Environmental problems explode beyond our ability to contain them |
|--|---|

PANELS 1B-1 through 1B-5 show nineteen scenario exercises prepared in 2000-2016. Dates of preparation are in parenthesis. If authors specify a period over which the scenarios apply, that's shown in or after the underlined exercise title. If not, the period of application can be intuited, or can be treated as indefinite.

PANEL 1B-1. SCENARIOS ADDRESSING GLOBAL ECONOMIC AND ECOLOGICAL CONCERNS

A. Millennium Ecosystem Assessment (2005) - Four Scenarios, 2000-2100

1. **Global Orchestration:** Global markets dominate, with supranational institutions in place to manage them. They can respond to ecological crises, but rarely take precautionary action, esp. if this affects economic growth.
2. **Order from Strength:** The world fragments into regional and hostile trade/political/militarized blocs. Some prosper, some don't. There is a constant quest for resources to fuel growth. Ecosystem management is minimal.
3. **Adapting Mosaic:** People lose faith in global institutions & the world devolves into small political units. People turn to local ecosystem management. New bottom-up networks emerge to address global commons problems.
4. **TechnoGarden:** A wired, free-market, high-tech world. Many problems (e.g. pollution, energy) are solved but others (e.g. biodiversity, nano-terrorism) get worse. Ecosystem services are enhanced technologically.

B. Forum on the Future/Sony UK (2008) - FutureScapes of 2025

1. **Hyper-Innovation:** Rapid tech innovation has delivered a near zero-carbon world. Energy is harvested ambiently. "Green" practices have been incentivized. Lifestyles and business practices have been only minimally affected.
2. **Shared Ownership:** A global climate treaty puts a price on carbon & motivates change to a shared/leased user economy, for transport, housing, services, health, etc. A global Smart Grid allows fair and efficient energy use.
3. **Centralized Survival:** Climate shocks compel action on a wartime mobilization scale, including both mandated technology adoption and reductions in living standards. Some turn to survivalism, but most cooperate to build resilient adaptive communities.
4. **Prosperity Redefined:** New post-Recession values of 'wellbeing' replace old consumerist values. People cut back on paid work hours to spend time with families & community. They use bikes, trains and boats; air travel is rare.

C. World Business Council for Sustainable Development (2000) - Global Scenarios to 2050

1. **FROG!** - Many nations succeed economically but environment gets second billing. Developing nations tell the affluent: **First Raise Our Growth!** Some developing nations become middle class quickly, surpass stagnant developed nations. So: recriminations, no global action, global warming jumps, inequality grows, tensions rise.
2. **GEOpolity** – Enviro and economic justice crises are mounting. Developing countries appeal to global institutions & multinationals, with no success. So they turn to NGOs and (socialist) technocrats, who impose strict enviro and economic controls. Many economies suffer, but most people feel their lives have stabilized.
3. **Jazz** - Ad hoc global & local alliances solve social & enviro problems. Much voluntary inter-connection. Social media allows NGOs & consumers to hold firms accountable. People trust each other, and the markets as well. Corporations see the advantage of being pro-actively Green, and work in partnership with NGOs.

D. RadioFreeEurope (2014) – The World After Crimea; Scenarios of the New World Order

1. **Multi-polar world:** U.S. continues to insist on strong sanctions against Russia. Europe & Russia secretly work out their own long-range deal. Resulting alliances: EuroRussia (“Lisbon to Vladivostok”), U.S., China; plus, eventually, Bolivarian Republic, Islamic caliphate. Crimea becomes a pan-European health resort + IT center.
2. **Bi-Polar World:** EU backs US tough sanctions on Russia. In response, China backs Russia. They form a neo-socialist, state capitalist, soft authoritarian “Eurasian Union” to counter the decadent West, and welcome Islamic, African, Latin American allies. US and China are the major players, EU and Russia the respective junior partners.
3. **Unipolar World: Pax Americana.** US pressures both EU and China to back ultimatum to Russia to give up Crimea. Russia eventually backs down, accepts crumbs to survive. Ukraine joins NATO. Core US clientele: the global “Golden Billion” top 10%. Opposition from NGOs and terrorists. US remains the global policeman.
4. **Besieged Fortresses:** Russia is sanctioned by US & China (most of whose trade is with US & EU). Russia is isolated, but US & China can’t agree on how to run the world. No Center, the Periphery drifts. Some countries become hyper-authoritarian, others hyper-libertarian. A geopolitical cyber-punk world.
5. **World without Leaders:** US & EU protest Crimea grab but don’t do much. Ukraine settles on Russian terms. This sets a precedent for e.g., China re Taiwan, others. “Historic rights” now trump “inviolability of borders.” More propensity for conflict, more economic instability, more dictators, crisis of democracy. Anything can happen.

E. Peter Frase (2011) - Four Futures

1. **Communism:** Egalitarianism + Abundance. Mass automation, equitably owned, makes labor optional.
2. **Rentism:** Hierarchy + Abundance. Elites own & profit from capital; everyone else works.
3. **Socialism:** Egalitarianism + Scarcity. All need to work, but we share costs & benefits equitably.
4. **Exterminism:** Hierarchy + Scarcity. Elites own & profit from capital; everyone else starves.

F. World Economic Forum (2015) - Four Scenarios for the Future of Civil Society, 2020-2030

1. **Mad Max:** A world of international and national conflict, where governments exert strong security controls on both business and society. Levels of funding for societal and development challenges are limited.
2. **Transparently Blurred:** Economic growth is relatively high over the period 2020-2030 and the government and private sector are both deeply engaged in tackling societal challenges. Access to data, technology and rigorous monitoring are the hallmarks of a revolution in both economic activity and social development.
3. **Turbulence and Trust Deficits:** A chaotic world in which trust is a scarce commodity. Yet, thanks to the possibilities created by the rise of the networked society, there is a significant latent desire for social engagement by citizens, particularly at the local level.
4. **Privatized World:** Many governments are seen to have failed, inequality is extreme, and corporations play the most important role in society as the main providers of social services.

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PANEL IB-2. SCENARIOS ADDRESSING CONCERNS OF PARTICULAR COUNTRIES OR COUNTRY GROUPS

A. BRICS Media Institute (2015) – Imagine BRICS (Brazil/Russia/India/China/So. Africa); Four Scenarios to 2030

1. **Club:** BRICS continued to hold useful global conferences, but further economic or political integration was a non-starter. Each country developed more serious relations with members of the G7 or with their regional neighbors. New “Clubs” emerged: MINT, CIVETS, the Turkic Council. The 2030 BRICS Summit was its last.
2. **Alliance:** The West ignored calls for reform of key global institutions, so BRICS took the initiative. It’s 2020 security treaty pledged cooperation on key political & defense matters. Argentina joined in 2025, followed by Turkey (which withdrew from NATO), Vietnam, Iran & Indonesia. It now holds regular joint military exercises.
3. **Union:** BRICS’ 2020 Economic Union now has its own Development Bank, Monetary Fund and Merchant Fleet Directorate, and is planning a common currency. It has pioneered an approach to innovation and development that utilizes each members’ unique strengths, and emphasizes technology for the “bottom of the pyramid.”
4. **Corporation:** BRICS integrated both politically *and* economically, and became the engine that solved the problems of the developing world. Many successes, e.g. The “African Crossroads,” a huge transport/infotech project; Latin America now the global hub of biotechnology; BRICS is a model for governance & transparency.

B. Long Term Strategy Group (2007) - The Future of Europe and Its Muslims – 4 Scenarios

1. **Euro-Islam:** The EU project to transcend historic divisions succeeds. Europe’s Muslims develop a distinctive variant of their religion, relegating Islam to a personal, private moral code while adopting European languages, dress, career ambitions, lifestyle choices, etc. State programs actively promote integration and assimilation.
2. **Eurabia:** Europe’s Muslims are emboldened by their youthfulness, rapidly growing numbers, and vibrant religious & cultural identity, while their host societies are exhausted, insecure and demoralized. Europe eventually becomes an extension of the Near East/North Africa, with residual enclaves of pre-Islamic Europeans.
3. **Fortress Europe:** Impatient with Muslims' refusal to assimilate, and stunned by mounting jihadist terror, Europeans renounce liberalism and politics becomes a contest between soft xenophobias (isolation, draconian police controls), and hard ones (mass expulsions, vigilantism). Enraged Muslims worldwide vow revenge.
4. **Green Ghetto:** Today’s status quo continues & solidifies. Muslims live in defined geographic precincts. A small Muslim elite achieves nominal integration/assimilation. Social media, the web & cheap air travel allow Muslims to retain home country identities. Schools, doctors, etc. available in Muslim districts slowly decline.

C. Sohail Inayatullah (2000) - Alternative Scenarios for the Islamic Ummah

1. **The Ummah as Interpretive Community:** The Ummah reinterprets the Islamic past and engages the modern world. A critical and open traditionalism, with focus on e.g., equity, justice, sustainability.
2. **The Future Without a Name:** Islam cannibalizes itself through sectarianism and battles of revenge. Exploitation by the rest of the world. “We sit in our fragmented tents.”
3. **Islam as the Difference:** The decadent West is in decline and Islam is the Attractor that creates the next century.

Panel IB-2 (cont.)

D. Russia Direct (2016) - Three Scenarios for Russian Military Action

1. **Ukraine Blitzkrieg:** Russia is resolving the Donbas and Minsky situations, but the EU is still imposing sanctions and NATO is strengthening its Baltic forces. Russia launches a rapid operation to create a land bridge to Crimea, secure east & south Ukraine, and support unrecognized republics of Eastern Ukraine. Great success for Putin!
2. **New Arms Race with the West:** Russia strengthens its army and builds military force on the borders of Europe, challenging NATO to respond. Eastern European countries are forced to increase military expenditures, which creates domestic hardship and conflict, and erodes their resolve. Great success for Putin!
3. **Export Security Crises Abroad:** Russia's successful intervention in Syria was domestically popular and built global respect. Russia decides to increase its strategic role in other crisis areas worldwide. In some of these it complements the West, in others it's independent of, but not directly *against*, the West. Great success for Putin!

E. American Enterprise Institute (2012) - Three Political Scenarios for China

1. **Optimistic:** China gets wealthier & less authoritarian. The one-party system remains, but with greater personal & economic freedom, less CCP control of media, capital flows, interior migrations. Liberalized trade & finance policies, monetary policy that accommodates domestic demand, and full participation in the international system.
2. **Somewhat Pessimistic:** China gets wealthier but stays authoritarian, & challenges U.S. economic and security spheres. Little change in political or intellectual climate. Aggressive posture re South China Sea, Taiwan, & the "first island chain." Growth slows because of failure to liberalize, and China is stuck in a "middle income trap."
3. **Very Pessimistic:** China's economy derails, leading to domestic crisis and global economic instability. The Party is challenged, and in response cracks down and launches foreign adventures as distractions. Economy is deeply impacted by inflation, population aging, and imbalance of men and women.

F. Dick Swart (2011) – Africa's Technology Futures: Three Scenarios

1. **Use, Don't Own:** Lack of security, poor governance, poor continental relations and weak borders make it difficult for responsible countries to pursue market development and a technological future. African countries use whatever technology other countries will provide.
2. **Pockets of Innovation:** Several regions succeed in stabilizing their political economies, allowing technological innovation to get underway. A few technology performers emerge in those regions and can compete as niche players in world markets. But they must guard against "contagion" from lackluster neighbors.
3. **Leapfrogging:** Africa's unique needs and young population create an opportunity for technology to help bring Africa out of poverty. A culture of stability, market development and innovation spreads from the initial stable "pockets" to neighboring countries.

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PANEL IB-3. SCENARIOS ADDRESSING CONCERNS ABOUT FUTURE TECHNOLOGIES

A. George Dvorsky (2012) - Seven Best-Case Scenarios for the Future of Humanity

1. *Status Quo*: Given everything that's going wrong in the world, just *surviving* would be a positive scenario.
2. *A Bright Green Earth*: Technogaianism gives us a clean, green, diverse, sustainable, completely artificial world.
3. *Watched Over by Machines of Loving Grace*: We are controlled by A.I. programmed to serve and never harm us.
4. *To Boldly Go...*: We colonize the solar system, then the Galaxy and then the entire Universe.
5. *Inner Space, Not Outer*: We upload ourselves into massive supercomputers and live infinitely enriched lives.
6. *Eternal Bliss*: Drugs and neurotechnology let us experience the maximum pleasure possible, continuously.
7. *Cosmological Transcension*: A placeholder for future states that we can't imagine but would desire if we could.

B. Joel Garreau (2013) - Four Scenarios for Our Lifespans

1. *Small Change*: New medicines, drugs, procedures have little effect on typical max lifespan, which stays at ~ 85.
2. *Lifespan Yes, Healthspan No*: New medicines, drugs, procedures increase *lifespans* to 120-130, but most remain feeble, confused, bed-ridden and in pain after ~ 85. Costs of care for this extra 40 years are enormous.
3. *Live Long & Prosper*: New medicines, drugs, procedures, including nano-medicine, give us long, healthy, active lives. We die quickly and peacefully at 150. High-tech medical innovation brings costs down enormously.
4. *Immortality*: All alive today will probably die, but children born 20 or 30 years from now might be genetically engineered to short-circuit the aging process itself. After that, mortality is accidental. Fasten your seatbelts.

C. Richard Hayes (2007) - Our Biopolitical Future

1. *Transhuman Libertarianism Triumphs*: Individualist & free-market values combine with gene technologies to create the post-human future. Global biotech firms market "designer babies." Coming soon: human sub-species.
2. *One Family, One Future*: Growing repugnance over the dehumanizing impacts of genetic & other technologies and the pervasive tawdriness of the post-modern world help fuel neo-traditionalist movements worldwide.
3. *Techno-Eugenic Arms Race*: Biotechnology is used to make massively lethal bioweapons targeted by age, sex and skin-cell melanin concentration. A doomsday cult develops a nano-viroid that could destroy all life on Earth.
4. *For the Common Good*: Leading scientists, religious leaders & NGOs, working through the UN, agree on a global treaty that supports beneficial genetic technologies while banning those that endanger human wellbeing.

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Panel IB-4. SCENARIOS ADDRESSING SOCIAL AND CULTURAL CONCERNS

A. LifeLongFaith Associates (2010) - Faith Formation 2020 Scenarios.

1. **Vibrant Faith and Active Engagement:** People of all ages and generations are actively engaged in a Christian church, are spiritually committed, and are growing in their faith.
2. **Spiritual but Not Religious:** People are spiritually hungry and searching for God and the spiritual life, but are not affiliated with organized religion and an established Christian tradition.
3. **Unaffiliated and Uninterested:** People experience little need for God and the spiritual life and are not affiliated with organized religion and established Christian churches.
4. **Participating but Uncommitted:** People attend church activities, and may participate in key seasonal and milestone celebrations, but are not actively engaged in their church community or spiritually committed.

B. Jorge Ferrer, CIIS (2012) - Participatory Visions of the Future of Religion: Four Scenarios

1. **A Global Religion:** One religion prevails; it might be an extant major global religion, or it could be a current smaller religion (e.g., Baha'i, Wilbur's neo-perennialism, Mormonism).
2. **Mutual Transformation of Religions:** Traditions keep their identity, but are enriched & transformed through incorporation of one another's beliefs and practices, con-celebration, etc.
3. **Interspiritual Wisdom:** Traditions keep their identity but work to affirm and promulgate a common set of values or principles that articulates the deep understandings at the heart of all religion.
4. **Spirituality without Religion:** One or more practices that identify as "spiritual" but that do not affirm a transcendent or non-dual order grow and flourish, esp. among the "nones," and transform modern life.

C. Hassi & Stori (2012) – Globalization and Culture; The Three H Scenarios

1. **Heterogenization:** Globalization generates a network structure in which nodes tend to connect with each other in regard to certain cultural dimensions. The practices of a sphere of life become either more diverse or more distinct. Cultures remain different from one another over time, or even become more so.
2. **Homogenization:** International exchanges of goods, services, capital, technology and people are creating a more standardized world culture. Acculturation and socialization are generating a universal culture. This culture heavily incorporates the Western Euro-American model of social organization and lifestyle.
3. **Hybridization:** Both heterogenizing and homogenizing processes are at work, in different locales, to different degrees. This process sometimes produces true hybrids in which a mix of organizational and lifestyle elements are adopted and retain their original form, but which, when used concurrently, produce a true new hybrid.

PANEL IB-5. SCENARIOS ADDRESSING THE FUTURE OF INDIGENOUS COMMUNITIES

Scenarios from Cultural Survival (2009)

<http://www.fao.org/docrep/014/am618e/am618e00.pdf>

1. Increased marginalization and loss of cultural communities: Resource exploitation for national economic growth continues without efforts to meet local cultural & economic needs. Local community members must either become part of the exploited and exploiting labor force or become landless poor. Area violence is common. There is little chance of indigenous community continuity once resource extraction is completed.

2. Outmigration to urban poverty and loss of cultural roots: Migration to urban (or alien rural) locales, with competing pressures to assimilate or maintain cultural cohesion. Typically, some of both are tried but unsuccessfully. Migrants join the urban melting pot at the very bottom of the economic & social system; meanwhile, previously vital cultural traditions are reduced to craft, dress, music or holiday remnants.

3. Active conflict with the development agenda and with government: National government proclaims that development is of such high priority that it is acceptable if some must suffer for a time so that all might benefit later. Indigenous communities with some economic and social strength may be able to bargain, agreeing to cooperate now in return for later advantage. However, communities unable to bargain suffer.

4. Successful self-governance, but weakened by market forces and ineffectual national government: Declining revenue from forestry sector to the national economy makes alternative plans for development essential. Successful local governance and strong cultural identity can buy time, but without an effective national economic strategy, ten years can pass and many local communities will see little real benefit.

5. Success in developing self-governance, supported by effective national government and private sector commitment: The rights of indigenous communities are recognized and protected. With this support a path of development specific to the social, economic and cultural setting is agreed upon. It includes safeguarding the dignity and identity of the local community, and allows interaction with the outside world.

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