



## Book Reviews

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**State of the World 2013: Is Sustainability Still Possible?** Worldwatch Institute (Erik As-sadourian and Tom Prugh, Project Directors).

*Washington: Island Press, April 2013, 441p, \$22 pb. ([www.sustainabilitypossible.org](http://www.sustainabilitypossible.org))*

**State of the World** is an annual publication begun in 1984 by Lester W. Brown, founder of Worldwatch Institute and now heading the Earth Policy Institute. **SOTW 2012: Moving Toward Sustainable Prosperity** (Island Press, 2012, 241p; GFB Book of the Month, April 2012) provided 17 chapters by Worldwatch staff members and invited experts on such topics as making the Green Economy work for everyone, nine strategies to stop world population growth short of nine billion (universal access to contraceptives, education through secondary school for all, age-appropriate sex education, etc.), “degrowth” in overdeveloped countries, sustainable transport and urban development, a new global architecture for governing sustainability (on enhancing or transforming UNEP), food security, action to protect biodiversity, sustainable buildings, etc.

Four years earlier, **SOTW 2008: Innovations for a Sustainable Economy** (W. W. Norton, January 2008) offered essays on necessary conceptual reform in economics in seven areas: the Genuine Progress Indicator as replacement for the GDP measure, building a low-carbon economy, improving carbon markets, pricing water and ecosystem services, investing for sustainability, and new approaches to trade governance.

Without any reference to earlier volumes, **SOTW 2013** presents 34 essays in 441 pages—nearly twice as long as **SOTW 2012**! Bigger is not necessarily better, but this current volume amply demonstrates that there is much more to be said about the leaderless global sustainability project, and many ways to say it.

### 1. Engelman’s Introduction

*Beyond Sustainable*, the initial introductory overview by Robert Engelman (President of the Worldwatch Institute), complains that “we live today in an age of *sustainable*, a cacophonous profusion of uses of the word *sustainable* to mean anything.” (p.3) Through increasingly frequent vernacular use, the word has become a synonym for equally vague and unquantifiable adjective *green*, as in *green growth* or *green jobs*. More typically, use of the word lends itself to superficial corporate behavior often called *green-washing*. Phrases like sustainable design, sustainable sources, sustainable cars, and even a sustainable Olympics (UK, 2012) are common. But frequent and inappropriate use lulls us into dreamy belief that all of us are now able to go on forever, which is hardly the case.

“Simply doing ‘better’ environmentally will not stop the unraveling of ecological relationships we depend on for food and health.” (p.5) It will not stabilize the atmosphere, slow the falling of aquifers or the rising of oceans, or return Arctic ice. “In order to alter these trends, vastly larger changes are needed than we have seen so far. It is essential that we take stock, soberly and in scientifically measurable ways, of where we are headed.” (p.5)

The 34 essays are arranged in three sections: **1) The Sustainability Metric**, on what a rigorous definition of sustainability would entail (rather than reforming the global economy to “grow green,” we will be better served by thinking about biophysical boundaries and how to keep within them, while ensuring that all humans have access to the basics of a decent life); **2) Getting to True Sustainability**, on the gaps that remain between present realities and a truly sustainable future, and how to spur a sufficiently rapid transition; and **3) Open in Case of Emergency**, on responses to coming troubles and building resilience, “in view of humanity’s failures of foresight and political will to address the array of sustainability problems ahead.” (p.253)

## 2. The Sustainability Metric

The initial chapter, *Respecting Planetary Boundaries and Reconnecting to the Biosphere* by Carl Folke (Director of Beijer Institute of Ecological Economics, Royal Swedish Academy of Sciences, and of the Stockholm Resilience Centre) describes the Anthropocene as a new geological era in which human actions are a powerful force shaping the biosphere, and a manifestation of the great acceleration of human activity, notably since the 1950s. He summarizes nine planetary boundaries for critical biophysical processes, indicating the proposed boundary, current status, and pre-industrial value: 1) climate change (boundary of atmospheric CO<sub>2</sub> concentration at 350 ppm; current status is >400; pre-industrial value 280; 2) rate of biodiversity loss (boundary of 10 species per million extinct per year; current status >100; pre-industrial value 0.1-1; 3) nitrogen cycle, or amount of N<sub>2</sub> removed from the atmosphere for human use (boundary is 35 million tons/year; current status 121 million tons); 4) phosphorus cycle, or quantity of P flowing into the oceans per year (boundary is 11 million tons; current status is 8.5-9.5 million tons); 5) stratospheric ozone depletion (boundary of 276 Dobson units; current status is 283; pre-industrial value 290); 6) ocean acidification, or mean saturation state of aragonite in surface seawater (boundary of 2.75; current status of 2.90; pre-industrial value of 3.44); 7) global freshwater use, or consumption by humans in km<sup>3</sup> per year (proposed boundary of 4,000; current status of 2,600; pre-industrial value of 415); 8) change in land use, or percent of global land cover converted to cropland (proposed boundary of 15%; current status of 11.7%); 9) atmospheric aerosol loading and chemical pollution (measures to be determined).

“Transgressing one or more planetary boundaries may have serious consequences for human well-being, due to the risk of crossing thresholds that can trigger non-linear, abrupt environmental change within continental- to planetary-scale systems.” (p.26)

[ALSO SEE **Bankrupting Nature: Denying Our Planetary Boundaries. A Report to the Club of Rome** by Anders Wijkman of the Stockholm Environmental Institute and Johan Rockstrom of the Stockholm Resilience Centre (Earthscan/Routledge, Nov 2012, 206p; GFB Book of the Month, January 2013), based on two scientific papers published in 2009

by Rockstrom and 28 others. *The Devolution of the Seas: The Consequences of Oceanic Destruction* by Alan B. Sielen of the Scripps Institution of Oceanography (*Foreign Affairs*, Nov-Dec 2013, 124-132), does not refer to “planetary boundaries,” but introduces an even more striking concept, arguing forcefully that “over the last several decades, human activities have so altered the basic chemistry of the seas that they are now experiencing *evolution in reverse*: a return to the barren primeval waters of hundreds of millions of years ago... (when) worms, jellyfish, and toxic fireweed ruled the deep.” (p.124; GFB emphasis)]

*Defining a Safe and Just Space for Humanity* by Kate Raworth (Environmental Change Institute, Oxford University) observes that airplane cockpits are equipped with an array of dials and indicators, but economic policymakers have nothing close to that for charting the course of the economy; excessive attention to GNP is like trying to fly a plane by its altimeter alone. Building on the concept of planetary boundaries, quantifying social boundaries make plain humanity’s extraordinary situation. Metrics for a “new economic dashboard” beyond GDP are discussed, with illustrative indicators of global deprivation, e.g. 13% of world population undernourished, 39% without access to improved sanitation, 30% without regular access to essential medicines, 19% lacking access to electricity, etc.

Other essays in this section discuss *Getting to One-Planet Living* (discussing humanity’s ecological footprint and resulting overshoot by 50%, and fair earth-share); *Sustaining Freshwater and Its Dependents* (current desalination plants worldwide only have the capacity to produce <0.5% of global water demand); *Sustainable Fisheries and Seas: Preventing Ecological Collapse* (on the need for international collaboration, sustainable aquaculture to diminish pressure on wild fisheries, tradable by-catch credits, etc.); *Energy as Master Resource* (on net energy analysis and energy return on energy invested or EROI); *Renewable Energy’s Natural Resource Impacts* (concluding that sustainable renewable-energy planning should be integrated, local, and global); and *Conserving Nonrenewable Resources* (noting that market scarcity could increasingly become the norm, leading to rising prices, ore grade declines, and greater environmental impacts, and pointing to ways to promote a “circular economy.”)

### 3. Getting to True Sustainability

*Re-engineering Cultures to Create a Sustainable Civilization* by co-editor Erik Assa-dourian notes that consumerism is “becoming the dominant paradigm across most cultures,” but it is not viable and must be changed to cultures of sustainability—a difficult task that is resisted by myriad interests that have a huge stake in global consumer culture; cites first attempts to pioneer cultures of sustainability such as new social enterprises, businesses getting certified as “B” or “benefit” corporations, promoting Earth’s rights as well as human rights, hundreds of ecovillages and Transition Towns, greening school curricula, and religions promoting sustainable stewardship of Creation.

*Building a Sustainable and Desirable Economy-in-Society-in-Nature* by Robert Costanza, Gar Alperovitz, Herman Daly, and six others compares the current laissez-faire economic model as measured by GDP, the Green Economy Model with GDP growth decoupled from carbon, and the Ecological Economics Model that focuses on sustainable human well-being and uses the Genuine Progress Indicator or other improved measures of real wel-

fare. The new economic paradigm would respect ecological limits, protect capabilities for flourishing, build a sustainable macroeconomy that offers meaningful employment to all, promote broad participation in a strong democracy, use taxes as an effective tool for internalizing negative externalities and for improving income distribution (green taxes are also a form of rent capture, charging for the private use of resources created by nature), and use the LowGrow model (calibrated to the Canadian economy) for high employment, low carbon emissions, and a high quality of life.

***Pathways to Sustainability: Building Political Strategies*** by Melissa Leach of the University of Sussex Institute of Development Studies argues that “sustainability is not primarily a technical challenge; it is fundamentally a matter of politics.” Four practical ways forward are offered: 1) deliberating goals by encouraging voice to alternative perspectives; 2) mobilizing citizens and linking up with similar movements worldwide; 3) building networks of multiple actors and institutions; 4) exploiting openings in deeply entrenched structures and regimes, thus providing political windows for new ideas and network positions. A diversity of strategies and styles will be needed, adapted to various issues and settings.

Other essays in this section consider ***Transforming the Corporation into a Driver of Sustainability*** (on reforming taxes and subsidies, introducing rules to govern financial leverage, introducing norms and standards for more responsible advertising, and measuring all major corporate externalities—both positive and negative); ***Corporate Reporting and Externalities*** (describes mandatory and voluntary forms, the proposed integrated report proposed by the International Integrated Reporting Council, the Sustainability Accounting Standards Board, and the Natural Capital Declaration proposed by 37 investment companies at the Rio+20 Conference in 2012); ***Keep Them in the Ground: Ending the Fossil Fuel Era*** (arguing that “a carbon focus is reductionist” and that the central problem is not emissions but extraction of oil, gas, and coal; a primary task is to calculate all costs and to imagine a post-fossil fuel era; a deliberate policy of keeping fossil fuels in the ground is “perfectly sensible”); ***Beyond Fossil Fuels: Assessing Energy Alternatives*** (utilizes an “alternative energy matrix” comparing 15 alternative fuels according to 10 properties, and comparing performance to fossil fuels; unfortunately, “transition away from fossil fuels does not appear at this time to involve superior substitutes” and alternative energy will require substantial up-front investments); ***Energy Efficiency in the Built Environment*** (buildings account for nearly half of all US energy consumed, and increasing efficiency can dramatically reduce emissions; the average financial return on investment for efficiency is about 20%, many nations have instituted green building codes and standards, and the Appraisal Foundation is beginning to account for the increased value imparted to a building by its energy efficiency features); ***Agriculture: Growing Food and Solutions*** (surveys ideas related to food for all, food for sustainable growth, food for health, and growing a better agroecological food system); ***Protecting the Sanctity of Native Foods*** (notes that indigenous peoples are 5% of world population, but occupy 20% of the earth’s surface and live in 80% of the world’s biodiversity hotspots; they are thus critical to ecosystem health and should be seen as major stakeholders in sustainability; the “native foods movement” continues to grow and thrive in a modern context); ***Valuing Indigenous Peoples*** (only about 1% of philanthropic dollars spent each year goes to indigenous peoples and the ecosystem services they support, including biodiversity protection; but their contribution is often ignored or marginalized, and ethnic minorities are too often evicted in the

name of “conservation”); *Crafting a New Narrative to Support Sustainability* (notes that interdisciplinary courses on “Big History” are now being taught in some 50 colleges and universities worldwide, describing the history of the cosmos, of life and civilization on our planet, and humanity’s place in the universe; often their central theme is the idea of increasing complexity); *Moving Toward a Global Moral Consensus on Environmental Action* (outlines a few of the principles fundamental to a global moral response: everyone has a right to life, liberty, and security; justice and intergenerational justice require equitable distribution of benefits and burdens; humans have an obligation to protect children from harm and to act with compassion; it is wrong to wreck the world); *Moving from Individual Change to Societal Change* discusses previous movements for major social change such as civil rights in the US, anti-apartheid in South Africa, and India’s independence movement, and the current climate change campaign of 350.org.

#### 4. Open in Case of Emergency

*Teaching for Turbulence* by Michael Maniates of Allegheny College notes that there were 500 environmental studies and science (ESS) programs in US colleges and universities in 1990, growing to 1,200 programs by 2010 (90% at the undergraduate level), with a projection of 1,400 or more by 2015. However, a 2010 assessment found that too many of these programs do too much too quickly, with insufficient clarity and “multidisciplinary illiteracy.” There is a general trend toward urgency and alarm that can overwhelm students with a sense of hopelessness. Few programs address competing theories of social change or focus on social activism. Too many lists of “10 Easy Ways to Save the Planet” leave students unequipped to come to grips with their limitations. Rather than the “small and easy theory of social change,” a “curriculum for turbulence” is needed, to prepare students “to be thoughtful and anticipatory agents of change in the tumult to come.”

*Governance in the Long Emergency* by David W. Orr of Oberlin College warns that “we have entered a ‘long emergency’ in which a myriad of worsening ecological, social, and economic problems and dilemmas at different geographic and temporal scales are converging as a crisis of crises.” (p.279) The perfect storm that lies ahead is caused by a collision of changing climate, ecological disorder, population growth, unfair distribution of economic costs and benefits, and ethnic and religious tensions. “It is time to talk about important things. . . the challenges to be overcome are first and foremost political, not technological or economic.” (p.291) Coping with the long emergency, four models of governance are explored: highly centralized and authoritarian, a corporate-led transition focused on technological innovation and efficient and renewable energy, emergence of national and global networks abetted by the Internet and linked in global action networks, and revitalizing society as a strong democracy with deliberative institutions. We are between the proverbial rock and a hard place. There is no good case to be made for smaller governments, but we have good reason to fear an enlargement of government as both ineffective and potentially oppressive. “Given these choices, there is no good outcome that does not require something like a second democratic revolution in which we must master the art and science of governance for a new era.”

Other essays in this section address *Effective Crisis Governance* (on resilience as the capacity of a system to respond effectively, lessons from civil resistance against repressive regimes, flexible governance for rapid adaptation to new situations, and four elements of

transforming governance); ***Building an Enduring Environmental Movement*** (urging the environmental movement to evolve to “a deeper environmentalism” and a “new consciousness,” learning from religious missionary movements and forging a “missionary eco-philosophy” to build an ecocentric civilization); ***Resistance: Do the Ends Justify the Means?*** (the time has perhaps come for a massive wave of direct action resistance to accelerating rates of environmental degradation around the world; protests will be all the more effective if protracted and scrupulously nonviolent, while also disrupting business as usual); ***The Promises and Perils of Geoengineering*** (on pros and cons of solar radiation management, carbon dioxide removal, and space mirrors; calls for a middle ground for geoengineering—not as techno-fix but as a small part of an effort to steer the world to a state of rightness and fitness); ***Cuba: Lessons from a Forced Decline*** (notes that Cuban CO<sub>2</sub> emissions have been reduced by 25% in the past two decades, with a focus on meeting basic human needs rather than growth and consumption; humanity can thrive in a resource-constrained world if it learns from Cuba’s example); ***Climate Change and Displacements*** (looks at the impact of four years of drought in Syria, the warning by the Bangladesh government that >20 million people could be forced to move due to rising sea levels and storm surges, the potential of a one-meter sea level rise displacing 7 million people in Vietnam’s Mekong Delta, and adaptation measures to reduce vulnerability); ***Cultivating Resilience in a Dangerous World*** (qualities of resilience include diversity, redundancy, modularity, reserves, social capital, the capacity to make choices and innovation, inclusiveness, tight feedbacks that enable quick detection of change); ***Shaping Community Responses to Catastrophe*** (some 200-300 million people per year were seriously affected by natural disasters or technological accidents in the past decade; well-prepared communities anticipate and manage denial, and are poised for life-saving decisions and rapid action); ***Is It Too Late?*** (it is not yet too late, if we were to do everything right starting now and continuing for the next several decades; this is hard to do, and we will do some things wrong, so we must ask how much damage we will allow).

### Comment: Making Broader Linkages

To answer the question in the book title, sustainability is still *possible*, as argued here in great detail. But whether it is *probable* is problematic.

Worldwatch provides a valuable cornucopia of authoritative, leading-edge ideas about sustainability, with an ample index. This book is arguably the best overview of sustainability issues to date, especially notable for the essays on the nine planetary boundaries and the need for a sustainability metric by Carl Folke, the concise overview of ecological economics by Robert Costanza et al., the emphasis on much-needed political strategies by Melissa Leach, new directions to improve college-level environmental studies programs by Michael Maniates, and the deep questions about governance raised by David Orr.

The major unavoidable problem is that it takes a good while to digest or even scan the 441 pages, which is not the fault of Worldwatch but, rather, reflects the many dimensions of the transition to sustainability that must be considered. Paradoxically, other important dimensions are not covered; i.e. there is only a slight overlap with **SOTW 2012: Moving Toward Sustainable Prosperity**, and with **SOTW 2008: Innovations for a Sustainable Economy**. Moreover, there are many books on sustainability that offer useful perspectives not covered by Worldwatch, e.g. **The Climate Bonus: Co-Benefits of Climate Policy** by Alison Smith

(Earthscan/Routledge, 2013; GFB Book of the Month, May 2013), which points to many “co-benefits” of low-carbon policies that can enable “a cleaner, safer and healthier world”—a strong and positive strategy that is lacking in the sustainability project.

In addition to linkages to previous **State of the World** reports and other publications from Worldwatch, and to other important books and reports not from Worldwatch, greater attention should be devoted to two broad sectors that ought to be seen as related to sustainability: the widening world of security concerns and the explosion in information and information technology.

Those who seek true sustainability should also be concerned about security, because, very simply, we can have no sustainability without security, and, in turn, no security without sustainability. Security concerns are widening far beyond military matters to now include energy security, food security, cyber-security, economic security, environmental security, and the broad umbrella term of “human security.” As noted in **The Quest for Security: Protection Without Protectionism and the Challenge of Global Governance** edited by Joseph E. Stiglitz and Mary Kaldor (Columbia University Press, April 2013; GFB Book of the Month, August 2013), globalization has increased the scale and velocity of risk, while also eroding the state’s monopoly on violence. If short-term security concerns aren’t addressed, then attention and resources are diverted from long-term sustainability concerns. However, long-term sustainability concerns, notably water shortages and flooding, are aggravating security concerns in many nations, as amply demonstrated in **Climate Change and National Security** edited by Daniel Moran (Georgetown University Press, 2011; GFB Book of the Month, March 2013), a survey of climate-related threats in 19 regions and nations. Incidentally, the relationship between security and environmental issues was identified 36 years ago by Lester R. Brown in **Redefining National Security** (Worldwatch Paper 14, October 1977, 46p), which discussed the lagging energy transition, deterioration of biological systems, the threat of climate change, global food insecurity, and economic threats to security.

A second sector that deserves attention is the ongoing information revolution. New information and communication technologies have created new means to communicate, which greatly enhance the amount of information and its availability, resulting in ever-growing information overload or infoglut. As regards the global sustainability project, the sustainability community is hugely fragmented and lacks coherence in time and space, while at the same time it is scarcely noticed amidst the flood of other serious books, reports, and articles—let alone competition with proliferating entertainments. An information strategy is thus needed that links up the global sustainability community, coordinates its new and old messages, highlights the most important concepts (e.g. planetary boundaries, co-benefits of policy), and effectively disseminates these messages in multiple ways. Simply publishing yet another book will likely have little or no impact.

And thus the hefty 441-page **State of the World 2013**, while valuable in itself, is still a small contribution to a much larger evolving effort that needs better definition and outreach. There certainly is a problem that “humanity’s failures of foresight and political will address the array of sustainability problems ahead” (p.253), but, despite myriad efforts to do so, there may also be a problem in communicating these inter-linked problems in a complex, info-saturated world.

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**22 Ideas to Fix the World: Conversations with the World's Foremost Thinkers.** Edited by **Piotr Dutkiewicz** (Professor of Political Science and Director, Center for Governance, Carleton University, Ottawa) and **Richard Sakwa** (Professor of Russian and European Politics, University of Kent; Associate Fellow, Chatham House).

*NY: New York University Press, August 2013, 466p, \$27.95.*

A joint publication of the Social Science Research Council, Russia's World Public Forum, and NYU Press, based on the premise that we live in a very fragile world in crisis. "Quite simply, we live in uncertain times—in a sort of 'inter-regnum' between old and new ruling paradigms. This book is about ideas on how to cope with these global uncertainties." In turn, this means addressing multiple interconnected economic issues, and "more broadly interconnected problems of limits to development, poverty alleviation, inequality, ecological crises, regional disparities, new modes of power, the future of urbanization, strained multicultural coexistence, and the growing role of religion amid a wave of global post-secularism." Unfortunately, "we have simply not been able to transcend the barriers of our past knowledge and our accepted paradigms, as if our collective imagination were permanently stunted." However, "there are in fact many innovative ideas about how to look at our world and address its many problems; equally important, there are people who can turn these into viable policy solutions." (Dutkiewicz, pp. xi-xiii)

## 1. Rethink the Nature of Humanity

- **Muhammad Yunus** (Nobel Prize winner in 2006 for developing microcredit in Bangladesh) argues that a system valuing money above all else sees humans as atomized and selfish actors. Rather, "all human beings have unlimited potential, unlimited capacity, unlimited creative energy." (p.4) Poverty is a blockage of this energy, denying people to unleash their potential. Poverty is the same in Bangladesh, the US, and elsewhere, caused by the same process and the same system: the best seed of the tallest tree will only grow so big if put in a small flower pot. Poor people are bonsai people, never given the space to grow. Human beings are selfish, which comes out of self-protection, but "this has been overblown in economic interpretation." All humans are equally endowed with selflessness, completely forgotten by economists. In both developing and developed countries, we can create non-dividend *social businesses* on the basis of selflessness, to solve the problems we see around us, notably unemployment. We must design a new system that allows people to take care of themselves, where the word *unemployment* is totally unknown. We must first re-interpret the human being as both a selfish and a selfless being, and then recognize that selflessness can be expressed through business. Yunus has created more than fifty companies, including the Grameen Bank for microcredit, each designed to solve a problem.
- **Will Kymlicka** (Canada Research Chair in Political Philosophy, Queens University, Kingston) notes that a major challenge in our world of "staggering inequalities" is to convince majority groups that social relations with minorities are not a zero-sum game, and that society can benefit from rights granted to minorities. We have basically abolished slavery, delegitimized colonialism, made remarkable strides in the rights of women and children, and developed a world culture of human rights. But these fragile mac-



ro-level changes are sometimes more rhetoric than reality, the changes are very unevenly spread, and they are vulnerable to retreat. The form of globalization we have had over the past thirty years is neoliberalism, which has often been harmful and has essentially trumped any meaningful multiculturalism. For the past 200 years we've lived in a world of nation-building states, which has led to killing or expelling minorities, coercive assimilation, or stigmatization. However, one more or less irreversible change is that "minorities around the world are today more likely to be politically mobilized rather than passive in the face of injustice and exclusion." (p.30) Some countries have more or less achieved true justice between dominant groups and historical minorities, but progress is less evident for indigenous peoples, partly because the starting level of injustice has been much greater.

## 2. Transform how the Global Economy Works

- **Joseph Stiglitz** (University Professor of Economics, Columbia University) focuses on two areas in the defective standard paradigm of economics that need to be addressed: sustainability and inequality. To think about sustainability, we need to think about pricing public goods and externalities, as well as incorporating intergenerational issues. "As we become more interdependent, there is greater need for collective action and rules of the game that ensure mutual gains. Interdependencies create externalities, and externalities create market failures that need to be dealt with by some kind of regulatory mechanism." (p.53) But, there is no reason to have universal regulations.

*"The current international monetary system is inconsistent with globalization, and we thus need a different system."*

- **Ha-Joon Chang** (Faculty of Economics, University of Cambridge) argues that free-market economics has failed badly and should be discredited or even banned—yet, even in the face of crisis, it persists. However, rather than a massive overhaul of the entire global economic system, a pragmatic gradualist approach is needed that is neither sweeping nor global. Revolutions are neither guaranteed to happen nor to have the desired effects if they do happen.
- **Jose Antonio Ocampo** (Professor of Economic and Political Development, Columbia University; former UN Undersecretary-General for Economics and former Finance Minister of Colombia) rejects one-size-fits-all models of development and describes a complicated road ahead for a majority of the world's states. A true South-South system is starting to emerge, but the old center-periphery system is still dominant. Despite lots of talk about the rise of the BRICS, there is not the same sense of unity in the South as in earlier decades. The current international monetary system is inconsistent with globalization, and we thus need a different system. A multicurrency system may be even more unstable than the current system. The other alternative is a true international currency, which can be partially adopted and may be forced by circumstances. We also need to create a Global Economic Coordination Council at the UN, as proposed by the 2009 Stiglitz Commission.

### 3. Recognize Everyone is Responsible for the Environment

- **Paul Watson** (Founder and President, Sea Shepherd Conservation Society) views the most pressing concern right now as the diminution of biodiversity, especially in our oceans, which is extremely serious. “If the oceans die, we die.” (p.96) But for the most part they are out of sight and out of mind. “We have to understand that this is not Planet Earth; it’s Planet Ocean.” (p.96) We can absorb a lot of damage on the land, but the oceans can absorb only so much before they begin to collapse, which is happening through overfishing everything. The only positive things being done are by individuals and small organizations worldwide; “I don’t expect anything from governments. The whole nature of government is such that they cause problems. They don’t solve problems” (p.105)
- **Mike Davis** (Distinguished Professor of Creative Writing, University of California, Riverside) predicts that our children will almost certainly participate in the biological climacteric of our species, sometime between 2060 and 2090, when global population peaks at about 10 billion. Food production must almost double to feed this future humanity, but we are unlikely to sustain current levels of agriculture output to 2050, much less expanded production, due to global warming, hydrological chaos, and desertification. The revolution in plant genomics and in precision irrigation presupposes prioritizing grains over meat in the interests of smallholders; otherwise, a Big Ag revolution in the countryside will lead to further displacement of rural people, who will be dumped into cities and their squalid fringes, at a time when 40% of the global labor force is unemployed or scratches for survival in the informal sector. “It is clear that we need to become a planet of gardeners, in Patrick Geddes’s sense of constant communal tinkering to make our cities function as integral parts of nature... (and) we need to build this new Ark quickly.” (p.114) The demographic challenge is not population growth per se, but its geographical distribution and age skew. “‘Human citizenship’ (protected but flagless rights to work, migrate, and vote) must become the central democratic demand of this century.” (p.115) The true global problem is actually undermigration, which is why it is important to make transnational civic life possible. “Too many experts...uncritically accept current rates of urbanization as inevitable, when in fact they are accelerated by the massive neglect and oppression of the rural poor. Any discussion about the fate of cities must also be a debate about the future of the countryside.” (p.134)
- **Olzhas Suleimenov** (Kazakhstan representative to UNESCO; geologist, poet, and writer) views Central Asia as a model of the future social order made up of people of different religious faiths. Political elites must work to harmonize interethnic and interfaith relations. “In the course of their development, the great nations are transformed into mini-humankinds, and they minimize the danger of potential global confrontations.” (p.148) The undeniable fact is that it is happening and gaining momentum. “This new century should be called the century of interdependence, because only the realization of our universal interdependence will help humankind to survive.” (p.149)
- **Vladimir Yakunin** (Founding President, World Public Forum “Dialogue of Civilizations”; Head, Department of State Politics, Lomonosov Moscow State University; President of Russian Railways Joint Stock Company) opposes “wild capitalism” and calls

for a higher level of state regulation to temper predation, which is one of the drivers of the modern paradigm of the global world. Two key points are absolutely essential to the future paradigm: protecting the environment so that we are able to survive, and filling human life with ethical content and an appropriate attitude to self, other people, and the world at large. To change the paradigm, one must include change in social responsibility, on the part of both the state and every person.

#### 4. Understand the Global Balance of Power

- **Immanuel Wallerstein** (former Distinguished Professor of Sociology and Head of the Fernand Braudel Center at Binghamton University; Founder of World-Systems Analysis) has viewed the relative hegemonic decline of the US for over three decades, with a “precipitate decline” since 2000, as other countries begin to act directly counter to the way the US wishes them to act. The growth of US debt is a sign of this decline. The period of 1945-1968 was the height of US hegemony, and the strongest period of economic growth in the history of the world-system. We are in a structural crisis today, which can be seen as the spirit of Davos (the elites at the World Economic Forum) vs. the spirit of Porto Alegre (the meeting place of the alter-globalization World Social Forum), which seeks a relatively democratic and egalitarian world.
- **Zygmunt Bauman** (Emeritus Professor of Sociology, University of Leeds) sees a growing separation between politics and power—between the means to enact change and the vastness of the problems that need to be addressed. We are living in a new world of *liquid modernity*, where change is the only constant and uncertainty the only certainty. Our current troubles are underpinned by the dearth of normative regulation, unending deregulation, and the overall decline of the public. The fall of the Berlin Wall ushered in an era of “interregnum,” where the inherited means of getting things done no longer work, yet new and more adequate ways have not been deployed. Unlike our ancestors, we don’t have a clear image of a destination—a model of global society, economy, politics, and jurisdiction. Instead we react to the latest trouble, experimenting, groping in the dark. “In the state of interregnum, everything may happen, whereas nothing can be undertaken with full confidence.” (p.198) This situation cannot persist, because of “natural limits to running through a minefield while doing next to nothing about disarming the mines, and, if anything, adding to their numbers.” (pp198-199)
- **Bob Deacon** (Emeritus Professor of International Social Policy, University of Sheffield; advisor to World Bank, UNICEF, and UN) notes that the ILO, going back to 1919, has tried to articulate international standards for workers. As social problems increasingly cross borders, we need to outline a set of arguments and policies to shift us from global neoliberalism to some kind of global social democracy, with systems of global taxation and global regulation. Deacon is a founding member of the Globalism and Social Policy Programme (GASPP), which promotes this vision through a set of policy briefs and a journal, *Global Social Policy*. Although quite limited, the Millennium Development

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*“We are living in a new world of liquid modernity, where change is the only constant and uncertainty the only certainty.”*

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Goals were the first global social policy, with targets for the whole world. But they didn't address issues of inequality. The ILO has taken the lead in promoting a global social protection floor.

- **Peter J. Katzenstein** (Professor of International Studies, Cornell University) describes the main trend facing our crisis-ridden world as diffusion of power among a range of actors, with the US no longer as prominent as it was 30-50 years ago. "This is the one overarching trend in the world in which we live. It makes governing and governance more challenging, interesting, and innovative. It opens many new possibilities, and it creates many new risks." (p.220) But he is "profoundly skeptical" as to whether China will be a global power. China is the most rapidly aging society in the world. Too many Chinese people remain desperately poor, and an unstable China will destabilize global capitalism.

## 5. Question the Role of Democracy

- **Craig Calhoun** (Director, London School of Economics and Political Science; former President, Social Science Research Council; Distinguished Visiting Professor, New York University) argues that the ongoing crisis is not simply one of capitalism, but of the modern "package" linking politics, economics, and social relations. The most worrisome aspect of the crisis is that it poses a grave threat to social reproduction (education, health care, etc.), thus "we're in for a period of disorganization and destabilization." (p.248) Within capitalism, "the extreme financialization exacerbated the undermining of the package," (p.250) in that neoliberalism has brought a kind of intensified attack on institutions. "The issue for the future is how can we reproduce and improve the institutional structures in which we live together and work together and organize our lives together. And democracy is a piece of that." (p.257) There are big obstacles to broadly social democratic kinds of solutions. What we need is a shift in attitudes about large-scale public provision, because there is no other way to meet the scale of the challenge. But the problem in achieving policy solutions in most of the world's rich countries is "a superabundance of relatively narrow, relatively ephemeral interest group organizations and a relative weakness in getting these connected to each other and sorting out common programs." (p.264) This function used to be performed by political parties, but it has declined.
- **Ivan Krastev** (Chair, Centre for Liberal Strategies, Sofia, Bulgaria) argues that the modern crisis is unique, in that public trust in both the market and political elites has been shaken simultaneously. While democracy is universally accepted as the most desired form of government, there is a growing frustration with democratic politics as we know it. A post-democratic capitalism is beginning to emerge as one of the major challenges facing democratic politics today. The market revolution of the 1980s strongly asserted the value of choice and opened up much space for innovation, but it also delegitimized the idea of a public interest. The Internet makes us much freer than before, but it also creates "echo chambers" where like-minded people constantly talk to each other. "One of the many paradoxes of globalization is that we are living in a much more interconnected but at the same time fragmented and even segregated world." (p.270) The promise is that transparency will restore trust in institutions, but this is a very unlikely scenario.

- **Fred Dallmayr** (Professor of Philosophy and Political Science, University of Notre Dame; co-chair, World Public Forum “Dialogue of Civilizations”) describes inter-civilizational dialogue as fraught with many difficulties and possible derailments, in part due to memories of colonialism and imperialism. Any future cosmopolis has to respect diversity and the fact that non-Western cultures are increasingly active in shaping the future of the world. There is an enormous number of lessons that the West can learn from China and from Russia, but such learning is foiled by an attitude of hegemonic arrogance and self-contentment. “Genuine dialogue requires not only talking but a great deal of listening.” (p.301) Before talking one needs to first cultivate the great art of deep listening.

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*“If we wish to change society, we need to embark on a totally new path.”*

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## 6. Respond to the Economic Crisis

- **Manuel F. Montes** (Senior Advisor, the South Centre, Geneva; former UN Chief of Development Strategies) argues that the Asian crisis of 1997 was in many ways a dress rehearsal for the current global crisis, which has led to the public sector bearing the costs for private sector missteps. The overall remedy is more stringent regulation of the financial sector that would align finance with real economic productivity and address social concerns. However, “in many cases the responses to the economic crisis have exacerbated the situation and reduced the possibility of recovery.” (p.30) The supposed emergence of the BRICS is oversold. The prospects of the global economy still depend on the rich countries getting their political and economic act together. Otherwise, the system will stagnate for ten or more years, or collapse into a state of autarchy.
- Political economists **Shimshon Bichler** (Israel) and **Jonathan Nitzan** (York University, Toronto) view the current crisis as a systemic one afflicting a fatally flawed system. “The entire edifice hangs in thin air, and everyone keeps quiet, lest it collapse.” (p.332) What has changed is the specific nature of capitalism. “While capitalism has become increasingly universal, the unified theory that once explained it has disintegrated... instead of a single study of capitalism, we now have a multitude of distinct disciplines... all trying to barricade their own turf.” (p.337) If we wish to change society, we need to embark on a totally new path: instead of studying the relations of capital to power, or capitalism as a mode of production, we must conceptualize capital as power. We need a new cosmology of the capitalist mode of power, as well as a counter-cosmology for a humane alternative.

## 7. Make Development Possible

- **Jomo Kwame Sundaram** (former UN Assistant Secretary-General for Economic Development) worries that decreased international inequality may be distracting us from growing intranational inequality. “The most promising future for development economics lies in critical interaction with both orthodox and heterodox economics. This implies a necessary renewal of development economics but also greater humility on the part of economists more generally, especially in understanding and informing contemporary challenges of economic development in oligopolistic market economies.” (p.376)

- **Kemal Dervis** (Vice President for global economics and development, Brookings Institution) defends the European model of social democracy which is taken for granted and underappreciated. He worries about the “tendency in many countries for the income distribution to become more unequal,” and the greater concentration of income in the top 1% of the population (the US is the most accentuated example of this). The number one priority for European social democrats is to find a way to define the European model for the globalized world of the 21<sup>st</sup> century. “What is needed are regulations and rules and norms that are regional and then become global.” (p.392) There has to be harmonization of financial regulation, and an approach to taxation that doesn’t allow capital to always move away as soon as taxes rise. We also need ways in which the international community jointly manages migration.
- **Vladimir Popov** (Professor Emeritus, New Economic School, Moscow; advisor in UN Department of Economic and Social Affairs) points to growing social inequality worldwide and the continuing under-regulation of finance. The world is unstable, but not to the point of a crisis of global capitalism. But “it will come eventually” because there is a beginning and end to every social system, and capital has a short-term planning horizon.
- **Jiemian Yang** (President, Shanghai Institutes for International Studies) envisions a “three-speed growth scenario” over the next decade, where the developed countries grow at a slow pace, the BRICS grow more robustly, and the other emerging economies grow at an accelerated speed. “China will still contribute around 30% of economic growth to the world every year in the next decade.” (p.418) Big changes are expected in the structure of the international monetary system, as the dominant status of the US dollar continues to decline. The role of the Japanese yen and the British pound will also decrease. Global economic governance is expected to become more fragmented, but it will be further “greened” by the rise of environmental and climate change issues.

## 8. Conclusion

Co-editor **Richard Sakwa** summarizes the contemporary crisis as one of the reproductions of social forms and ideas: 1) the reproduction of the future (in that time horizons have been shortened in the post-communist era and “the end of communist utopianism was accompanied by the denigration of all progressive visions of the future”); 2) the reproduction of capitalism (given the failure of the regulatory regime of “late capitalism”); 3) the reproduction of society (the nature and role of the welfare state, education, and health care); 4) how the institutions of global governance need to adapt to the new challenges (clearly the notion of global *government* is far-fetched at the present stage of planetary development, where pressures are rising for more effective institutions of global *governance*); 5) the “end of the future” and the crisis in the reproduction of alternatives (“a crisis of solutions”). In sum, “this book has not provided any easy ready-made remedies, but... it has pointed out how we can begin to contribute to the dialogue and understanding without which any remedy is meaningless.” (p.434).

## Comment

The title of this important and stimulating volume of readable conversations is somewhat

misleading, in that many of the “22 Ideas” do not seek to “Fix” the world but more to understand its present uncertain and uneasy condition. Moreover, “the World’s Foremost Thinkers” advertised in the sub-title is a bit inflated, and better understood as seasoned experts (mostly economists) discussing some global issues, with a welcome selection of many non-Western thinkers, none of whom have any supportive comments about free-market “neoliberal” capitalism. Notably missing from the discussion is the total absence of any mention of security concerns, minimal attention to sustainability, and no mention of any of the many technology revolutions now underway for better and worse (other than a brief mention of the Internet by Ivan Krastev).

That said, several of the conversations deserve mention, notably Muhammad Yunas on the world’s poor as “bonsai people” never given space to grow, Will Kymlicka’s broad overview of minorities, Joseph Stiglitz on the two defects of standard economics, Mike Davis on population/environment issues applied to cities and neglected rural areas, Zygmunt Bauman on “liquid modernity” and our era of “interregnum,” Bob Deacon on the emergence of global social policy, and the attempt of Shimshon Bichlet and Jonathan Nitzan to rethink capitalism.

Various interviewees were recruited for these 22 conversations, several of whom were women. But no woman is among the 23 “foremost thinkers” who were interviewed. The book does suggest “how we can begin to contribute to...dialogue and understanding,” as Sakva notes. But much more is needed, especially as concerns recognition of “the many innovative ideas about how to look at our world and address its problems,” all-too-briefly mentioned by Dutkiewicz in the introduction. Identifying and learning from all or most of these ideas, from all countries of the world and from both genders, may well be our most important task.

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### Organisation for Economic Co-operation and Development (50 items)

Prepared by **Oana Zabava**

Edited by **Michael Marien**

**Note to WAAS:** The 50 abstracts below were selected from a couple of hundred OECD publications in the June 2013-Dec 2013 period. Of special note are the following items preceded by an asterisk, which have some relevance to the “New Paradigm”:

- **Development Co-operation Report 2013: Ending Poverty** (page 102)
- **Government at a Glance 2013** (page 103)
- **World Social Science Report 2013: Changing Global Environments** (page 104)
- **How’s Life? 2013. Measuring Well-Being** (page 106; note mention at end of the Task Force on Measuring Sustainable Development)
- **Policy Instruments to Support Green Growth in Agriculture** (page 107)
- **Marine Biotechnology** (page 111)
- **Greening Household Behaviour** (page 114)
- **Providing Agri-environmental Public Goods through Collective Action** (page 115)
- **Transition to Sustainable Buildings** (page 115)

**Water.** Organisation for Economic Co-operation and Development. Paris: OECD, March 2014, 140p. Over 90% of the projected population growth by 2050 (3 billion > people) will be in developing countries, often in regions which already are water scarce. Issues ranging from infrastructure financing to climate change influence on water resources, as well as the importance of water in activities ranging from energy production to agriculture.

**(WATER)**

**Investing Together: Working Effectively across Levels of Government.** Organisation for Economic Co-operation and Development. Paris: OECD, Dec 2013, 165p, \$49. Public investment is not only a major strategic responsibility for governments but also a shared one: almost two-thirds of public investment is undertaken by sub-national governments, and major projects tend to involve more than one government level. Improving the efficiency and effectiveness of investment is paramount. Looks at 1) the relationships among different government actors, both vertically (across levels of government), and horizontally (across both sectors and jurisdictions); 2) how co-ordination works and why it so often does not, and 3) government capacity. Chapters cover issues such as working across levels of government to invest more effectively, co-ordinating investments across levels of government, and sub-national capacities for effective public investment. Case study summaries also included.

**(GOVERNANCE \*PUBLIC INVESTMENT ASSESSED)**

**Pensions at a Glance 2013.** Organisation for Economic Co-operation and Development. Paris: OECD, Nov 2013, 290p, \$39. Examines pension systems in OECD and selected non-OECD countries; particularly looks at recent trends in retirement and working at older ages, evolving life expectancy, design of pension systems, pension entitlements, and private pensions. Also provides detailed country profiles.

**(WORK \* PENSIONS: OECD SURVEY)**

**\*\*Development Co-operation Report 2013: Ending Poverty.** Organisation for Economic Co-operation and Development. Paris: OECD, Nov 2013, 300p, \$93 (download for free at [www.oecd-ilibrary.org](http://www.oecd-ilibrary.org)). The world is probably on track to achieve the Millennium Development Goal target of halving the proportion of people whose income is less than \$1.25 a day by 2015. Nonetheless, we are far from achieving the overarching MDG of eradicating extreme poverty. This report focuses on the very poor and describes the nature and dimensions of poverty today and what development co-operation – and the global partnerships it supports – can do in the fight against poverty. Chapters discuss defining and measuring extreme poverty, policies that tackle poverty (economic growth is not sufficient to eradicate all dimensions of poverty), and the new post-2015 framework for ending poverty (UN's vision, global public goods, "smart" development co-operation, momentum to end poverty). "To recapture the Millennium Declaration's vision, the new international development agenda must embody principles of solidarity, equality, dignity, and respect for nature. It will need goals that can effectively guide core aspirations, targets that are easy to monitor, and strategies for economic and social transformation." The new agenda should be applicable to all countries, but with responsibilities that vary according to a country's starting point and resources. Targets should be set nationally, but with global minimum standards and sustained support for fragile states.



***New directions for ending poverty:*** 1) see development as a shift from poverty to power by empowering people—especially women and the chronically poor; 2) build inclusive and sustainable economies that enable the poorest to participate in and benefit from growth; “this will require a root-and-branch re-orientation and reprioritization of policies and programs—especially in agriculture, education, energy, and employment”; 3) provide systems of social protection—employment guarantees, cash transfers, pensions, child and disability allowances—to create a virtuous circle; 4) make environmental sustainability and natural resources a core priority, linked to poverty reduction and well-being; 5) invest in smallholder agriculture to tackle poverty and promote broad-based economic growth in poor and largely rural countries; 6) support the exchange of knowledge and experience on poverty reduction; 7) a new Global partnership for Effective Development Co-operation is needed to catalyze and coordinate global efforts and resources; 8) recognize that peace and the reduction of violence are the foundations of poverty eradication.

**(WORLD FUTURES \* DEVELOPMENT \* POVERTY: NEW WAYS TO END \* POST-2015 ANTI-POVERTY AGENDA)**

**Annual Report on the OECD Guidelines for Multinational Enterprises 2013: Responsible Business Conduct in Action.** Organisation for Economic Co-operation and Development. Paris: OECD, Nov 2013, 80p, \$23. The OECD Guidelines for Multinational Enterprises provide businesses with a global framework for responsible conduct covering all areas of business ethics. While observance of the Guidelines by enterprises is voluntary and not legally enforceable, adhering governments are committed to promoting their observance among enterprises. Describes what adhering governments have done to live up to their commitment over the 12 months to June 2013.

**(BUSINESS ETHICS \* RESPONSIBLE BUSINESS: OECD GUIDELINES)**

**OECD Review of Fisheries 2013: Policies and Summary Statistics.** Organisation for Economic Co-operation and Development. Paris: OECD, Nov 2013, 200p, \$68. Contains a general survey of policy developments based on material submitted by OECD member countries, information gathered by observer and enhanced engagement countries, and an overview of recent activities of the Committee of Fisheries. Includes Country Notes on the state of fisheries in OECD and observer countries.

**(FISHERIES: OECD REVIEW \* RESOURCES \* OCEANS)**

**\*Government at a Glance 2013.** Organisation for Economic Co-operation and Development. Paris: OECD, Nov 2013, 196p, \$63 (download free at [www.oecd-ilibrary.org](http://www.oecd-ilibrary.org)). Provides indicators that inform the analysis and international comparison of public sector performance. Indicators on government revenues, expenditures, and employment are provided, alongside output and outcome data in the sectors of education and health. Also includes indicators on governance and public management issues, such as transparency in governance, regulatory governance, new ways in delivering public services and HRM and compensation practices in the public service. Some “*key findings*”: 1) “trust in government has declined considerably, as citizens’ growing expectations have been hard to address with limited government resources”; between 2007 and 2012, confidence in national governments declined 40-45% on average; 2) a new approach to public governance is needed to meet citizen expectations with limited means at hand; “this approach should be built around creating strategic capacity,

strong institutions, effective instruments and processes, and clear measurable outcomes”; 3) public finance challenges remain, despite significant efforts to restore financial health; several OECD countries continue to face rising public debt-to-GDP ratios; 4) countries have adopted new budgetary practices and new governance institutions; 5) public employment levels tend to remain stable over the longer term: between 2001 and 2011 at just under 16% of the total labor force (a relatively small figure compared to average government spending at 45.4% of GDP in 2011, showing the important role of outsourcing); 6) further mechanisms are needed to close the public sector gender gap; 7) countries are using public procurement more strategically: many OECD members use procurement policy not only to foster value for money but to encourage innovation and sustainable growth (73% promote green procurement); 8) asset and private interest disclosure by decision makers continues to be an essential tool (however, few countries require disclosure of previous employment and liabilities); 9) to promote transparency, Open Government Data is gaining importance as a governance tool; 10) despite diminishing trust in “government,” citizens report being pleased with the services provided by the local police force, schools, and health care; 11) governments in OECD countries are increasingly concerned with delivering quality public goods and services to a wide range of citizens; many countries are introducing service delivery performance standards as regards affordability, responsiveness, reliability, and citizen satisfaction.

#### **(GOVERNMENT TRENDS: OECD SURVEY)**

**The Missing Entrepreneurs: Policies for Inclusive Entrepreneurship in Europe.** Organisation for Economic Co-operation and Development. Paris: OECD, Nov 2013, 300p, \$58. Entrepreneurship development is an important requirement for achieving smart, sustainable and inclusive growth; it is also a means to respond to new economic challenges, create jobs, and fight social and financial exclusion. Offers information and data on entrepreneurship activities in Europe, while focusing on people that are at the greatest risk of social exclusion: young people, older people, women, ethnic minorities and migrants, people with disabilities, and the unemployed. Includes 23 country profiles.

#### **(WORK \* ENTREPRENEURSHIP \* JOB CREATION)**

**\*World Social Science Report 2013: Changing Global Environments.** International Social Science Council and UNESCO. Paris: OECD and UNESCO Publishing, Nov 2013, 612p, \$122 (download at [www.oecd-ilibrary.org](http://www.oecd-ilibrary.org)). Gathers the thoughts and expertise of hundreds of social scientists from around the world; highlights the transformative role of the social sciences in confronting climate and broader processes of environmental change, as well as in addressing priority problems from energy and water, biodiversity and land use, urbanization, migration and education. The Preface by Irina Bokova (Director-General, UNESCO) notes “the challenge of knowledge divides in the social sciences,” and between the sciences and the social transformations needed to achieve sustainable development. “*The gap between what we are know about the interconnectedness and fragility of our planetary system and what we actually doing about it is alarming. And it is deepening.*” (p.3) This report examines the social dynamics of the Anthropocene age, in which human activity is the major force shaping the planetary system. “Environmental change must no longer be seen as peripheral.” Rather, it is connected with a multitude of other crises, risks, and vulnerabilities which confront every society. To move forward, we need a “sustainability science” that overcomes barriers

between disciplines and methods. “Ultimately, achieving sustainable development is a political challenge that involves making fundamental choices about how we understand ourselves and the world we wish to inhabit and leave to future generations... This requires moving beyond the obstacles of vested interests, the politicization of science, and entrenched habits of thought and behavior.” (p.4)

The 96 chapters by individual authors (not summarized) and descriptions of 12 ISSC projects such as global governance are organized in seven parts: 1) complexity and urgency of global environmental change (e.g., learning for sustainability, social and planetary boundaries, using the future differently by Riel Miller of UNESCO); 2) social science capacity (in the US, Latin America, Europe, Russia, Arab world, Africa, South Asia, China, and Japan); 3) consequences for society of global environmental change (e.g., migration, building resilience, land changes, impacts on children); 4) visions for change and sense-making (e.g., promises and pitfalls of the green economy, evolutionary psychology for sustainable lifestyles, education for sustainable development); 5) responsibilities and ethical challenges (e.g., ethics of energy consumption and geoengineering); 6) new approaches to governance (dealing with “wicked” problems, the need for IPCC transparency, using indigenous knowledge); 7) contributions from ISSC members, programs, and partners. [NOTE: Surely some useful ideas here, but mining them from the 612 pages is a daunting task.]

**(CLIMATE CHANGE AND SOCIAL SCIENCE \* SOCIAL SCIENCE IN THE ANTHROPOCENE)**

**Financial Education in Schools: Policy Guidance, Challenges and Case Studies.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 120p, \$35 (e-book). Addresses the challenges linked to the introduction of financial education in schools, provides practical guidance and case studies to assist policy makers, and offers a comparative analysis of existing learning frameworks for financial education in the formal school system. Chapters present 1) the OECD Council Recommendations on guidelines for financial education in schools; 2) main issues and case studies on how countries faced with similar challenges introduced financial education in the school system; and 3) a comparative analysis of existing learning frameworks.

**(FINANCIAL EDUCATION \* SCHOOLS)**

**Cancer Care: Assuring Quality to Improve Survival.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 163p, \$39 (e-book). More than 5 million new cases of cancer are diagnosed every year in OECD countries. Mortality rates are declining, but not as fast as for other big killers such as heart disease, and cancer survival rates show almost a four-fold difference across countries. Many countries are not doing as well as they could in the fight against cancer. Surveys the policy trends in cancer care over recent years and looks at survival rates to identify why some countries are doing better than others; sets out what governments should do to reduce the burden of cancer in their countries; and calls for an adequate level of resourcing and a comprehensive national cancer control plan.

**(CANCER CARE: OECD SURVEY\* HEALTH)**

**Environment at a Glance 2013: OECD Indicators.** Organisation for Economic Co-operation and Development. Paris: OECD, Dec 2013, 107p. Key indicators reflect environmental

progress made since the early 1990s and thus contribute to measuring environmental performance. Organized by issues such as climate change, air pollution, biodiversity, waste, water resources, energy intensity, material intensity, growing GHG emissions, sewage treatment infrastructure, and protected land (some 11% of OECD country areas).

**(ENVIRONMENT: OECD INDICATORS \* SUSTAINABILITY)**

**Effective Carbon Prices.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 81p, \$23 (e-book). Taxes and emission trading systems are the cheapest way for societies to reduce emissions of CO<sub>2</sub>. Estimates the costs to society of reducing CO<sub>2</sub> emissions in 15 countries using a broad range of policy instruments in five of the sectors that generate most emissions: 1) electricity generation, 2) road transport, 3) pulp & paper, 4) cement, and 5) household domestic energy use. Finds wide variations in the costs of abating each ton of CO<sub>2</sub> within and among countries, as well as in the sectors examined and across different types of policy instruments. Market-based approaches like taxes and trading systems consistently reduced CO<sub>2</sub> at a lower cost than other instruments. Capital subsidies and feed-in tariffs were among the most expensive ways of reducing emissions. Chapters discuss methods for estimating effective carbon prices, OECD's approach to estimate effective carbon prices, and estimated effective carbon prices.

**(CARBON PRICES \* ENERGY \* CO<sub>2</sub> EMISSIONS REDUCTION: POLICIES)**

**Rural-Urban Partnerships: An Integrated Approach to Economic Development.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 332p, \$88 (e-book). Traditional distinctions between urban and rural areas are increasingly blurred. Topics include trends in urban and rural areas, rural-urban partnerships as a tool for economic development, benefit and risks of partnering, regional approaches, dynamics, governance, and strategy to build them. Case studies cover Australia, the Czech Republic, Finland, France, Germany, Italy, the Netherlands, Poland, Portugal, Spain, and the United States.

**(DEVELOPMENT: RURAL-URBAN)**

**OECD Science, Technology and Industry Scoreboard 2013.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 276p, \$91. Analyses the major trends in knowledge and innovation in today's global economy. Through statistical indicators it presents a policy-oriented review of science, technology, innovation and industrial performance in OECD and major non-OECD countries. Involvement in innovation is a priority, and the Scoreboard seeks to help governments design more effective policies. Two important findings: young firms contribute more to job creation, and researchers are increasingly mobile.

**(SCIENCE/TECHNOLOGY: OECD INDICATORS \* INNOVATION)**

\* **How's Life? 2013: Measuring Well-being.** Organisation for Economic Co-operation and Development. Paris: OECD, Nov 2013, 212p, \$34 (e-book). The OECD's *Better Life Initiative* covers the 11 key dimensions that shape people's lives and well-being: income, jobs, housing, health, work-life balance, education, social connections, civic engagement and governance, environment, personal security and subjective well-being. First published in 2011, this new edition paints a comprehensive picture of well-being in the 34 OECD countries and other major economies, by looking at people's material living conditions and quality of life

across the population. Countries perform differently in the various dimensions of well-being. For instance, low-income countries in the OECD area tend to do very well in subjective well-being and work-life balance, while their level of material well-being is much lower than that of other OECD countries. Conversely, higher income countries often have more difficulties in reconciling work-life balance. Also, less educated and low-income people tend to fare worse in almost all well-being dimensions.

Overall, “*OECD countries have made considerable progress in many well-being areas over the past 20 years or so; however, this trend does not hold for jobs or for voting levels and, more importantly, hides a great diversity of patterns both among and within countries.*” Other findings: 1) the Great Recession has had large implications for both economic and non-economic well-being of households; 2) gender gaps in well-being have narrowed over recent decades, although men still score higher than women in a number of areas; women live longer than men, but suffer more often from illness; men and women are increasingly sharing tasks and roles; 3) “quality of employment and well-being in the workplace are becoming more prominent issues in many OECD countries”; 4) measuring whether well-being is likely to be sustainable over time requires an in-depth understanding of what will matter for well-being in the future; OECD proposes building on the work of the recent UNECE-Eurostat-OECD *Task Force on Measuring Sustainable Development* as a starting point (the Task Force focuses on stocks of natural, human, social, and economic capital thought to be important for sustaining well-being over time).

#### **(SOCIETY \* WELL-BEING: OECD INDICATORS \* QUALITY OF LIFE MEASURES)**

**\* Policy Instruments to Support Green Growth in Agriculture.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 140p, \$35 (e-book). Presents the experience of OECD countries in developing and implementing policies, programmes and initiatives related to green growth in the agricultural sector, based primarily on material provided by governments. Discusses the overall approach that countries are taking towards establishing a green growth strategy in agriculture (including monitoring progress towards green growth in agriculture, and policies regarding R&D, energy, efficiency, waste, water, and improving the environment). While most countries have some policies in place that relate to the concept of green growth, the degree of ambition shows considerable variation. The term “green growth” is gaining support, but “the vast majority of OECD countries do not have an overall green growth strategy for their agricultural sectors.” Strategic objectives and targets that support green growth vary substantially across countries, and “very few countries have exploited the potential for green economy measures to create employment.” Calls for nations to 1) create coherent overall policy frameworks that have clear objectives, 2) define R&D priorities, and 3) adopt policy measures that are targeted and implemented at the appropriate levels.

#### **(GREEN GROWTH IN AGRICULTURE \* FOOD/AGRICULTURE)**

**Gender and Statebuilding in Fragile and Conflict-affected States.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 55p, \$19 (e-book). Makes the case for gender-sensitive statebuilding, based on the inherent value of gender equality as well as its contribution to better development outcomes and the achievement of peacebuild-

ing and statebuilding goals. Spells out some of the contextual challenges and operational constraints that stifle progress in this area. Distills key success factors and concrete entry points for tackling these challenges and achieving a more effective and politically informed approach to integrating gender into statebuilding.

**(GENDER AND STATE BUILDING \* PEACEBUILDING AND GENDER)**

**Supporting Investment in Knowledge Capital, Growth and Innovation.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 360p, \$78 (e-book). Knowledge-based capital (KBC) results from business investment in non-physical assets such as R&D, data, software, patents, new business models, organizational processes, firm-specific skills and designs. A two-year program of work at the OECD on New Sources of Growth and the role of Knowledge-based Capital (NSG-KBC) finds that 1) business investment in KBC is a key to future productivity growth and living standards; 2) in many countries, business investment in KBC has increased faster than – and in some countries significantly exceeds – investment in physical capital (like machinery); 3) governments must facilitate business investment in KBC to promote long-term growth and the jobs of tomorrow. Sets out policy analyses and recommendations in the fields of innovation, taxation, entrepreneurship and business development, corporate reporting, big data, competition, measurement, etc.

**(KNOWLEDGE-BASED CAPITAL \* INNOVATION)**

**OECD Skills Outlook 2013: First Results from the Survey of Adult Skills.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 456p, free e-book. Evaluates the skills of adults in 22 OECD member countries and two partner countries. Assesses key information processing skills (literacy, numeracy and problem-solving in technology-rich environments). Examines the social and economic context, the supply of key information processing skills, who has these skills at what level, the supply of and demand for these skills in the labor market, acquisition and maintenance of skills over a lifetime, and how proficiency in these skills translates into better economic and social outcomes.

**(ADULT SKILLS: OECD SURVEY \* WORK \* EDUCATION)**

**\*Time for the U.S. to Reskill? What the Survey of Adult Skills Says.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 110p, free e-book. Basic skills of literacy and numeracy are among the most fundamental attributes of human beings and their civilization. Their contribution to workforce skills have increasingly been recognized as critical to economic success, while evidence of gaps in adult basic skills and the link with economic and social outcomes has also been growing, both at national and international levels. Despite universal basic education in advanced countries, some adults have slipped through the net, leaving them with very weak literacy and numeracy. (See **OECD Skills Outlook 2013: First Results from the Survey of Adult Skills**, Oct 2013, 456p)

“Low basic skills are more common in the US than on average across countries.” One in six US adults have low literacy skills, compared to 1 in 20 in Japan. Nearly 1 in 3 US adults have weak numeracy skills, against a cross country average of 1 in 5.

Explanations for the relatively weak US performance include failings in initial schools, lack of improvement over time, and poor skills in certain groups including migrants. There

are few signs of improvement: “Today, adults in the US have similar or weaker literacy skills to their counterparts in the mid-1990s, and the average basic skills of young adults are not very different from older persons.” One-third of the 36 million low-skilled US adults are immigrants, while 35% of black and 43% of Hispanic adults have low literacy skills, compared with only 10% of whites. However, 63% of low-skilled adults are employed, more than in other countries. Proposed policies: 1) take concerted action to improve basic skills and tackle inequities; 2) strengthen initial schooling for all; 3 ensure effective and accessible education opportunities for young adults, using the strengths of the community college system; 4) link efforts to improve basic skills to employability, recognizing that good jobs open up further learning options; 5) adapt adult learning programs to better respond to the diverse challenges of different groups with different needs.

**(ADULT SKILLS IN U.S. \* WORK AND BASIC SKILLS \* EDUCATION)**

**ICTs and the Health Sector: Towards Smarter Health and Wellness Models.** Organisation for Economic Co-operation and Development. Paris: OECD, Oct 2013, 120p, \$34 (e-book). Applications that encourage new, ubiquitous, participatory, preventive, and personalized smart models of health care show promise. The potential of the Internet, mobile devices, services and applications to support self-management, behavioral modification and “participatory healthcare” is greater than ever before. However, a key hurdle is dealing with the exponentially accelerating accumulation of patient data – all of which must be mined, stored securely and accurately, and converted to meaningful information at the point of care.

**(HEALTH TECHNOLOGY \* HEALTH AND INFOTECH)**

**Better Regulation of Public-Private Partnerships for Transport Infrastructure.** Organisation for Economic Co-operation and Development and International Transport Forum. Paris: OECD, Sep 2013, 220p, \$44 (e-book). Many governments seek to attract private finance for infrastructure through public-private partnerships. But experience with PPPs has been mixed. Some transport PPP projects have delivered major cost savings, but many more have exceeded their budgets. PPPs are prone to overestimating revenues and when projects run into financial difficulty, risks have a tendency to revert to the taxpayer. Examines the nature of risks and uncertainty associated with different types of PPP projects, and the practical consequences of transferring risks to private partners; assesses the fiscal impact of PPPs and discusses budget procedures and accounting rules to limit the public liabilities they can create.

**(PUBLIC-PRIVATE PARTNERSHIPS \* TRANSPORTATION)**

**Innovative Learning Environments.** OECD Centre for Educational Research and Innovation. Paris: OECD, Sept 2013, 219p, \$37 (e-book). How to design a powerful learning environment so that learners can thrive in the 21<sup>st</sup> century? Forty in-depth case studies address the question. Contemporary learning environments should: 1) innovate the elements and dynamics of its “pedagogical core”; 2) become a “formative organization” through strong design strategies, with corresponding learning leadership, evaluation and feedback, 3) open up to partnerships to grow social and professional capital, and to sustain renewal and dynamism; and 4) promote effectiveness through application of the ILE learning principles.

**(EDUCATION \* LEARNING ENVIRONMENTS)**

**Transition Towards a Sustainable Nuclear Fuel Cycle.** Organisation for Economic Co-operation and Development and Nuclear Energy Agency. Paris: OECD, Sept 2013, 67p (e-book). Future fuel cycle characteristics, feasibility and acceptability will be crucial for the continued development of nuclear energy, especially in the post-Fukushima context. Fuel cycle choices have both long- and short-term impacts, and a holistic assessment of their characteristics, cost, and associated safety issues is of paramount importance. Associates quantified impacts with foreseeable nuclear energy development in different world regions; discusses initial results in terms of uranium resource availability, fuel cycle facility deployment, and reactor types; and provides guidelines for performing future studies.

**(NUCLEAR POWER \* ENERGY)**

**Nuclear Energy Today** (Second Edition). Organisation for Economic Co-operation and Development and Nuclear Energy Agency. Paris: OECD, Sept 2013, 112p (e-book). Although nuclear energy currently provides over 20% of electricity in the OECD area and does not emit any carbon dioxide during production, it continues to be seen by many as a controversial technology. Public concern remains over its safety and the management of radioactive waste, and financing such a capital-intensive technology is a complex issue. Reviews the status of nuclear energy, as well as the outcome of R&D on the nuclear fuel cycle and reactor technologies. Topics include: basic principles of nuclear energy; nuclear fuel cycle; safety; radiation and radiological protection; management of radioactive waste; nuclear law and non-proliferation; economics and financing of nuclear energy; and future of nuclear energy.

**(NUCLEAR ENERGY: OECD OVERVIEW)**

**The Internet Economy on the Rise: Progress since the Seoul Declaration.** Organisation for Economic Co-operation and Development. Paris: OECD, Sept 2013, 184p, \$49 (e-book). The Internet economy has become a new source of growth, with the potential to boost the whole economy, to foster innovation and competitiveness, to enhance user participation, and to contribute effectively to the prosperity of society as a whole. Reviews progress made since the 2008 OECD Seoul Declaration for the Future of the Internet Economy and identifies areas for future work. Seven themes are addressed: 1) high-speed infrastructure, 2) digital content and green ICTs, 3) development of smarter applications, 4) cybersecurity and privacy, 5) consumer empowerment and protection, 6) open Internet economy, and 7) global participation for development.

**(COMMUNICATIONS \* INTERNET ECONOMY)**

**Education at a Glance 2013: Highlights.** Organisation for Economic Co-operation and Development. Paris: OECD, Sept 2013, 80p, free e-book. Summarizes the OECD's flagship compendium of education statistics and provides accessible data on key topics in education today, including: 1) education levels and student numbers (how far adults have studied; how early childhood education affects later student performance); 2) higher education and work (how many young people graduate from tertiary education; how easily they enter the world of work); 3) economic and social benefits of education (how education affects job prospects; what is the impact on incomes); 4) paying for education (what share of public spending goes to education, the role of private spending); 5) school environment (how many hours teachers work; how class size varies). Each indicator is presented on a two-page spread that



explains the significance of the indicator, summarizes main findings, examines key trends, and provides readers with a roadmap for finding out more; also, related charts and tables are accompanied by dynamic hyperlinks to the corresponding data in spreadsheet format.

**(EDUCATION: OECD INDICATORS)**

**Water and Climate Change Adaptation: Policies to Navigate Uncharted Waters.** Organisation for Economic Co-operation and Development. Paris: OECD, Sept 2013, 112p, \$42pb with e-book. Highlights the range of expected changes in the water cycle and the challenge of making practical, on-site adaptation decisions for water; offers policymakers a risk-based approach to better “know”, “target” and “manage” water risks; and proposes policy guidelines to prioritize action and improve the efficiency, timeliness and equity of adaptation responses. Features general trends and good practices drawn from the OECD Survey of Policies on Water and Climate Change Adaptation, and includes 34 individual country profiles. Highlights the benefits of well-designed economic instruments (e.g. insurance schemes, water trading, water pricing), and ecosystem-based approaches and ‘real options’ approaches to financing. The latter can improve the flexibility of water policy and investment, reducing the cost of adjusting to changing conditions.

**(WATER MANAGEMENT)**

**Water Security for Better Lives.** Organisation for Economic Co-operation and Development. Paris: OECD, Sept 2013, 171p, \$58 (e-book). Examines the critical issues surrounding water security (shortage, excess, inadequate quality, the resilience of freshwater systems). Sets out a three-step process to “know”, “target” and “manage” water risks: 1) appraising the risks, 2) judging the tolerability and acceptability of risks and weighing risk-risk trade-offs, and 3) calibrating appropriate responses. Provides policy analysis and guidance on the use of market-based instruments and the complex links between water security and other policy objectives, such as food security, energy security, climate mitigation and biodiversity protection.

**(WATER SECURITY)**

**\*Marine Biotechnology: Enabling Solutions for Ocean Productivity and Sustainability.** Organisation for Economic Co-operation and Development. Paris: OECD, Sept 2013, 116p, \$33 (e-book). Biodiversity in the oceans “offers manifold possibilities for development and exploitation.” Marine biotechnology has the potential to contribute to economic and social prosperity, through food production, new sources of renewable energy (i.e. algal biofuels), and products for health and well-being. Presents scientific and technological tools at the center of a renewed interest in marine biotechnology and examines how these advances are improving our understanding of marine life and facilitating access to, and study of, marine organisms and ecosystems. But a governance framework is needed to enable development of marine bioresources in a sustainable manner, and it would be most effective at the international level. New indicators are also needed to measure the impact of investment and government policies.

**(OCEAN SUSTAINABILITY \* MARINE BIOTECHNOLOGY)**

**Financing SMEs and Entrepreneurs 2013: An OECD Scoreboard.** Organisation for Economic Co-operation and Development. Paris: OECD, Aug 2013, 282p, \$84 (e-book). Access

to finance is one of the most significant challenges for entrepreneurs and for the creation, survival and growth of small businesses. Better data are needed to understand the financing needs of SMEs (Small- and Medium Enterprises) and entrepreneurs and to provide the basis for informed institutional and public policy decisions. Establishes a comprehensive international framework for monitoring SME and entrepreneur access to finance over time, and presents data for a number of debt, equity and financing framework condition indicators. Includes an overview of SME financing trends and conditions across participating 25 countries, focusing in particular on the changes which occurred between 2010 and 2011, and on government policy responses intended to improve SME access to finance.

**(BUSINESS FINANCING: OECD SURVEY \* ENTREPRENEURSHIP AND FINANCING)**

**Anti-Corruption Reforms in Eastern Europe and Central Asia: Progress and Challenges, 2009-2013.** Organisation for Economic Co-operation and Development. Paris: OECD, Aug 2013, 200p, \$70pb (e-book). Countries in Eastern Europe and Central Asia have introduced important anti-corruption reforms in the past several years. However, corruption remains high in the region. Identifies progress achieved in the region as well as remaining challenges that require further action by countries. Analyses three broad areas of anti-corruption work: 1) anti-corruption policies and institutions, 2) criminalization of corruption and law-enforcement, and 3) measures to prevent corruption in public administration and in the business sector. Features examples of good practice from Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Ukraine and Uzbekistan, as well as comparative cross-country data.

**(CORRUPTION PREVENTION \* GOVERNMENT)**

**Natural Gas Information 2013.** International Energy Agency. Paris: OECD, Aug 2013, 655p, \$184 (e-book). Reference work on gas supply and demand, covering not only OECD countries but also the rest of the world. Contains essential information on LNG and pipeline trade, gas reserves, storage capacity and prices. Concentrates on OECD countries, showing a detailed gas supply and demand balance for each individual country and for the three OECD regions, as well as a breakdown of gas consumption by end-user. Import and export data are reported by source and destination.

**(NATURAL GAS: OECD SURVEY)**

**Electricity Information 2013.** International Energy Agency. OECD. Paris: OECD, Aug 2013, 890p, \$168 (e-book). Reviews historical and current market trends in the OECD electricity sector, including 2012 preliminary data. Provides an overview of the world electricity developments in 2011 covering electricity and heat production, input fuel mix, supply and consumption, and electricity imports and exports. Also provides a corresponding statistical overview of developments in the world and OECD electricity and heat market for 2011, as well as monthly OECD production and trade electricity data for 2012. Offers, in tabular form, detailed and comprehensive statistical coverage of the power and heat industry developments for each of the OECD member countries and for OECD and IEA regional aggregates. Topics include overall energy consumption, economic indicators, electricity and heat production by energy form and plant type, electricity imports and exports, sectoral energy and electricity

consumption, and electricity and electricity input fuels for each country and regional aggregate.

**(ELECTRICITY: OECD SURVEY)**

**Coal Information 2013.** International Energy Agency. Paris: OECD, Aug 2013, 626p, \$184 (e-book). Reviews past and current evolution of the world coal market; presents country-specific statistics for OECD member countries and selected non-OECD countries on coal production, demand, trade and prices. Discusses coal supply, the consumption stream, institutions and governments involved in market and policy analysis of the world coal market, coal resources and reserves, trade, prices CO<sub>2</sub> emissions, and coal for other uses, etc.

**(COAL: OECD SURVEY \* ENERGY)**

**OECD Employment Outlook 2013.** Organisation for Economic Co-operation and Development. Paris: OECD, July 2013, 270p, \$78 (e-book). Looks at labor markets in the wake of the financial crisis. Chapters discuss the experience of different labor market groups since 2007; employment protection legislation; benefit systems; employment and training programs and services; re-employment, earnings and skills after job loss; impact of older worker employment on youth employment; developments in OECD countries; early retirement pensions; unemployment benefit schemes for early retirement; permanent and fixed-term contracts with a temporary employment agency; enduring jobs gaps; cyclical; and the structural rise in unemployment. Extensive statistical annex also included.

**(WORK: OECD SURVEY \* ECONOMY)**

**OECD Communications Outlook 2013.** Organisation for Economic Co-operation and Development. Paris: OECD, July 2013, 320p, \$12pb with e-book. In 2011, the total number of OECD communication access paths was 2.066 million, or 166 subscriptions per 100 inhabitants. Mobile subscriptions represented 65.4% of paths, versus 64% in 2009, and traditional fixed telephony subscriptions continue to decline. Fibre broadband subscriptions grew at 16.61% year on year between 2009 and 2011. Greater use of mobile broadband access has been stimulated by the popularity of smartphones. The average subscription rate of mobile Internet access in OECD countries as a whole rose to 56.6% in June 2012, up from just 23.1% in 2009. Long-predicted trends such as the convergence of previously distinct communication services are now occurring at a fast pace across all sectors of industry, and having profound and widespread impacts on economies and societies. This welcome process presents OECD countries with new opportunities to promote innovation and competitiveness, and to address key challenge areas such as promotion of greater equity. Provides indicators for the development of different communications networks and compares performance indicators such as revenue, investment, employment, and prices for service throughout the OECD area.

**(COMMUNICATION: OECD SURVEY)**

**Entrepreneurship at a Glance 2013.** Organisation for Economic Co-operation and Development. Paris: OECD, July 2013, 108p, \$63pb. Entrepreneurship and entrepreneurs have long been recognized as important sources of innovation, and thereby also of growth and employment. The recent crisis has arguably hampered new start-ups and impeded growth in existing start-ups, as well as their ability to survive in tough market conditions. There is a need to rely on statistics on entrepreneurship that can support policy makers; such indicators

should allow for cross-country comparisons and focus on both enterprise creation and performance. Presents indicators for measuring the state of entrepreneurship, along with key facts and explanations of the policy context; data results from the OECD-Eurostat Entrepreneurship Indicators Programme (EIP). Topics include: recent developments in entrepreneurship, new enterprise creations, patterns of business start-up rates across OECD economies after the onset of the financial crisis; bankruptcies; self-employment rates; structural indicators on enterprise population; productivity by enterprise size class; enterprise birth, death and survival; enterprise growth and employment creation; the profile of the entrepreneur; etc.

**(BUSINESS \* ENTREPRENEURSHIP: OECD INDICATORS)**

**A Skills Beyond School Review of the United States.** Malgorzata Kuczera and Simon Field. Paris: OECD, July 2013, 120p, e-book. Examines vocational education and training programs in the United States, including coverage of how they are changing, how they are funded, how they are linked to academic and university programs and how employers and unions are involved.

**(EDUCATION \* WORK \* VOCATIONAL EDUCATION: U.S.)**

**Aid for Trade at a Glance 2013: Connecting to Value Chains.** Organisation for Economic Co-operation and Development and World Trade Organisation. Paris: OECD, July 2013, 410p, \$98pb with e-book. The Aid-for-Trade Initiative is delivering tangible results in improving trade performance and bettering people's lives, notably those of women in developing countries. It also plays an important role in enabling firms in developing countries to connect with or move up value chains. Assesses what is happening, what is not, and where improvements are needed; focuses on trends in policies, programs and practices. Data results from self-assessments of 80 developing countries, 28 bilateral donors, 15 multilateral donors, and 9 providers of South-South co-operation. Views were also received from 524 supplier firms in developing countries and 173 lead firms, mostly in OECD countries. Topics cover aid's adapting to new realities, flows and financing, value chains and development path, effectiveness issues, and the future of aid-for-trade. Country fact sheets are included.

**(AID-FOR-TRADE ASSESSED\* DEVELOPMENT)**

**\*Greening Household Behaviour: Overview from the 2011 Survey.** Organisation for Economic Co-operation and Development. Paris: OECD, July 2013, 308p, \$77pb with e-book. Governments of OECD countries have introduced a wide variety of measures to encourage citizens to consider environmental impacts in their purchases and practices. Developing growth strategies that promote greener lifestyles requires a good understanding of the factors that affect people's behavior towards the environment. OECD took periodic surveys of >10,000 households in 11 countries (Australia, Canada, Chile, France, Israel, Japan, Korea, the Netherlands, Spain, Sweden and Switzerland), covering five specific household behavior areas (energy use, food consumption, transport choices, waste and recycling, and water use). Calls for providing the right economic incentives for influencing household decisions. "Soft" measures such as labeling and public information campaigns also have a significant complementary role to play. Spurring desirable behavior change requires a mix of instruments.

**(GREEN LIFESTYLES \* HOUSEHOLD GREEN BEHAVIOR \* ENERGY \* FOOD \* WATER \* WASTE)**

**\*Providing Agri-environmental Public Goods through Collective Action.** Organisation for Economic Co-operation and Development. Paris: OECD, June 2013, 306p, \$126pb with e-book. Agriculture is a provider of food, feed, fiber, fuel and fun (e.g. agri-tourism) and, to a certain extent, public goods like landscape and biodiversity. However, it can also have negative impacts on natural assets such as biodiversity and water quality. With the growing awareness of environmental issues, including loss of biodiversity and climate change, the provision of public goods and reduction of negative externalities stemming from agriculture have become important policy issues. Collective action should be given serious consideration as a means of addressing many agricultural and natural resource issues, and in some cases collective action should be actively promoted. Reviews the experience of various OECD member countries, as showcased by 25 cases from 13 countries (Australia, Belgium, Canada, Finland, France, Germany, Italy, Japan, the Netherlands, New Zealand, Spain, Sweden and the United Kingdom). Topics include: understanding agri-environmental public goods, relationship between collective action and agri-environmental public goods, farmer behavior and collective action, promotion of collective action and policy implications.

**(AGRICULTURE AND THE ENVIRONMENT)**

**\*Transition to Sustainable Buildings: Strategies and Opportunities to 2050.** International Energy Agency. Paris: OECD, June 2013, 284p, \$140pb with e-book. Buildings are the largest energy consuming sector in the world, and account for over one-third of total final energy consumption and an equally important source of CO<sub>2</sub> emissions. Achieving significant energy and emissions reduction in the buildings sector is a challenging but achievable policy goal. Presents detailed scenarios and strategies to 2050, and demonstrates how to reach deep energy and emissions reduction through a combination of best available technologies and intelligent public policy. Provides informative insights on: 1) cost-effective options, key technologies and opportunities in the buildings sector; 2) solutions for reducing electricity demand growth and flattening peak demand; 3) effective energy efficiency policies and lessons learned from different countries; 4) future trends and priorities for ASEAN, Brazil, China, the European Union, India, Mexico, Russia, South Africa and the United States; 5) implementing a systems approach using innovative products in a cost effective manner; and 6) the pursuit of whole-building (e.g. zero energy buildings) and advanced-component policies as a fundamental shift in the way energy is consumed.

**(SUSTAINABLE BUILDINGS \* ENERGY EFFICIENCY)**

**OECD-FAO Agricultural Outlook 2013** (19<sup>th</sup> Edition). Organisation for Economic Co-operation and Development and Food and Agriculture Organization of the United Nations. Paris: OECD, June 2013, 324p, \$98pb with e-book. Higher costs and strong demand are expected to keep commodity prices well above historical averages with a high risk of price volatility given tight stocks, a changeable policy environment and increasing weather-related production risks. China is projected to maintain its self-sufficiency in certain key food commodities while increasing its trade and integration in world agricultural markets. Provides projections to 2022 for major agricultural commodities, biofuels and fish; for the first time includes cotton and a special feature on China. Topics include biofuels, cereals, oilseeds and oilseeds products, sugar, meat, dairy, and cotton.

**(AGRICULTURAL COMMODITIES TO 2022: OECD/FAO SURVEY)**

**Medium-Term Renewable Energy Market Report 2013: Market Trends and Projections to 2018.** International Energy Agency. Paris: IEA, June 2013, 217p, \$140pb with e-book. Assesses the current state of play of renewable energy world-wide, identifies the main drivers and barriers to deployment and projects renewable energy electricity capacity and generation through 2018. Also examines the prospects for renewable energy finance and provides a global outlook for each renewable electricity technology. Topics include geothermal, hydropower, ocean power, offshore wind, onshore wind, solar photovoltaics, and solar thermal electricity.

**(RENEWABLE ENERGY TO 2018)**

**\*Education at a Glance 2013: OECD Indicators.** Organisation for Economic Co-operation and Development. Paris: OECD, June 2013, 438p, \$112pb with e-book. Presents the state of education around the world, with data on the structure, finances, and performance of education systems in more than 40 countries, including OECD members and G20 partners. Topics discuss the output of educational institutions; the impact of learning across countries; the financial and human resources invested in education; access, participation and progression in education; and the learning environment and organization of schools. In the 2013 edition, new material includes: data on the economic crisis; program orientation (general versus vocational) in secondary and tertiary education; an analysis of how work status (full-time, part-time, involuntary part-time) is related to individuals' level of education; the relationship between fields of education and tuition fees, unemployment rates and earnings premiums; etc. (ALSO SEE **Education at a Glance 2013: Highlights**, OECD, 80p).

**(EDUCATION: OECD OVERVIEW)**

**Global Food Security: Challenges for the Food and Agricultural System.** Organisation for Economic Co-operation and Development. Paris: OECD, June 2013, 160p, \$42pb and e-book. Approximately two-thirds of the world's poor live in rural areas, where farming is the principal economic activity. Government policies can raise the incomes of agricultural and rural households, and thereby improve poor people's access to food. Yet, while income growth is essential for long-term food security, it is not sufficient. Complementary policies to improve health and sanitation are required to ensure better nutrition.

**(FOOD SECURITY)**

**\*A Good Life in Old Age? Monitoring and Improving Quality in Long-term Care.** Organisation for Economic Co-operation and Development and European Union. Paris: OECD, June 2013, 265p, \$84pb and e-book. With the aging populations and growing costs, ensuring and improving the quality of long-term care (LTC) services have become an important policy priority across OECD countries. The share of those aged 80 years and over is expected to increase from 4% in 2010 to nearly 10% in 2050. In 2010 OECD countries allocated 1.6% of GDP to public spending on LTC, on average. The goal of good quality care is to maintain or, when feasible, to improve the functional and health outcomes of frail elderly, the chronically ill, and the physically disabled, whether they receive care in nursing homes, assisted living facilities, community-based or home care settings. Focuses on three aspects generally accepted as critical to quality care: 1) effectiveness and care safety, 2) patient-centeredness and responsiveness and 3) care co-ordination. Case studies feature Europe and the United States.

**(LONG-TERM CARE \* AGING: OECD SURVEY)**

**International Migration Outlook 2013.** Organisation for Economic Co-operation and Development. Paris: OECD, June 2013, 420p, \$133 pb with e-book. Immigration flows are rising in OECD countries, but remain well below pre-financial crisis levels. In 2011, total permanent immigration rose overall in OECD countries from 2010, but was still below four million. Preliminary 2012 data suggest a further increase. Temporary labor migration was essentially stagnant relative to 2010, at just below two million entries. OECD countries continue to attract students from around the world, with the number of international students in 2010 up 6% from 2009. The economic crisis has had a restrictive effect on labor migration in general, but with attention focused on attracting migrants perceived as bringing benefits to the destination country, such as investors and entrepreneurs, graduating international students, and EU Blue Card migration. Covers recent development in migration movements and policies in OECD countries and some non member countries, including migration of highly-qualified and low-qualified workers (both temporary and permanent), as well as students. This edition also contains two special chapters on topical issues: fiscal impact of migration and discrimination.

**(MIGRATION: OECD OVERVIEW)**

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**Abrupt Impacts of Climate Change: Anticipating Surprises.** National Research Council. *Washington: National Academies Press, Dec 2013, 222p, \$59.95pb.*  
(read for free at [www.nap.edu/catalog.php?record\\_id=18373](http://www.nap.edu/catalog.php?record_id=18373))

Climate change is almost surely the major issue of the 21<sup>st</sup> century. It is a complex and evolving concern, and scientific understanding is constantly improving, albeit still far from certain. This report provides the latest overview of the state of knowledge and uncertainty on trends, surprises, and potential impacts.

The commendable foresight employed by these leading climate scientists on the NRC “Committee on Understanding and Monitoring Abrupt Climate Change and its Impacts” deserves attention by others. Any planner, policy-maker, or futurist should be paying close attention to the distinction between widely-assumed steady change and abrupt change, as well as to the worsening climate change issue itself. To this end, an Appendix is provided here, with abstracts of five recent and related reports: **America’s Climate Choices** from the NRC (2011), **Bankrupting Nature: Denying Our Planetary Boundaries** by Anders Wijkman and Johan Rockstrom (2012), **The Projected Timing of Climate Departure from Recent Variables** by Camilo Mora et al. (2013), an outline of the IPCC **Fifth Assessment Report** (2014), and **The Climate Casino: Risk, Uncertainty, and Economics for a Warming World** by William Nordhaus (2013).

## 1. Background

“Levels of CO<sub>2</sub> and other greenhouse gases in Earth’s atmosphere are exceeding levels recorded in the past millions of years, and thus climate is being forced beyond the range of the recent geological era. Lacking concerted action by the world’s nations, it is clear that the future climate will be warmer, sea levels will rise, global rainfall pattern will change, and ecosystems will be altered.” (NRC, p.1)

But there is still uncertainty about how we will arrive at this future state. Many projections of future conditions predict steadily changing conditions, suggesting that communities have time to gradually adapt. However, scientists have been paying increasing attention to the possibility that at least some changes will be abrupt, perhaps crossing a threshold or “tipping point” to change so quickly that there will be little time to react. Earth’s history—gathered from sources such as fossils, sediment cores, and ice cores—contains ample evidence of abrupt changes in the past. In addition to abrupt changes within the climate system, gradual climate changes can cross thresholds in both natural systems and human systems (e.g., rising sea levels surpassing sea walls, or thawing permafrost destabilizing pipelines, buildings, and roads).

*“Understanding the potential risks posed by both abrupt climate changes and the abrupt impacts resulting from gradual climate change is a crucial piece in advancing the ability of society to cope with changes in the Earth system.” (p.2)* This report, sponsored by the US intelligence communities, the National Oceanic and Atmospheric Administration, the National Science Foundation, and the National Academies, examines current knowledge about the likelihood and timing of 14 potential abrupt changes. It also calls for an Abrupt Change Early Warning System, and identifies gaps in scientific understanding and monitoring capabilities. *“The primary timescale of concern is years to decades. A key characteristic of these changes is that they can come faster than expected, planned, or budgeted for, forcing more reactive, rather than proactive, modes of behavior.” (p.2)*

## 2. Abrupt Changes Already Underway

Two changes are of immediate concern: the disappearance of late-summer Arctic sea ice and increases in species extinctions.

Rapid reduction in Arctic sea ice already qualifies as an abrupt change, due to substantial decreases in ice extent in the past several decades. “Projections from climate models suggest that ice loss will continue in the future, with the full disappearance of late-summer Arctic sea ice possible in the coming decades.” (p.3) The impacts are likely to be considerable, including disruptions in the marine food web, shifts in the habits of some marine mammals, and erosion of vulnerable coastlines. *“Changes in the extent of sea ice could cause shifts in climate and weather around the northern hemisphere.”* They will bring new legal and political challenges as navigation routes for commercial shipping open, and access to fishing, tourism, and offshore oil and gas is enabled.

“The rate of climate change now underway is probably as fast as any warming event in the past 65 million years, and it is projected that its pace over the next 30 to 80 years will continue to be faster and more intense. These rapidly changing conditions make survival difficult for many species.” (p.5) The distinct risks of climate change exacerbate other widely recognized and severe extinction pressures, especially habitat destruction, competition from invasive species, and unsustainable exploitation of species for economic gain, which have already elevated extinction rates. Loss of a species has economic impacts from loss of ecosystem services, revenue, and jobs in fishing, forestry, and ecotourism. It also has ethical implications, as the current generation’s legacy to future generations. [ALSO SEE **The Sixth**



**Extinction: An Unnatural History** by New Yorker staff writer Elizabeth Kolbert (NY: Henry Holt, Feb 2014, 319p), the latest global summation of this worrisome megatrend.]

### 3. Abrupt Changes of Unknown Probability or Unlikely in the 21<sup>st</sup> Century

Foremost is destabilization of the West Antarctic Ice Sheet, a large part of it capable of flowing rapidly into deep ocean basins, representing 3-4 meters of potential sea-level rise. “It remains possible that future rates of sea-level rise from the WAIS are underestimated, perhaps substantially.” An abrupt change of the WAIS in the 21<sup>st</sup> century is plausible, with an unknown although probably low probability. The Greenland ice sheet is not expected to destabilize rapidly within this century.

Recent research shows that some abrupt changes previously considered as potential threats may be less likely to occur in this century than previously considered possible. These include disruption to the Atlantic Meridional Overturning Circulation and potential abrupt changes of high-latitude methane sources (permafrost soil carbon and ocean methane hydrates). But if they occur in the next century or beyond, “there would likely be severe impacts.” Arctic carbon stores (e.g. permafrost soils and methane-containing ices) “are poised to play a significant amplifying role in the century-scale buildup of carbon dioxide and methane in the atmosphere, but are unlikely to do so abruptly, i.e., on a timescale of one or a few decades.” (p.10)

## 4. 14 Potential Processes that may Change

A 4-page chart (pp. 14-17) summarizes a wide range of potential changes and their consequences, the current trend, the outlook before 2100 and after 2100, level of scientific understanding, and critical needs for research.

### 4.1. Abrupt Changes in the Ocean

- Disruption to Atlantic Meridional Overturning Circulation (**low** probability before 2100, **high** probability after 2100, **moderate** level of understanding)
- Sea Level Rise from Ocean Thermal Expansion, with storm surges more likely and severe (**low** probability by 2100, **high** probability after 2100, **high** level of understanding)
- Sea Level Rise from West Antarctic Ice Sheet (**probably low** likelihood by 2100, **unknown** likelihood after 2100, **low** level of understanding)
- Sea Level Rise from Greenland and Other Ice Sheets (**low** probability by 2100, **high** probability after 2100, **high** understanding for some aspects but **low** for others)
- Decrease in Ocean Oxygen with threats to marine life and release of nitrous oxide GHG (**moderate** probability to 2100, **high** probability after 2100, **low to moderate** understanding)

### 4.2. Abrupt Changes in the Atmosphere

- Changes to Patterns of Climate Variability (**moderate** probability by 2100, **high** probability after 2100, **low to moderate** understanding)

- Heat Waves Increasing in Intensity, Frequency, and Duration (**moderate** probability by 2100, **high** probability after 2100, **high** level of understanding)
- Extreme Precipitation Events Increase in Frequency and Intensity, with threats to food and water (**moderate** probability to 2100, **moderate to high** probability after 2100, **low to moderate** level of understanding)

### 4.3. Abrupt Changes at High Latitudes

- Increased Release of Carbon Stored in Soils and Permafrost (**low** probability to 2100, **high** probability after 2100, **moderate** level of understanding)
- Increased Release of Methane from Ocean Methane Hydrates (**low** probability to 2100, **moderate** probability after 2100, **moderate** level of understanding)
- Late-Summer Arctic Sea Ice Disappearance (**high** probability by 2100, **very high** probability after 2100, **high** level of understanding)
- Winter Arctic Sea Ice Disappearance (**low** probability by 2100, **moderate** probability after 2100, **high** level of understanding)

### 4.4. Abrupt Changes in Ecosystems

- Rapid State Changes in Ecosystems, Species Range Shifts, and Species Boundary Changes (**moderate** probability by 2100, **high** probability after 2100, **moderate** level of understanding)
- Increased Extinctions of Marine and Terrestrial Species (**high** probability by 2100, **very high** probability after 2100, **moderate** level of understanding)

## 5. The NRC Summary

“In light of the importance of actionable information about the occurrence and impacts of abrupt changes, it is the [NRC] Committee’s judgment that *action is urgently needed to improve society’s ability to anticipate climate change and impacts.*” (p.11) Surprises in the climate system are inevitable, and development of an Abrupt Change Early Warning System is recommended, part of an overall risk management strategy. The ACEWS would monitor key variables of abrupt change, engage in modeling to project future abrupt changes, and synthesize knowledge “to avoid the trap of data collection without continuing and evolving data analysis and model integration. This will require dedicated teams of researchers, improved collaborative networks, enhanced educational activities, and innovative tools for data analysis and modeling techniques.” (p.12)

Although there is still much to learn, “*to willfully ignore the threat of abrupt change could lead to more costs, loss of life, suffering, and environmental degradation. The time is here to be serious about the threat of tipping points so as to better anticipate and prepare ourselves for the inevitable surprises.*” (p.13)

## Appendix: Five Related Reports

Five recent reports serve to complement and expand the NRC concern about climate change and potential abrupt changes.

1. **America's Climate Choices** by the National Research Council (National Academies Press, May 2011, 118p; GFB Book of the Month, Oct 2011) warns that climate change “poses significant risks for a broad range of human and natural systems,” and that “substantial action” is needed to limit the magnitude of climate change and to prepare to adapt to its impacts. Given the complexities of the climate system, “we can expect always to be learning more and to be facing uncertainties regarding future risks.” Of particular note is the discussion of the unique challenges of climate change (e.g. significant time lags in the climate system and in human response), and the sensible and distinctive call for “iterative risk management” as a process of ongoing assessment, action, reassessment, and response.
2. **Bankrupting Nature: Denying Our Planetary Boundaries** by Anders Wijkman (Co-President, Club of Rome) and Johan Rockstrom of the Stockholm Resilience Centre (Earthscan/Routledge, Nov 2012, 206p.; GFB Book of the Month, Jan 2013) also focuses on the “need to acknowledge the risk of surprises, tipping points, or threshold events.” But it does so with the broader concept of “planetary boundaries” involving nine biophysical processes: climate stability, ozone depletion, ocean acidification, biogeochemical loading (nitrogen and phosphorus cycles), biodiversity loss, degradation of land resources, over-exploitation of freshwater, pollution from toxic chemicals, and atmospheric aerosol loading (nitrates, sulphates, and soot particles). Humanity has already exceeded three of these boundary limits, as concerns climate, biodiversity, and excess nitrogen. Based on two scientific papers published in 2009 by Rockstrom and 28 others, the “planetary boundaries” concept is also described by Carl Folke of the Stockholm Resilience Centre in **State of the World 2013: Is Sustainability Still Possible?** (Island Press/Worldwatch Institute, April 2013, 441p; GFB Book of the Month, Oct 2013).
3. **The Prospective Timing of Climate Departure from Recent Variability** by Camilo Mora of the University of Hawaii and 13 others (Nature, 10 Oct 2013, 183-187; reported by Justin Gillis in *The New York Times*, 10 Oct 2013, A10), arguing that “if greenhouse emissions continue their steady escalation, temperatures across most of the earth will rise to levels with no recorded precedent by the middle of this century.” (NYT) Thus the coldest year in the future will be warmer than the hottest year in the past, based on temperatures recorded between 1860 and 2005. Unprecedented climates will arrive even sooner in the tropics, where climate variability is much smaller than in high latitudes, and plants and animals are accustomed to a narrow temperature range. Under continuing high emissions (the business-as-usual scenario), climate departure dates will be 2029 for Jakarta and Lagos and 2031 for Mexico City, contrasted to 2047 for New York City and 2071 in Anchorage, plus or minus a five-year margin of error. “The models show that unprecedented temperatures could be delayed by 20 to 25 years if there is a vigorous global effort to bring emissions under control.”
4. **Fifth Assessment Report: Climate Change 2013**, from the Intergovernmental Panel on Climate Change, is delivered in three parts and a synthesis, as in previous years. **Work-**

**ing Group 1: The Physical Science Basis** (Jan 2014, c.1500p) states that warming is unequivocal and that there is a 95% chance that most of it is human-caused (up from 90% in the previous report). Contents include projected climate change over the 21st century and beyond, an atlas of climate projections for 35 world regions, and potentially abrupt or irreversible changes. The report from WG II, **Impacts, Adaptation, and Vulnerability**, is due in March 2014. The WG III report, **Mitigation of Climate Change**, is due in April 2014. A Dec 2013 draft was leaked, and reported in the New York Times by Justin Gillis (17 Jan 2014, A8), who writes that “Nations have so dragged their feet in battling climate change that the situation has grown critical and the risk of severe economic disruption is rising...another 15 years of failure to limit carbon emissions could make the problem virtually impossible to solve with current technologies.” While the spread of technologies like solar power and wind farms might give the impression of progress, such developments are being overtaken by rising emissions, especially in China. While emissions appear to have fallen in recent years in some rich countries, that is somewhat of an illusion because many of the goods consumed in wealthy countries are now made abroad; thus the wealthy countries have outsourced their emissions. A delay in curbing emissions would likely force future generations to suck greenhouse gases out of the atmosphere—an approach that “would probably be wildly expensive compared with taking steps now to slow emissions.” The IPCC **Synthesis Report** will be published in Oct 2014.

5. **The Climate Casino: Risk, Uncertainty, and Economics for a Warming World** by Yale economist William Nordhaus (Yale University Press, 2013, 378p), explains in a non-technical manner how we are entering the Climate Casino, where “economic growth is producing unintended but perilous changes in the climate and earth systems. These changes will lead to unforeseeable and probably dangerous consequences. We’re rolling the climatic dice, the outcome will produce surprises, and some of them are likely to be perilous.” (p.3) Chapters discuss the science of global warming, projections of future climate change from the IPCC Fourth Assessment, dangerous tipping points in the climate casino (collapse of large ice sheets, feedback that triggers more warming), the fate of farming, the potential for major impacts on health, perils for the oceans (sea level rise, ocean acidification and carbonization), intensification of hurricanes, impacts on wildlife and ecosystems, adding up the damages (showing vulnerability by economic sector), adaptation and geoengineering, the costs of reducing emissions, the discounting issue of comparing present and future costs and benefits (costs are paid largely in the near term, while benefits come far in the future), balancing costs and benefits, the central role of carbon prices, national climate change policies, new technologies for a low-carbon economy, climate science and its critics, public opinion and climate change, why carbon taxes are an ideal policy for true conservatives (they can be imposed without burdensome regulations and without betting on technology winners), and overcoming obstacles to climate change policies (prisoners of nationalism, of the present, of partisanship, of economic self-interest). Concludes that clear and persistent explanations of the science must continue; the evidence will become increasingly clear as it did with smoking, and “the political winds will eventually shift.”

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