



PROMOTING LEADERSHIP IN THOUGHT  
THAT LEADS TO ACTION

*THE WEALTH OF NATIONS REVISITED*

# CADMUS

**A papers series of the South-East European Division  
of the World Academy of Art and Science (SEED-WAAS)**

**Volume I, Issue 5, Part 1**

**October 2012**

**ISSN 2038-5242**

*Seed-Idea: Recognizing Unrecognized Genius*  
– Ivo Šlaus & Garry Jacobs

*Seed-Idea: Counter-Aging in the Post-industrial  
Society*  
– Orio Giarini

*Seed-Idea: Seeding Intrinsic Values: How a Law  
of Ecocide will Shift our Consciousness*  
– Polly Higgins

*Crises and Opportunities: A Manifesto for  
Change*  
– Ian Johnson & Garry Jacobs

*Double Factor Ten: Responsibility and Growth  
in the 21<sup>st</sup> Century*  
– F. J. Radermacher

*Rio+20*  
– Robert E. Horn

*The Future of the Arctic: A Key to Global  
Sustainability*  
– Francesco Stipo et al

*Book review – 2052: A Global Forecast for the  
Next Forty Years*  
– Michael Marien

## EDITORIAL BOARD

---

**Chairman:** Ivo Šlaus, President of World Academy of Art & Science; President, South East European Division, World Academy of Art & Science, Zagreb, Croatia; Member of the Club of Rome.

**Editor-in-Chief:** Orio Giarini, Director, The Risk Institute (Geneva and Trieste, Publisher), Member of the Board of Trustees of World Academy of Art & Science; Member of the Club of Rome.

**Managing Editor:** Garry Jacobs, Chairman of the Board of Trustees, World Academy of Art & Science; Vice-President, The Mother's Service Society, Pondicherry, India.

**Members:**

**Walter Truett Anderson**, Former President, World Academy of Art & Science; Fellow of the Meridian International Institute (USA) and Western Behavioral Sciences Institute.

**Ian Johnson**, Secretary General, Club of Rome; former Vice President, The World Bank; Fellow of World Academy of Art & Science.

**Michael Marien**, Fellow of World Academy of Art & Science; Director, Global Foresight Books.

**Winston Nagan**, Member of the Board of Trustees of World Academy of Art & Science; Professor of Law & Director, Institute for Human Rights, Peace and Development, University of Florida.

**Francesco Stipo**, President of the US Chapter, Club of Rome.

### *The CADMUS Journal*

*The acronym of the South-East European Division of The World Academy of Art and Science – SEED – prompted us to initiate a journal devoted to seed ideas - to leadership in thought that leads to action. Cadmus (or Kadmos in Greek and Phoenician mythology) was a son of King Agenor and Queen Telephassa of Tyre, and brother of Cilix, Phoenix and Europa. Cadmus is credited with introducing the original alphabet – the Phoenician alphabet, with “the invention” of agriculture, and with founding the city of Thebes. His marriage with Harmonia represents the symbolic coupling of Eastern learning and Western love of beauty. The youngest son of Cadmus and Harmonia is Illyrius. The city of Zagreb, which is the formal seat of SEED, was once a part of Illyria, a region including what is today referred to as the Western Balkans and even more. Cadmus will be a journal for fresh thinking and new perspectives that integrate knowledge from all fields of science, art and humanities to address real-life issues, inform policy and decision-making, and enhance our collective response to the challenges and opportunities facing the world today.*

**Copyright:**

The Risk Institute - Istituto del Rischio

Via della Torretta, 10 - 34121 Trieste - Italy / 53 route de Malagnou - 1208 Geneva - Switzerland

Editorial Office: 5, Puduvali Sivam Street, Venkata Nagar - Pondicherry 605011 - India

Published under Open Access policy guidelines.

See <http://cadmusjournal.org/content/editorial-policy> for Editorial Policy.

**Websites:**

[www.cadmusjournal.org](http://www.cadmusjournal.org) - [www.worldacademy.org](http://www.worldacademy.org) - [www.newwelfare.org](http://www.newwelfare.org)

**E-mail:**

[editor@cadmusjournal.org](mailto:editor@cadmusjournal.org)

**Printed by:**

Akaram, Plot No.1, Nirmala Nagar, Thanjavur, India

## ***Seed-Idea: Recognizing Unrecognized Genius***

At the July 2012 Global Round Table conducted in Split, Croatia, co-sponsored by the World Academy of Art and Science, the organizers proposed introduction of TESLA, an acronym for The Earth Supreme Level Award, for unrecognized genius. This is an important and commendable initiative by philanthropist Hares Youssef which directly ties into the Academy's exploration of mental creativity and the limits to rationality.

While the emphasis of the TESLA Awards will be on contributions to science and technology, genius has an important role to play in all fields of human activity – including original contributions to thought, social innovation, business, the humanities, arts, culture and spirituality. Awards are needed to encourage contributions in all these fields.

---

*“Genius unifies apparently disparate and unconnected phenomenon.”*

---

We commonly identify geniuses in retrospect based on their actual achievements, as we marvel at the works of Tesla, Edison, Darwin, Einstein, Shakespeare, Beethoven and countless others. Awards will serve the greatest purpose if they help identify those who have the potential for genius, rather than waiting until their endowment is self-evident to all. This is far easier said than done, which is undoubtedly why we tend to celebrate success rather than encourage it.

This raises a fundamental question: How can we identify the potential for genius, so we can encourage it rather than waiting for it to manifest? The answer lies in understanding the most striking characteristics that distinguish the creative processes of genius.

One approach to identifying unrecognized genius would be to look for people who approach problems from a wider perspective. These are individuals with the capacity to transcend the limits of conventional thinking and the boundaries of prevailing rationality. Edward Lorenz, a mathematician disguised as a climatologist, exemplified this endowment when he became curious about the disorderly behavior of apparently simple systems and sensitive dependence on initial conditions. Lorenz discovered non-linear patterns of order where others saw randomness, leading him to postulate the Butterfly Effect, with vast implications for our understanding of phenomenon such as weather, lava flows, and gas flows. Former WAAS President Harold Lasswell made a profound contribution to the study of law by liberating it from the narrow confines of legislatures and judiciaries and viewing it in the context of evolving social and political processes and the affirmation of values by individuals and institutions in society.<sup>1</sup> Similar efforts are needed to comprehend the evolution of money, markets, and economy from a wider evolutionary social perspective.

*“Today, there is an urgent need to reconnect disparate fields of thought in the social sciences – economics, politics, society and psychology. Unification of the social sciences and humanities can generate precious insights into the social process, such as the study of social evolution in literature.”*

Genius unifies apparently disparate and unconnected phenomenon. Thus, Newton unified motion and rest, heaven and earth – the same laws govern celestial motions and phenomena on Earth. Maxwell unified electricity, magnetism, and optics. Einstein unified acceleration and gravity, space and time. Continuing Einstein’s work on unified theory, WAAS Fellow Abdus Salam unified electromagnetic and weak forces. Today, there is an urgent need to reconnect disparate fields of thought in the social sciences – economics, politics, society and psychology. Unification of the social sciences and humanities can generate precious insights into the social process, such as the study of social evolution in literature.<sup>2</sup>

The genius is one who sees the whole which is greater than the sum of the parts. Prevailing conceptions in economics have become so highly compartmentalized, quantified and abstracted, that economic science is divorced from the reality it seeks to explain. Thus, financial markets are studied as a thing in themselves, divorced from the underlying economy. Economy is viewed in isolation from the political system of which it is an inextricable part and the welfare of human beings it is intended to serve; and both are largely unrelated to the wider biosphere and environment which constitute our home on earth. Orio Giarini has stressed the need for a more comprehensive perspective in economics encompassing both the monetarized and non-monetarized economy, and both economic value and human utilization value in time.<sup>3</sup>

“*Genius has the capacity to discover the truth in opposite viewpoints and to reconcile apparent contradictions at a higher level.*”

---

*“We need to encourage original thinkers to postulate radically new or improved social models to overcome the limitations of prevailing social, political and economic systems.”*

---

Genius has the capacity to discover the truth in opposite viewpoints and to reconcile apparent contradictions at a higher level. The end of the Cold War marked the emphatic rejection of state communism. The recent international financial crisis is an equally emphatic indictment of market capitalism. As Nicholas Stern has emphasized, climate warming is also a proof of the failure of market capitalism, and as Ian Johnson has stressed, the very low employment rate is further proof. It is time to move beyond polarized, conventional Cold War ideologies. We need to encourage original thinkers to postulate radically new or improved social models to overcome the limitations of prevailing social, political and economic systems. In economics, we need those who can reconcile the human quest for security with the creative uncertainty of social potential.<sup>4</sup>

Science does not provide adequate understanding of ourselves and our world. Many very rational people reject the premise that human dignity, curiosity, love, idealism, the quest for truth and the urge for self-transcendence can be adequately explained by physical processes. Indeed, many physicists argued that there are unique laws of biology. The apparent dichotomy

tomy between science and spirituality has reached a dead end calling for fresh thinking and new hypotheses to more effectively reconcile the emergence of life and consciousness with the prevailing assumptions of science.

Genius sees profundity in simple facts. According to legend, Newton discovered the invisible law of gravity watching an apple falling to earth. Archimedes discovered his famous principle of fluid mechanics observing the rising water level in his bathtub. Mahatma Gandhi converted simple sea salt into a powerful weapon for non-violent revolution, calling on the Indian people to make salt in violation of tax law. We are still awaiting the genius who can cast the simple fact that trillions of dollars evaporated into thin air during the 2008 financial debacle into a comprehensive theory of money, wealth and economy.

Genius sees universal patterns repeating across different fields and levels of existence. William Harvey drew his inspiration for his theory of blood circulation by an analogy between the heart and the sun and the way the movement of air and rain emulated the movement of heavenly bodies. It was such a capacity that enabled Benoit Mandelbrot and other complexity theorists to discover self-similarity across scale – repeating patterns hidden in other patterns. Their remarkable insights have important applications to our understanding of the earth’s surface, the surface of metals, and the anatomy of our lungs, capillaries and ducts. The quest for universal patterns applicable to the social sciences is a fertile field for new discoveries. The concept of micro-law, elaborated by WAAS Fellow Michael Reisman, traces the evolution of law to small acts by individuals in society, providing an important effort to link social processes at the level of the individual and society.<sup>5</sup> There is fertile ground for new thinking, which is needed to establish parallels between social processes and development at the local, national and global level.

Genius is endowed with the capacity to perceive deeper levels of causality that escape conventional thinking. In *War & Peace*, Leo Tolstoy describes the real determinate of victory in battle as an intangible element he termed the “spirit of the army”. A literary genius, Tolstoy understood better than the military strategists the inspirational power Winston Churchill wielded to defend his nation during the Battle of Britain. When Franklin D. Roosevelt assumed the US Presidency in early 1933, he faced a financial and banking crisis of epic proportions. More than 6000 banks had failed, the public was in a panic, and citizens throughout the country were lining up to withdraw their funds before they too lost their savings. The situation defied remedy by the known conventional wisdom of economists and bankers. But FDR had a deeper insight into the social basis of economy. He perceived that the real problem was neither economic nor financial. It was a loss of confidence, fear. Quintessentially American, he was in tune with the spirit of his people and knew the answer lay with them, not with the bankers or politicians. He got on the radio and addressed the nation, telling his people that the “only thing we have to fear is fear itself.” Then he called on them to go back to the banks the following Monday and redeposit their lifelong savings. The crisis subsided. The banks were saved. Fortunately, for America, the people had the foresight to choose a leader who understood them better than the experts. Building on the insights of former WAAS President Harlan Cleveland and Fellow Jasjit Singh, deeper insights are needed into the linkage between rising social aspirations, employment, social unrest and terrorism.<sup>6</sup>

---

*“Genius sees life in its profundity and totality.”*

---

Genius perceives relationships between disparate, apparently unrelated facts. Sir Arthur Conan Doyle was a literary genius who portrayed with remarkable insight the working of genius through his immortal character Sherlock Holmes. Where the police placed all their confidence in the apparent evidence on the crime scene, Holmes always insisted on an explanation consistent with every facet of the people, circumstances and social context, human nature and the character of life itself. His perspective was all-inclusive. In one instance, he identified the criminal based on something that did not even occur – the fact that the dog did not bark signified to him that the criminal must have been known to the animal. Genius sees the whole picture.

Genius perceives universal truths of life and human nature. At the age of 21, Jane Austen whimsically began her great novel *Pride and Prejudice* with a profound insight: “It is a truth universally acknowledged, that a single man in possession of a good fortune, must be in want of a wife.” Shakespeare captured immortal truth in the lines “Whoever loved that loved not at first sight?” He understood that what is eternally valuable occurs instantaneously. “All the world’s a stage.” His perspective was universal. Genius sees life in its profundity and totality.

“**Genius sees immense opportunity where others see problems or nothing at all.**”

Genius perceives universal truths of life and human nature. At the age of 21, Jane Austen whimsically began her great novel *Pride and Prejudice* with a profound insight: “It is a truth universally acknowledged, that a single man in possession of a good fortune, must be in want of a wife.” Shakespeare captured immortal truth in the lines “Whoever loved that loved not at first sight?” He understood that what is eternally valuable occurs instantaneously. “All the world’s a stage.” His perspective was universal. Genius sees life in its profundity and totality.

Differences exist between the expression of genius in thought and in action, so the criteria we develop for recognizing these varied expressions are likely to differ at least in some respects. Genius sees immense opportunity where others see problems or nothing at all. In the late 1920s, a Czechoslovakian shoe manufacturer named Tomas Bata dispatched agents to Africa and Asia in a quest for raw materials and markets for his products. His African agent cabled home reporting there was no market potential since few people wore shoes. Bata responded that his report has revealed there is infinite potential. Within a few years, Bata was running the largest shoe company in the world. A Bangladeshi college lecturer saw unlimited potential where commercial bankers feared to tread. Muhammad Yunus established Grameen Bank, establishing the prototype for the micro credit and micro finance industry, which now services tens of millions of people globally and is a powerful instrument for eradicating poverty.

Genius discovers the value of the opposite points of view and sees a relationship between opposites – competition and cooperation, love and hate, crisis and opportunity. At a time when rapacious, competitive capitalism was at its peak, Julius Rosenwald assumed the helm of a fledgling Chicago mail-order company in 1900 and built Sears into the largest retailer in the world by putting the satisfaction of his customers before the profitability of his business. He introduced the famed policy, “Satisfaction guaranteed or your money back,” which has now become a global standard in retailing. Human beings have always feared the machines they create, plagued by the recurring nightmare that their creations will eventually overtake and replace them. At a time when computerization was indeed taking over business and making people a dispensable resource, one young entrepreneur launched a revolution to make computers serve human beings. The famed, user-friendly Macintosh personal computer with mouse and graphic user interface was only the first step in the remarkable career

---

*“A thorough study may identify a hundred such principles to serve as guidelines for identifying original genius.”*

---

of Steve Jobs, who eventually built Apple into the most valuable company in the history of the world.

Genius discovers the untapped potential of linking and coordinating two or more fields of activity. The phenomenal achievements resulting from the advent of computers and the internet combine the power of technology with the power of social organization in many original, creative ways. The remarkable achievements of visionary individu-

als who founded new web-based social organizations such as e-Bay, Wikipedia, Facebook and Twitter offer additional clues to the principles governing genius.

These are just a few indices by which unrecognized potential genius may be discoverable at the formative stage when encouragement can help it blossom forth in rich creative profusion. A thorough study may identify a hundred such principles to serve as guidelines for identifying original genius.

Every sphere of human existence has progressed dramatically over the last 200 years — freedom, education, information, communication, technology, knowledge, and measurement have all increased exponentially. Then, is there any reason why the phenomenon of genius cannot similarly multiply? In the last ten centuries, the world may have discovered a hundred or more geniuses.

*“By systematic effort to identify and encourage unrecognized genius, we may be able to discover a hundred or more potential geniuses every year.”*

By systematic effort to identify and encourage unrecognized genius, we may be able to discover a hundred or more potential geniuses every year. As an Academy representing highest achievement in all fields of knowledge, the World Academy of Art and Science is eminently qualified to lead the way both in identifying the common criteria for genius in different fields of knowledge and walks of life and in identifying unrecognized individuals with high potential for augmenting human achievements.

*We invite Fellows to help us expand the list of criteria for recognizing potential genius. Send ideas to [genius@worldacademy.org](mailto:genius@worldacademy.org).*

**Ivo Šlaus and Garry Jacobs**

## Notes

1. Winston Nagan & Garry Jacobs, “New Paradigm for Global Rule of Law,” *Cadmus* 1, no. 4 (2012): 130-146.
2. Janani Harish, “Study of Individuality & Social Evolution in Literature,” *Eruditio* 1, no.1 (2012): 44-52.
3. Garry Jacobs & Ivo Šlaus, “From Limits to Growth to Limitless Growth,” *Cadmus* 1, no. 4 (2012): 59-76.
4. Orio Giarini, “Science and Economics: The Case for Uncertainty and Disequilibrium,” *Cadmus* 1, no. 2 (2011): 25-34.
5. Nagan & Jacobs, “New Paradigm for Global Rule of Law,” 139.
6. Jasjit Singh, “Revolution in Human Affairs: The Root of Societal Violence,” *Cadmus* 1, no. 2 (2011): 114-120.



## ***Seed-Idea: Counter-Aging in the Post-industrial Society***

Several articles in *Cadmus Journal* have explored the meaning of “Wealth of Nations” at a time when the Industrial Revolution has given way to the Service Economy. In parallel, the *European Papers on the New Welfare* has been examining the lengthening of human life cycle as a decisive social and economic issue.

The lengthening of life cycle is a unique revolutionary phenomenon that will have a profound impact on contemporary and future societies. It will affect social, political and economic institutions to a far greater and deeper measure than is commonly perceived. Older people, those over 60, have always existed in history. But previously they represented a small minority. Today the lengthening of life cycle is a worldwide phenomenon with impact on the majority of the population.

From the “older” industrialized countries, it is extending its reach to the large majority of communities everywhere.

*“Statistics based not on age but on the capacity to perform indicate, in fact, that in many countries, the population is not “aging” but “rejuvenating”.”*

The lengthening of life cycle is often presented (wrongly) as the problem of “aging of population,” and as such, is regarded as an indication of the decay of the industrialized world. In fact, the “older” industrialized countries have the dual advantage of offering a longer (and better) life to their citizens while also evolving the social, economic and political adaptations required by the new demographic reality.

The definition of aging is based on the notion of older age. Considering the ability of each individual to be autonomous (in physical and/or mental terms), many studies and surveys indicate that on average a 60 or even an 80-year-old person of today corresponds in terms of the capacity for self-reliance to a younger person aged 15/20 living a century ago. Statistics based not on age but on the *capacity to perform* indicate, in fact, that in many countries, the population is not “aging” but “rejuvenating.”

In reality, we live in a “counter-aging society”. The lengthening of life cycle is clearly the result of economic and social advances that are strictly linked to scientific and technological advances. Biology, medicine, health control, nanotechnologies, nuclear applications, communication, instrumentations, etc. are producing significant advances for human health, welfare and well-being almost every year.

The lengthening of life cycle requires a redefinition of the period of ACTIVE life. I propose replacing the current conception of a single career of paid work with two different categories of activity: remunerated work on one side and unpaid or benevolent activities on the other. In fact, the two are complementary much more so in the post-industrial service economy than in earlier times.

This also implies an open possibility (and in many instances, the necessity) for extending the retirement age. When originally conceived, retirement age was based on the average age



of death. Today, at the time of retirement in many countries, life expectancy is 15 to 20 years more.

Satisfactory employment is for most people an important element of a healthy life. It needs to be based on an adequate foundation of education and the capacity to change the type of work as one advances in age.

It is also very important to promote part-time employment as a basic element for a well-balanced social security system. It is especially important for those working over 60. As it is now in some northern European countries, part-time pensions should be coupled to encourage part-time work.

Gradual retirement plans are also important.

These elements form part of the “four pillars system,” which is based on the three pillars of the Swiss system plus part-time employment, which is referred to as the fourth pillar.<sup>1</sup>

Health improvement has been achieved at a great increase in costs. One could die almost for free in a not-so-distant past; now one has to pay for the possibility to control, eliminate or reduce the effects of all sorts of illnesses or accidents. We already spend a lot of money buying and using automobiles, which allow us to move (sometimes) faster. One day we will probably spend even more individually for our health maintenance, which might make our lives better and help us move faster. Spending on health is therefore producing added value for our lives. It increases the “Wealth of Nations.” From an economic point of view, retirement and health costs imply building financial capabilities by redistributive policies and personal savings.

This compels us to formulate a new definition of “capital” appropriate to the post-industrial Service economy. We need a perspective that recognizes the value of Human Capital across all age groups and seeks to optimize the development and utilization of this precious resource for human welfare and well-being. Indeed, all essential elements of economic theory need to be recast to reflect the realities of a human-centered perspective of economy and welfare.

For example, in the modern service economy, not all “value-added” measures reflect a real increase in the level of wealth. For instance, the cost of coping with pollution is registered as a positive contribution to GDP, whereas it has really resulted from a deterioration in the quality of life. At the same time, many developments in service functions and performance, e.g. enhancements in communication capabilities, add to real wealth and welfare much more than is reflected in the usual value-added measures, where lower costs of communication are recorded negative.

So also, the notion of productivity in a service economy needs to be based on performance over time (in a probabilistic system) rather than on production factor costs (in an equilibrium-based system) as in an industrial economy. A human-centered economics needs to also fully integrate ecological factors and reflect the impact of human activity on natural capital. All these elements need to be reflected in a new conception of the “Wealth of Nations.”

These issues raise fundamental questions such as: How and how far should we integrate health and pension costs and performances? How and how far should they be integrated with

the fiscal systems? How can we stimulate and improve the complementarity of the private and public sectors, the best solutions being determined by proper synergies between the two?

Two final considerations at the general political and socio-economic level: the first, as is always the case in human history, is a question of vision. How do we ensure that the lengthening of life cycle does not lead to social and financial disasters? Can we approach this prospect of increasing longevity as a fantastic positive opportunity to be exploited by adequate imagination, understanding and goodwill? This will entail a lot of work for those who dare.

The second consideration concerns the policies on which adequate and appropriate institutions, for instance, the European Union, will have to inevitably confront themselves. The European Union, in particular, needs to foster new initiatives towards integration. Social policies are clearly a major key for demonstrating concern about the daily problems of European citizens. There is large room for consensus to be reached and built on the issue of a new European Welfare. A more courageous initiative in this field is clearly necessary. Building European Welfare implies a productive comparison between the present differences among national systems, in order to promote the best solutions for all.

In this context, European countries, and in particular, the new countries from Eastern Europe, where in many cases the situation is more “open” than in the older members, could represent an important promotional reference group. There are great opportunities for research projects and proposals in this field.

The *European Papers on the New Welfare* contributes a number of important studies to pave the road to a complex, but challenging exploration of ‘New Welfare in the counter-aging society’. The World Academy of Art and Science wishes that politicians, students, and professionals and finally, every citizen whose life is directly concerned, may be inspired by the issue of welfare.

Trieste and its region could become a center of reference and excellence on all these issues. The age structure of Trieste’s population anticipates where the world is heading for in this area. Trieste has unique science and technological research patrimony (from the Science Area to the International Center for Theoretical Physics, and various others). It has an experienced infrastructure in the health (physical and mental) and education sectors. It has a large potential locally and at the level of the Friuli–Venezia Giulia region to promote industrial, service-based, social and cultural initiatives related to the development of the “counter-aging society.”

**Orio Giarini**

## Notes

1. Four Pillars Newsletter, [http://www.genevaassociation.org/Research\\_Programme/Four\\_Pillars\\_Pensions.aspx#anchor1](http://www.genevaassociation.org/Research_Programme/Four_Pillars_Pensions.aspx#anchor1)

## ***Seed-Idea: Seeding Intrinsic Values: How a Law of Ecocide will Shift our Consciousness***

In April 2010, I proposed to the United Nations a law of Ecocide. My proposal has at its heart a fundamental intrinsic value – the sacredness of all life. When we value life, something fundamentally shifts in us; we look to the inner. It opens the door to self-reflection and when we do that, we look at the consequences. It is the same with law. Law that is premised on imposed values, such as profit and ownership leads to short-term gains without examination of the longer-term implications. Currently, our world is predominantly driven by laws that put profit first. So, how do we shift to a new way of being that prioritises intrinsic values? How do we shift away from valuing something for its price-tag to valuing something for its own sake, regardless of whether or not it has a pecuniary value?

*“Currently, our world is predominantly driven by laws that put profit first. So how do we shift to a new way of being that prioritises intrinsic values? How do we shift away from valuing something for its price-tag to valuing something in and of itself, regardless of whether or not it has a pecuniary value?”*

View the Earth as a thing and we commoditise it; put a price on it and we can buy, sell, use and abuse without consequence. View the Earth as a living being and we begin to care; when we care, we take responsibility and examine the consequences. These two very different approaches are echoed in law; the former is governed by contract and ownership laws, the latter governed by trust and stewardship principles. The outcomes are radically opposed.

The scales of justice have become imbalanced. They have become heavily weighted in favor of the former, where we have driven our economies to the brink by laws that put polluters above people and planet. The ripples of disharmony are being felt across the world and it is a system that cannot be sustained. We can, however, rebalance the scales. To do that requires a shift in the laws that govern us as a collective. In legal terms, that means creating new laws at an international level, laws that put people and planet first.

*“The intrinsic value is the knowledge that we are all one.”*

Our starting point is to close the door to systems that are life-destroying. When we do that we create a space to open a new door to systems that are life-affirming. Law that is premised on health and well-being of human and non-human life is our bridge to a new way of being. Nothing less than a whole new body of law is required; that body of law is already coming into being. Earth law.

In 1948, we closed the door to Genocide. When we did that we opened the door to human life. Now we can close the door to Ecocide. When we do that we open the door to life. Our cycles of concern widen from human to human, to human to non-human. The intrinsic value is the knowledge that we are all one. As humans, we are interdependent and interconnected to non-human life. Simply put, destroying the very land we walk on, we would destroy our ability to live in peaceful enjoyment. That applies whether or not we destroy without intention (such as through dangerous industrial activity, e.g. deforestation or nuclear testing).

My proposal is to create an international law of Ecocide. It is the missing 5<sup>th</sup> Crime Against Peace. By giving names to extensive damage, we can begin to heal.

*'Ecocide is the extensive damage to, destruction of or loss of ecosystem(s) of a given territory, whether by human agency or by other causes, to such an extent that peaceful enjoyment by the inhabitants of that territory has been severely diminished.'*

I have proposed that Ecocide sit alongside Genocide. By setting out this legal definition of the word Ecocide, I have created a provision which imposes a legal duty of care to place humanitarian and non-humanitarian life first. Implementation of the crime of Ecocide will stop the flow of destruction at the source and create a pre-emptive duty on corporate, governmental and financial activity to prohibit the mass damage and destruction to eco-systems. In international criminal law, we have a rule that is called the superior responsibility principle. International crime attaches itself to those who are in a position of superior responsibility, literally those who are in command — CEOs, heads of state and heads of financial institutions — to be held responsible to account for the decisions that are made at the very top level that can lead to, support or finance mass damage and destruction. By levying responsibility on persons, not legal fictional entities (i.e., a corporation), the cycle of destruction and accrual of silent rights (the right to pollute, the right to destroy) will die. By so doing, the protection of interests shifts from those few who have ownership to protection of all beings.

The importance of such a crime is that it criminalises any dangerous activity that gives rise to mass destruction. Nuclear testing and the use of nuclear weapons are the very worst kind of Ecocide of all. In August, I visited the town of Semey (former Soviet Union) to discover first-hand how a former nuclear testing ground is healing, with 100 other people. We met with young doctors and students who are being trained to deal with the second and third generation of people who are still suffering as a result of the tests back in the mid-1950s. Ecocide has long-term consequences.

Dr. Damien Short of the University of London and his team at the School of Advanced Legal Studies have recently unearthed some previously unseen UN documents that show that Ecocide was on the table to be an international Crime Against Peace. They are now undertaking a two-year research programme called The Ecocide Project to examine the background history of why the crime of Ecocide was removed from the precursor to the Rome Statute in 1996. Most tellingly, the draft document was entitled the Code of Offences Against the Peace and Security of Mankind. It listed Genocide, War Crimes, Crimes Against Humanity, Crimes of Aggression and Ecocide. The First 4 have become international Crimes Against Peace. Ecocide is the missing 5<sup>th</sup> Crime Against Peace.

I am seeking to have the Rome Statute re-opened for amendment. Next steps are to find a leader to speak out in support of an international law of Ecocide; by criminalising mass destruction at the international level, the door can be closed once and for all not only to nuclear testing and nuclear weapons but to all dangerous industrial activities that cause Ecocide.

My work is to speak out about the law of Ecocide; however, one lawyer is not enough. This requires leadership at all levels — leadership that puts people and planet before profit; that which accepts the moral duty we hold in sacred trust for future generations. We have done it before when we closed the door to Genocide; now civilisation is ready to take the leap. A law of Ecocide is the bridge that makes it safe to walk across to the new world.

**Polly Higgins**, International Environmental Lawyer and Barrister

## **Crises and Opportunities: A Manifesto for Change**

**Ian Johnson**, Secretary General of the Club of Rome;  
Fellow, World Academy of Art and Science

**Garry Jacobs**, Chairman, Board of Trustees, World Academy of Art and Science;  
Vice President, The Mother's Service Society

### **Abstract**

*Piecemeal fragmented strategies cannot address the pressing challenges facing humanity today. Economic theory has to be radically reinvented to squarely face the reality of rising unemployment, widening inequalities, growing ecological threats, frustrated social aspirations and unmet human needs. Monetary and fiscal policies are too crude and insufficient to steer the essential change of course required to address multidimensional demographic, ecological, economic, political and social crises. New values are needed to guide policy formulation and new institutions are needed to support peaceful social evolution and inclusive, equitable development in an increasingly globalized and interconnected world.*

If challenges are opportunities, then never before have the opportunities been so great; for never before has humanity faced challenges comparable in magnitude and complexity to those that have emerged in recent times. Today, we stand both witness and participant in a multi-dimensional global crisis impacting all major aspects of global society, imposing severe constraints on our ability to meet the growing needs and rising aspirations of the human community in an effective, harmonious and equitable manner. The signs of deeper crisis are most evident at a number of specific pressure points:

- **Ecology:** Deepening ecological crisis driven by unbridled economic growth, soaring energy consumption and mispricing of natural capital, generating serious concerns over anthropogenic climate change, severe damage to terrestrial and ocean biodiversity, increasing water scarcity, rising energy costs, and depletion of resources.
- **Employment:** Structural unemployment crisis of ominous proportions driven by massive demographic changes within and between countries, pricing and incentive systems biased toward investment in technology and physical energy over human capital, and a global realignment of economic activity, leading to the alienation of growing numbers of youth and chronically unemployed older workers.
- **Finance:** Persistent and recurring financial and banking crisis driven by inadequate regulation and oversight, based on unquestioning faith in the efficiency and

effectiveness of unfettered markets, leading to a growing diversion of financial resources for speculative, non-productive purposes and undermining the stability and growth of the real economy.

- **Food:** Periodic food commodity crisis driven by rising food prices, declining efficiency and productivity, depletion of scarce soil and water resources, and diversion of arable lands to non-food energy crops.
- **Poverty:** Enduring poverty crisis in both developing and developed countries driven by a growing divorce between economic growth and human welfare, and aggravated by rising levels of unemployment, income inequality, food and energy prices.
- **Security:** And finally, as a result and aggravating factor, an emerging crisis in social stability, cohesion, physical and social security arising from the widening gap between human aspirations and available opportunities, leading to alienation, social unrest, crime and violence, and serving as fertile soil for the polarization of society and rise of fundamentalism.

These pressure points share several striking features. First is their mutual interdependence. Each magnifies the severity of the others and is in turn aggravated by all the others. Second is their common origin. Each can be traced back to similar underlying factors and “root” causes. This is the major reason why each of these multiple crises defies effective remedy by piecemeal strategies. The true source of the problem lies at a more fundamental level in the present value system and structure of modern society, and will only lend itself to permanent remedy when understood and addressed from a deeper and wider perspective. Third is the fact that they are all anthropogenic in origin. All are the expression of human ideas, values and actions, not inalienable laws of Nature, which means that all can and can only be rectified by a change in our ideas, values and actions.

A better appreciation of root causes will provide a platform for insightful debate and more effective remedies. Approaching the multiple crises from a common perspective and addressing multiple pressure points at their common underlying roots will lead to solutions that are both more effective and more lasting than those resulting from a fragmented approach. Only then can we hope to reconcile these complex economic, ecological, social and political factors and to forge a coherent strategy to promote security and welfare for all human beings, present and future.

With political leaders, the media and the general public preoccupied by the intensity and immediacy of the financial, economic and employment crises, concern with the potentially catastrophic ecological crisis has receded from the public mind. By addressing the whole gamut of issues in this larger framework, environmentalists can redirect attention to the underlying factors that are the root cause and only viable remedy for the preservation of our natural systems.

An integral perspective constitutes the starting point, but in order to translate it into usable, practical results, we need to examine the ruling ideas and values that govern the present system, the theoretical constructs and policy framework on which it is based, the social institutions through which it functions, and the structures and laws through which

it is governed. These constitute the essential sources of the current problem as well as the principal instruments for building a better world. Striving to formulate a broad conceptual framework for resolving the global crisis may appear far removed from the everyday problems and available policy options, but ultimately, it is an essential step in defining a viable change of course that will lead us out of the present fog of confusion into a better future. The objective of this paper is not to provide all the answers, but rather to present a diagnostic framework, a road map, a manifesto for change, and to highlight key points where systemic changes can and should be made, which in combination can radically alter future outcomes for the good of all humanity.

*“Ideas possess a transformative power. Social evolution is propelled by the perception of new possibilities, the formulation of new ideas and the adoption of new values which release and channel human energy for higher levels of accomplishment.”*

## 1. Ideas can Change the World

The current crises confronting humanity today reinforce the importance of values as the essential basis for global social progress. Unregulated markets that serve the few at the expense of the many, undemocratic institutions of global governance, rising levels of inequality, unsustainable exploitation and destruction of our natural resource base, rising alienation of human capital from productive employment and rising levels of social instability are signs of a social fabric increasingly divorced and insensitive to the welfare and well-being of large sections of humanity. At the root of the multiple crises confronting humanity today is a crises of values that must be resolved before there can be any hope of lasting solutions to the problems facing humanity.

The history of human development is commonly described in terms of advances in technology, but this is an overly-simplified view that disregards other transformative agents of change. The catalytic impact of the Club of Rome’s report, *The Limits to Growth*, on global awareness of the environmental challenge is sufficient proof that

*“Values are not merely utopian ideals. Values define us and the institutions we create.”*

*ideas can change the world.* Ideas possess a transformative power. Social evolution is propelled by the perception of new possibilities, the formulation of new ideas and the adoption of new values which release and channel human energy for higher levels of accomplishment. Agriculture, specialization of labor, property, markets, cities, money, banking, democracy and the internet are examples of new ideas that have transformed the way we live and work together. Human political, economic and social rights are a catalog of values which have radically altered the fabric of social relationships, leading to the progressive emergence of the individual as the pioneer and creative leader of social development.

Values are not merely utopian ideals. Values define us and the institutions we create. The power of values derives from the fact that they contain the quintessence of wisdom acquired by successive generations regarding the essential requirements for higher levels



“*The time is ripe for a new narrative, new metaphors and a new storyline for humanity.*”

of human accomplishment. Thus, it has taken millennia for humanity to realize that freedom creates the most dynamic environment for the emergence and productive expression of human capacities so essential for development, creativity and prosperity. At the same time, it is values that define the balance between the rights and responsibilities of

the individual and the collective, so essential for social stability, productivity, harmony and continuity. Values define the balance between present and future generations and the place of humanity as an integral part of the natural system.

The time is ripe for a new narrative, new metaphors and a new storyline for humanity. We are advised to seek the remedy to the prevailing social ills not merely in technological fixes, but in a re-examination of the fundamental ideas and values on which the current system is based. The limits we confront are mental limits – limits to our perception, understanding, imagination, idealism and values.

A consideration of values compels us to ask seminal questions: What kind of world do we want to create for present and future generations? What are the fundamental premises and values on which it should be based? Any serious attempt to formulate a more coherent and cohesive social framework should begin by examining the values that have driven human progress over the last few centuries and by identifying emerging ideas and values with the power to break the limitations of existing structures and forge a more effective synthesis of human capabilities and resources.

## **2. Need for New Theory**

Adoption of new values compels us to reject the Newtonian conception of economic theory based on intractable laws of nature. The first economists were moral philosophers seeking to design a better social system to meet human needs, not scientists in search of some immutable laws of economy. Economy is a human activity intended for a specific purpose. Production of things, application of technology, multiplying money, and even growth itself are merely means to an end, not ends in themselves. There can be only one legitimate aim of economic activity to promote the maximum welfare of all human beings over time. We need to re-examine current economic theory to see where it fails to promote optimal human welfare and how it can be altered to better suit human needs.

The laws of economics are governed by human values, choices, policies and institutions which can and do evolve continuously over time. Current economic concepts and theories date back to the beginning of the Industrial Revolution and were serviceable during a period when increasing production was the primary means for overcoming scarcity and human want. Continued reliance on outmoded ideas poses a serious threat to the future of humankind.

A triple divorce has disconnected economy from the fundamental role it is intended to serve. First is the widening rift between production and employment. The aim of raising labor productivity has given place to the obsession with eliminating labor altogether from the production process, creating a world with ever growing production capacity, while severely limiting the number of people with the purchasing power necessary to avail of it. Second

is the rift between finance and economy, a divorce of financial markets from the real economy, which they were originally intended to serve. The consequences of this separation have been growing for decades.

“*New economics must be founded on rational thought rather than fundamentalist dogma.*”

Over the past forty years, the world has been wracked by more than 400 financial crises, destabilizing economies and impoverishing people around the world. Money and financial markets have become ends in themselves, channeling capital into speculative investments and depriving the real economy of vital resources. We need to recall that the fundamental purpose of financial markets is to support the real economy and promote human welfare.

Third is the rift between economy and ecology. The blind pursuit of unbridled growth, more production and consumption without regard for the consequences is like a cancer, rapidly destroying the ecological foundations on which human life depends.

New economics must be founded on rational thought rather than fundamentalist dogma. The neoliberal philosophy that underlies efficient market theory is just another name for the law of the jungle. Our aim is not mathematical accuracy but human welfare. The validity of economic axioms must be judged solely in terms of their capacity to promote real-world benefits for human beings. How far economics has strayed from its original and valid purpose is indicated by the fact that two Nobel prizes have been awarded for theories applied in computerized trading programs responsible for destabilizing financial markets and disrupting the entire world economy. The only meaningful measure of efficiency is that which most effectively utilizes available material and social resources to meet the needs of all human beings, present and future.

Economics is presently based on a false system of accounting that assumes all growth is good and all forms of growth are equally good. Current measures regard the economic benefits of war, pollution, crime, rising oil prices, terrorism, epidemics, natural calamities, water scarcity and deforestation as equivalent to activities that promote better nutrition, housing, education, healthcare, physical comforts and conveniences, social harmony, recreation and enjoyment. Nations today are blindly groping, as the medieval traders of Europe did before the invention of double-entry bookkeeping enabled them to clearly distinguish credit vs. debit transactions. Is the world truly richer today because it spends \$60 billion a year on bottled water, largely as a result of increasing concern regarding the availability of good-quality drinking water? By that logic, pricing clean air as a result of growing air pollution would make us richer still.

Newton's laws of motion may be divorced from human notions of value, but the laws of economy are firmly based on the notion of value and the process of valuation. Prices reflect the perceived value of materials, time, people, products, leisure, knowledge, power, status, convenience and enjoyment. Here too, we are employing false measures. It is highway robbery to price water, oil and other non-renewable resources at the financial cost of extracting them, to price forest timber at the cost of cutting it down, unmindful of the consequences; or to price nuclear energy without regard for the full risks of catastrophic events such as

Fukushima, and the full cycle investment costs to society of managing decommissioning and waste disposal.

The concept of public and private goods is based on the idea that the individual and the collective have different terms of reference and standards of value which need to be balanced and reconciled. What serves the one may be to the detriment of the other. Maximizing technology and minimizing labor or diverting financial resources from the real economy into speculative monetary instruments may appear to be of good value to the businessman, but may generate high costs to society in terms of unemployment, income inequality, social welfare expenditure, crime and social alienation. Depleting non-renewable, fossil fuel energy resources may appear to be of good value to industry, but may generate high environmental costs to global society and future generations.

Equally important is the need for a reassessment of the role of money as a social organization and of monetary policy as an instrument for economic regulation. Money is a unique human invention, which like language and the Internet, facilitates exchange, interrelationships and productive collaboration between human beings. But current monetary policy and monetary regulation are veiled by esoteric doctrines, sacred principles and opaque decision-making that obscure real world analysis and open debate regarding their medium and long term impact on human welfare. Econometric models based on mathematical algorithms cannot be relied on to choose what is best for humanity. The validity of the oft cited tradeoff between price stability and employment must be open to discussion and empirical assessment. The need for new values and new thinking must also penetrate this shadowy domain.

A major shift is needed to re-engineer our economies: questioning the assumptions that underlie current economics; altering the system of metrics by which we assess progress to ensure that our valuations reflect the real contribution to human welfare and embed the full costs, direct, indirect and inter-temporal; eliminating the irrational, unsustainable, inequitable and often uneconomic ways in which we deploy, utilize and consume resources; and changing the policies by which we establish the relative prices of various forms of capital – natural and social. We need to review our concept of growth and revamp growth models to ensure they meet the needs of both present and future generations, with particular attention to the future of work and the maintenance of our high-value natural systems.

Most important of all, we need to dispel the misguided belief that we have run out of options and are truly helpless against the intractable laws of nature. The limitations we face today are limits imposed by our values and concepts, not the limits of human potential for accomplishment. A careful analysis of present assumptions supports the view that new theory can lead to the development of far more effective systems for meeting human needs. The criticality of circumstances will compel us to implement radical changes sooner rather than later – **the sooner the better**.

### **3. Employment: An Urgent Priority**

Nowhere is the need for new values and new theory more apparent than with regard to the growing problem of unemployment. Broadly defined, employment and jobs encompass all forms of meaningful, remunerative work – formal and informal, full and part-time, whether engaged by others or self-employed. Similarly, unemployment, underemployment

and marginal subsistence activities encompass all forms in which precious and perishable human resources in both developing and economically advanced countries remain idle or underutilized for want of opportunities for gainful work. Human resources are a perishable commodity, which degenerate rapidly when left unutilized. Underutilization of human resources represents a huge social cost and poses a serious threat to peace and social stability, nationally and globally. It is only by addressing this issue promptly and effectively that we can hope to attract public attention to the serious environmental issues confronting humanity.

*“A human-centered theory of economics must place people first, while fully recognizing that humanity forms an integral part of the natural system.”*

While the consequences of financial instability are more visibly reflected in the media and urgently debated by politicians, and while the consequences of climate change may be far more catastrophic to humanity and life on earth, rising levels of unemployment pose the greatest near term danger to the welfare of humanity and the stability of global society. According to ILO, more than 200 million people are unemployed globally, including 75 million youth. This figure grossly underestimates the real level of unemployment and underemployment which probably exceeds one billion or a third of the global workforce. Official figures for youth unemployment range between 20% and 30% in most OECD countries and are over 50% in Greece and Spain. These figures will continue to rise as deficit reduction strategies cause economic contraction in many countries. Over the next decade, the working-age population of G20 countries will increase by 440 million. In order to generate global full employment, the world would need to create 600 million new jobs within a decade.

Recent trends tell us this is improbable. A pessimistic mindset tells us it is impossible. Yet, the evidence of history contradicts these conclusions. We must reject the false notion that full employment is not feasible. The past sixty years have been the period of the most rapid population growth in world history. During this period 4.2 billion people were added to world population, a growth of 164%. Yet, during the same period total global employment increased by 175% and average levels of unemployment remained relatively constant. The gloom and doom are real to our minds, but they are not an inevitable reality. At present, there is no coherent theory of employment that adequately explains this remarkable achievement. Thus, new theory is essential.

A permanent solution to the global employment challenge demands a radical change in ideas and values. We must recognize that people — human capital — are the most precious of all resources which must be preserved and enhanced at all cost. People are not only the source of all the ideas, products, technologies and discoveries that have directed human development; they also constitute the ultimate purpose of that development. A human-centered theory of economics must place people first, while fully recognizing that humanity forms an integral part of the natural system.

Employment occupies a unique role in a market economic system. As the right to vote is the principal means by which people exercise their political rights in democracy, employment is the principal means by which people exercise economic rights in a democratic market economy. Employment is the economic equivalent of the right to vote. People can survive

---

*“Banning speculation can redirect trillions of dollars into job-creating investments in the real economy.”*

---

without voting, but not without a means for their sustenance. The right to employment must be constitutionally safeguarded. As Indian Prime Minister Indira Gandhi told during the first conference on Environment and Development in 1972, poverty is the worst form of pollution. And poverty is inextricably linked to the absence of remunerative employment opportunities. Moreover, employment is also essential for social stability. The unemployed are the main source of new recruits for social unrest, organized crime, fundamentalist groups and terrorism.

Recognizing the urgent need to address the global employment challenge, ample means are available to accelerate job growth once we are willing to challenge and reject outmoded assumptions and policies. Policies must be reversed which tax employment and subsidize unemployment needs, incentivize blind adoption of labor-saving technologies and energy-intensive processes, and subsidize fossil fuel and water extraction by wrong pricing. Banning speculation can redirect trillions of dollars into job-creating investments in the real economy. Raising the mandatory minimum level of education globally is a wise investment to upgrade the quality of human resources, while creating new jobs in education and reducing the flow of youth into the workforce. Revising the system of higher education to combine education and work over an extended period and drastically revising curriculum to enhance the quality and relevance of education are also essential measures. These and many other initiatives illustrate the fact that full employment is an achievable goal provided we are committed to achieving it.

#### **4. Rights, Social Equity & Fairness**

Economic progress for all was a basic tenet of the post-war decades. But over the past quarter century, we find an increasing proportion of income and wealth being concentrated among a smaller and smaller proportion of the population. The top 20% of the world's population possessed 33 times more income than the poorest 20% in 1970, 45 times more in 1980, and 74 times more in 1997. The financial assets held by the top 0.1% of humanity are equivalent to the entire world's GDP. The level of inequality is rising in two out of every three countries. This trend is clearly unsustainable and contrary to all rational conceptions of justice and social equity. Where is the rationality or even the efficiency in such a grotesquely lopsided arrangement? What sort of a society are we heading for?

*“We must learn how to balance the constructive role of inequality as a motive power for progress with the growing demand of the aspiring masses for a fair share in the benefits of technological development and in the use of the global commons.”*

At the same time, rising social aspirations fueled by education and the media are increasing the demands and raising the frustration level of those who are left out, creating a structural weakness in the very foundations of social stability. Changes in average income levels tell us little. The tail ends tell the story. A \$1000 increment in income for the wealthy

becomes a further stimulus to speculation, while a similar increment for the poor translates into real economic growth and job growth. As a difference in voltage propels the flow of electrons through a wire, differences in level of achievement can serve as a positive impetus to social development; but beyond an optimal level, the widening gap between rich and poor becomes a growing source of alienation, social unrest, fundamentalism and violence, acting like a short circuit that sparks a conflagration. The insatiable quest for unlimited acquisition and ludicrous indulgence in extravagant consumption cannot be allowed to endanger the future generations of humanity and the well-being of our planet. We must learn how to balance the constructive role of inequality as a motive power for progress with the growing demand of the aspiring masses for a fair share in the benefits of technological development and in the use of the global commons.

---

*“No achievement stands on its own strength. Every further advance in technology and enterprise is based on a foundation of past discoveries, inventions and innovations built up over decades or centuries. That cumulative knowledge rightly belongs to all humanity.”*

---

Those who clamor that higher taxes for the rich rob the competent of the just rewards for their superior capacity and hard work overlook the completely arbitrary norms by which society presently allocates the profits of enterprise. No achievement stands on its own strength. Every further advance in technology and enterprise is based on a foundation of past discoveries, inventions and innovations built up over decades or centuries. This cumulative knowledge rightly belongs to all humanity, like the global commons on which we all live. It is right that the distribution of rewards is proportionate to the real relative contribution. Our values must evolve to keep pace with the enormous power unleashed by humanity’s cumulative achievements. Greater power for accomplishment brings with it greater responsibility to disseminate the fruits of that power wisely and fairly.

## **5. Institutions**

We need also to examine the social institutions by which ideas and values are translated into actions for human accomplishment. Institutions are the means by which society organizes itself. Institutions are the channels by which human energies are directed by ideas and values to achieve goals. Institutions include not only the formal and visible organizations we utilize for defense, education, production, social welfare and enjoyment. They also encompass a wide array of intangible and invisible arrangements – customs, laws, rules, systems and habitual ways of life – that determine how activities are carried out, coordinated and integrated with one another. Society may best be conceived as a richly woven fabric of interrelationships linking people, places, activities, organizations, sectors and nations with one another in space and time. Over millennia, this fabric has evolved very gradually, one thread at a time, layer upon layer, physically, socially, mentally and culturally. Taken in totality, they represent the collective know-how of society, the technology of social organization. The history of technology reveals a virtually unlimited progression of discoveries and developments, each becoming the foundation and bedrock for constructing higher level capabilities. So too,



---

*“Finance and employment are subsets of economics; economics is a subset of society, and society exists and thrives in harmonious relationship with nature.”*

---

the technology of social organization has the potential for unlimited innovation and development.

Central among these institutions are property and property rights which date back to Roman times and have failed to keep pace with the radical evolution in social values, technology and resource consumption over the past half century. New concepts and forms of ownership are needed that protect communal and global ownership of resources, spatially and over time, while simultaneously ensuring that returns are shared in an efficient and fair manner reflecting the nature of ownership.

Society is an integrated organization of human activities, which does not respect the arbitrary divisions and boundary lines imposed by our minds or theories. Finance and employment are subsets of economics; economics is a subset of society, and society exists and thrives in harmonious relationship with nature. The efficacy of any social organization depends on its capacity to release and channel human energy for productive purposes. That is only possible when sufficient freedom and opportunity are provided to all members of society to help them develop and express their innate potential within a structured framework that harmonizes private self-interest with public good. Freedom for initiative and regulation to ensure cooperation and fairness go hand in hand. A century ago, capitalism acquired a social conscience to meet the perceived threat of socialism and arrived at a balance between public and private good that resulted in unprecedented prosperity in OECD countries. The collapse of communism symbolized by the fall of the Berlin Wall in 1989 coincided with a resurgence of neo-liberal conceptions that have become a root cause of the current crises. New theory must restore the balance that optimizes the welfare and economic security of all, while giving scope for the creative contributions of each. There is a need to develop a whole range of hybrid goods which, like insurance, serve simultaneously the interests of both the private citizen and society-at-large.

If economics is off-mark, then the institutions it has spawned, supported and protected must also be placed under scrutiny. We have already noted that the divorce between finance and economy is a notable characteristic of the current crisis, one which has severely eroded public trust in our economic institutions. Urgent efforts are needed to reverse the trust deficit arising from the functioning of markets, particularly in the financial sector. The philosophy enshrined in the Washington consensus has promoted unfettered and unregulated markets, at a time when the public good component of economic activities has never been larger or more obvious. Our inquiry needs to examine the options for new institutions and new rules that can better reflect the public good nature of economics, as well as provide the longer term protection of those assets humanity will need to rely upon for generations to come.

## **6. Governance**

New institutions will, in turn, require more enlightened and effective forms of governance, new rules to play by and public policy systems that are far more credible than they are today. At the national level, we cannot build a stable foundation for the future based on



nominally democratic institutions that serve the vested special interests of the elite. That is plutocracy, not democracy. At the international level, the failure of the United Nations system to deliver in many areas exposes the inherent insufficiency of a nation-centric system dominated by a few privileged, powerful nations in the name of democracy, at the expense of other nations and the global community. These failures compel us to think through new paradigms, new alliances and new modes of securing the legitimate rights of nations, individuals and collective humanity.

The issue of democratic governance is complicated by several factors. First is the ideological confusion between freedom and the unfettered pursuit of self-interest, which regards all forms of regulation as an infringement on democratic rights. In both politics and economy, freedom can only exist when safeguards are in place to protect the whole society against the misuse of power, all

“*Today’s multidimensional crisis is a result of the fact that global society has expanded far more rapidly than the institutions required to govern it.*”

forms of power – monetary and social power as much as political and military power, the power of the majority as well as that of an elite minority. Second is the tendency of parliamentary democracies to address the narrow, short-term, self-interested concerns of voters at the expense of wider, longer term issues. Democracies will have to find ways to more fairly represent the interests of future generations. Third is the challenge of instituting a democratic system of global governance, when nations that most loudly proclaim their commitment to democracy at the national level have serious misgivings about extending the same principles to the global level, as illustrated by the resistance of the five permanent members of the UN Security Council to democratize the UN’s most powerful organ. Fourth is the recognition that national governments represent only one of the groups of actors that make up the global community. Even in so-called democracies, national governments are often more representative of money power than the real interests of their own citizens. Therefore, the evolution of global governance will need to find ways to represent the interests of other important constituencies. These challenges can and must be overcome in order to fully address the common problems facing humanity.

The process of globalization has reached a critical juncture. All of the crises referred to in this paper are essentially global in nature and cannot be effectively addressed by each nation in isolation from the rest. This is obviously true of the financial and ecological crises, but it is also true of the crisis in employment which is increasingly subject to factors beyond control by national governments. Today’s multidimensional crisis is a result of the fact that global society has expanded far more rapidly than the institutions required to govern it. Today’s financial and economic crisis is not a repeat of the national level crisis of the 1930s, but rather a playing out of a similar scenario at the global level.

Yet, we still cling to outmoded concepts and models which are increasingly irrelevant, such as a narrow interpretation of sovereignty founded on the right of nation-states to self-determination, disregarding the equally legitimate rights of lateral communities made possible by technological advances and of the global human community that is so rapidly coalescing. A strictly state-centric system of governance is no longer viable in a world with

so many legitimate voices and cross-currents of relationship. These changes necessitate evolution of new systems for global governance and new principles of global public policy.

## 7. The Big Question

Incremental tinkering with the present system in one or all major dimensions may or may not generate some temporary relief and buy a little time, but definitely will not make our problems disappear. If they recede for a time, they will return with greater intensity until we consent to address them at their roots. Business as usual is not an option. Adding a few “bells and whistles” will not work.

At the same time, we should not underestimate humanity’s inexhaustible capacity for creative ingenuity, resourcefulness and adaptive change. But, before we can bring about effective change, we must know where it is we want to go and what kind of world we want to create for ourselves. Thus, the inquiry must begin with formulation of the values on which our future should be based.

---

*“There is something grossly inadequate and perverse about a system with so much power and such visible incapacity to meet human needs. These grossly apparent failures are sufficient confirmation that a better system must be possible and that the world is ripe for new thinking.”*

---

This should be followed by asking a fundamental question which is usually overlooked in our haste for quick fixes and piecemeal remedies: *Is there any possible way for us to reformulate and reconstruct global society in a manner that is more conducive to the security, welfare and well-being of all human beings and fully compatible with the natural systems on which we depend?* Intuitively, we must answer this question with an emphatic affirmation. There is, there must be, a better way than what we have today. It is inconceivable that a species which has emerged from the jungle, built cities, sailed the seas and the skies should have reached the end of its evolutionary potentials.

We live in a world of paradoxes: unprecedented abundance lives side by side with unmitigated poverty. Billions of people remain at subsistence levels, while global financial assets have multiplied from \$12 trillion to \$216 trillion in three decades, and are now equivalent to nearly four times the global GDP. The world possesses the surplus capacity to produce every variety of goods, yet billions lack the resources to procure them. Hundreds of millions of able-bodied willing workers are without employment opportunities, more than a billion are underemployed, while urgent needs remain unfulfilled for more and better food, clothing, housing, education, health care, communications, transportation, and other essentials of life. The most advanced technologies co-exist alongside the most primitive living conditions. There is something grossly inadequate and perverse about a system with so much power and such visible incapacity to meet human needs. These grossly apparent failures are sufficient confirmation that a better system must be possible and that the world is ripe for new thinking.

## 8. Is Radical Change Possible?

*“It is true that humanity clings to the past in spite of repeated failures. It is also true that failure and crisis have proven to be a marvelous instrument for education and motivation for change.”*

The doubling of world population between 1650 and 1800 prompted Thomas Malthus to predict that humanity would be forever caught in a vicious cycle of unbridled population growth, poverty and famine. Malthus’ analysis was correct, but his prediction did not come true, because he could not anticipate the multidimensional social revolution which radically altered circumstances in the following decades. The technological developments that ushered in the Industrial Revolution only partly explain what happened. Equally important was the opening up of new lands in North America, the dynamism unleashed by the spread of democracy following the French Revolution, and the mechanization of farm production and higher levels of productivity, which reduced dependence on child labor and large families. In addition, declining death rates, the spread of general education and rise of the Middle Class shifted emphasis from the number of children to the quality of their upbringing. These and other factors made possible a seven-fold increase in population between 1800 and 2000, while at the same time real per capita income multiplied twelve-fold.

Forty years ago, *The Limits to Growth* generated awareness of another pending crisis threatening humanity. The report was not a prediction of dire calamity or even of an end to growth, but it clearly signaled the coming end of the old model of natural resource-intensive, industrial development. Since then, the landscape has been altered by the emergence of the knowledge-based service economy, the birth and growth of the Internet, technological advances in energy and miniaturization, globalization of trade, rising levels of education and rising social expectations among the aspiring masses in developing countries. Some of these factors mitigate while others aggravate the challenges posed by growth. But, they all point to the fact that society is evolving so rapidly that it is worthwhile envisioning a new framework which reconciles social aspirations with economic and ecological limits.

It is important not to underestimate the power of vested interests and agents of the status quo. The world is the way it is today because many people benefit from the current system and distribution of power and would like it to remain just as it is. The current values, theories, institutions and power structures have ardent advocates. At the same time, it is important not to underestimate the capacity for radical change. Monarchy did not disappear because monarchs decided they preferred democracy, but because the masses of ordinary people no longer consented to be governed by and for the benefit of a small elite. After spreading to encompass more than half of humanity, the European colonial empires disappeared within a single decade when the aspiration of 45 oppressed nations awakened to the call of freedom and demanded self-determination.

It is true that humanity clings to the past in spite of repeated failures. It is also true that failure and crisis have proven to be a marvelous instrument for education and a powerful motivation for change. Ideally and hopefully, we can change without the need for crises and challenges to spur us to change our way of life. But either way, we need first to be prepared

with a set of alternative ideas to be adopted when the time is ripe. Our conviction is that if we fully prepare ourselves intellectually, we can make that time come now.

## 9. From Revolution to Evolution

“*A social revolution is already afoot. If government does not solve the problem, people will.*”

When Franklin D. Roosevelt assumed the US presidency in 1932, he faced a multidimensional crisis that had defied resolution by existing dogma or incremental policy changes. Faced with a banking crisis that had already destroyed 6000 American banks and an economic crisis that had displaced 25% of the workforce and reduced GDP by 50%, he was compelled to embrace new ideas, adopt new

values, establish new institutions and alter radically the role and responsibility of government for promoting human welfare. Growing fear of the compelling attraction of communism for the masses compelled capitalism to adopt a human face. In a country founded on principles of free market capitalism which regarded all forms of socialism with anathema, the New Deal was nothing short of radical social revolution. The dire suffering imposed by an economic collapse during the Great Depression compelled liberal ideologues to embrace policies contrary to the very core of their beliefs and established the foundation for a half century of unprecedented prosperity.

Those who doubt the capacity of humanity to make the necessary changes fail to realize the real magnitude of the multidimensional crisis that is emerging and cling to the belief in our collective capacity to muddle through. This is a grave error. A social revolution is already afoot. If government does not solve the problem, people will. Long before climate change floods our coast lines, armies of unemployed youth, excluded poor and alienated elderly will, like a tsunami, storm the bastille of our most sacred assumptions and entrenched privileges. The Arab Spring and Occupy Wall Street movements that have sprouted up in over 1000 cities in 82 countries around the world are only sparks of a coming social conflagration that reflect the deep erosion of faith in our institutions and way of life. In this modern communications age, the gap between rising social expectations and growing inequalities is straining the fabric of global society. The storm of protest and unrest will relentlessly persist until either we change the rules to accommodate these frustrated aspirations or it tears the present structure of selfish greed and utter folly into shreds. When it does, it is not going to honor anyone's theoretical premises or self-satisfied convictions.

As each of these pressure points gathers steam, the force compelling change will only grow greater in both urgency and intensity. Each of the separate strands of crisis has its own in-built multiplier effect. In combination, they will generate a momentum that may build gradually, but once it crosses the tipping point, it will rise exponentially. Once an event crosses a crucial transition point, the effort required to reverse the direction also multiplies. The 2008 financial crisis is proof of the fact that once public confidence is eroded beyond a certain point, the spill-over effects are extremely difficult to contain and reverse. Confidence nurtured over decades can vanish in a moment.

This is not a prediction of doom, but a call for immediate and concerted action to embrace the values, formulate the new ideas and put in place the next layer of governance structures required to cope with the challenges posed by humanity's remarkable achievements during the 20th century. We have the capacity by the strength of our ideas to convert the approaching revolution into rapid social evolution. Our call is revolutionary in spirit, evolutionary in implementation. The challenge we face is to seize the opportunity for change, to seize the century that lies waiting for us.

*Author Contact information:*

**Ian Johnson** - Email: [ijohnson@clubofrome.org](mailto:ijohnson@clubofrome.org)

**Garry Jacobs** - Email: [garryj29@gmail.com](mailto:garryj29@gmail.com)

## Double Factor Ten: Responsibility and Growth in the 21<sup>st</sup> Century\*

F. J. Radermacher

Head, Research Institute for Applied Knowledge Processing, Ulm, Germany;  
Professor of Computer Science at the University of Ulm, Germany; Member, Club of Rome

### Abstract

*Since the world conference in Rio in 1992, the world has been facing the challenge of consciously organizing sustainable development. The goal is no less than the organization of growth compatible with sustainability, together with the creation of a global social balance and the preservation of ecological systems. In this context, the demands of a **global ethic** and of **intercultural humanism** must be effectively implemented in terms of a global domestic policy. Furthermore, adequate regulations must be set in such a way so as to make systematic practices that run counter to sensible rules and to the fair interests of others economically unprofitable.*

*The chances of attaining this ambitious goal of balance are limited. The alternatives are a **collapse** or a **resource-dictatorship / brazilianization**, probably connected with terror and civil war. Both alternatives are so disastrous that the countries of the world, facing the global financial crisis, the threat of a climate catastrophe and an aggravating division between the rich and the poor, might still come together in order to implement a better designed global order: **eco-social instead of market-radical**.*

### 1. Global Problems

As a consequence of economic globalization, the global economic system is undergoing a process in which it is increasingly ridding itself of fetters and constraints within the context of the **mega-trend of “explosive acceleration”**, which is taking place under partly inadequate conditions set by the global framework. A painful consequence of these inadequate conditions is the current **global financial and economic crisis** which, because of the resulting massive debts incurred by countries, poses a substantial threat to sustainability.

But also, the international **transfer of labour** has brought about negative effects: gains for some to the detriment of others who suffer heavy losses. The consequence has been a partial deconstruction of the welfare systems in the rich countries, a **decline of the situation of the middle-income stratum** and important losses of states' tax revenues. On the whole,

---

\*A short version of this article titled “Tenfold increase in global wealth plus tenfold increase in environmental efficiency” was published in April 2010 in a special issue on “Sustainability” in German in *PWC* journal. This article was translated by Daniel Saudek, independent scholar in Science and Theology.

this is a development which threatens (long-term) stability through an increasingly short-term orientation, also to the detriment of the future.

The cause of the global regulation deficit is the **loss of the primacy of politics** in the context of globalization, because core political structures – in contrast with economic processes – have retained a national or to some extent, continental orientation, but not yet attained a global one. Because of insufficient international agreements on regulations and the resulting wrong orientation of the global market, the developments described **run counter to the goal of sustainable development in a massive way**. Where do the really important challenges lie here?

## 2. The Derestriction of the Financial Sector as an Instructive Example

Currently, the most important problem on a global scale is the derestriction of the financial sector as a consequence of globalization in the form of **digital capitalism**. Capital is roaming around the globe in an uncontrolled manner, always in pursuit of ever higher investment returns, and is putting governments under pressure, while arising from almost nothing. The **avoidance of tax payments** is becoming the most important segment for value creation for certain key-players. This is done by taking advantage of complex international legal situations and the special possibility of **off-shore financial centres** on the one hand, and by **creation of new monetary value** or borrowing through premium-debtors on the other.

The modifications of regulations for financial markets in the last few years have enabled small groups of premium-agents to generate capital **virtually from nothing** through new forms of **monetary value creation** using novel types of financing instruments. An example worth mentioning is the “innovation” of the securitization, on a vast scale, of loans, made (politically) appealing with the argument of (a better) distribution of risks. However, these securitizations also make a massive extension of the granting of loans possible while capital contributions remain equal, which has led to a massive increase in risks. The disposition of loans has led to a significant lowering of (the necessary) care in the granting of loans, because the risks are now borne by others (e.g. in the US subprime market). Loans were bundled together in great numbers, taken apart, bundled up again, (only to be once again) taken apart and rebundled, and in such a way were rearranged to less and less understandable constructs. Imagine sausages in a funfair being made into new sausages: their quality standard in comparison to the original piece of meat is probably still more transparent than the reciprocal effect between the third securitization and the original risk in the financial sector. Even being able to sell such a thing necessitates an **excellent rating**, which has been ultimately made possible through Credit Default Swaps which in turn have turned out to be **bluff packages** (the charges taken in annually were higher than the financial security deposited for an emergency). Problems in the US subprime market (less than 1% of the collateralized volume) (then) brought the complex house of cards to a collapse. Large fees were cashed in and rebates distributed for the fabrication of illusions (**voodoo economy**). And the governments of the United States and the United Kingdom have refused to even address this issue in as late a conference as the G8-summit in 2007 at Heiligendamm (Germany). For these countries had benefited too much. Here lies the ultimate cause of the mentioned problems.

Despite the current crisis, the international community has once again managed to save the system, and this has been at the cost of **exorbitantly increased debts of states**. The situa-



tion includes the socialization of the losses after having privatized the gains beforehand. How are debts ever to be written off in this way?

### 3. The Question of the Environment and Resources

However, the financial and economic crisis is not the only area which causes problems. For against the backdrop of an extremely rapid growth of the global population, the **global state of the environment and resources** is exacerbating significantly within very short periods of time. Humanity is moving towards the mark of **ten billion** people. In addition, hundreds of millions of people are becoming accommodated to lifestyles marked by high resource consumption. Can this work out well by any means, and is there any sort of prospect for the future?

Firstly, it holds true that, as a consequence of the growth processes described, **access to resources and the strain on the environment** thus brought about are increasing dramatically. There is no prosperity without the availability of resources! However, overuse leads to collapse. Who should be able to, and who should be allowed to access a given resource, and to what extent? War or peace can depend on the answer to this question. A bottleneck for the **feeding of the global population** may therefore ensue in the next few decades, despite a massive increase in food production. The prospects for the field of energy and climate look equally dismal. There is a threat of gravely problematic situations and conflicts. In a historical perspective – compare the example of **Easter Island** – there is a threat of a collapse of entire societies. And a large part of the elites all over the world are still used to thinking in terms of **competition of nations** rather than in terms of **international cooperation**. What is called for, instead, is a way of thinking committed to the global common good, i.e. to a universal principle of sustainability, marked by a supranational, intercultural and inter-generational orientation. **Global leadership** is what is called for here!

### 4. Technological Progress and the Boomerang effect

The question of the **limitation of the usage of non-renewable resources** and the **limitation of the strain on the environment on a global scale** while at the same time enabling a **high growth rate**, occupies before the background described, the centre stage among all attempts to arrive at sustainable solutions. Technological progress is of key relevance in this context. The goal is a factor 10, i.e. the reduction of the strain on the environment per unit of value creation produced to one-tenth of today's values (**dematerialisation, increase in eco-efficiency**). This is being discussed and implemented in many fields today – in real estate, e.g. with **green buildings**, passive houses and even positive-energy houses.

However, it must be cautioned that technology alone does not solve the problems – neither today nor in the past. Technological progress, unless accompanied by the setting of adequate rules leads to more, not less, overall strain on the environmental systems because of the so-called **boomerang effect** (an example is the supposedly “paper-free office” – the place with the highest

*“We need innovation in technology and governance simultaneously, in order to attain a double factor of 10.”*

paper consumption in the history of mankind.) However, each demand for limitations, e.g. of CO<sub>2</sub> – emissions, immediately poses the global and to this day unanswered **problem of distribution of emission rights** in its full urgency. This is an issue of **global governance**. And this is why we need innovation in technology and governance simultaneously, in order to attain a **double factor of 10**.

---

*“The question is, however, whether a high level of prosperity for ten billion people is even thinkable.”*

---

## 5. Double Factor of 10

The challenge which the world is facing today may be sketched out as follows: starting from the current global financial and economic crisis, and while facing the threat of climate and resource collapse, the task is to create a **future worth living for 10 billion people** over the next 70 years. If high global prosperity together with a high level of social adjustment and balance, also between countries, is achieved, then global population can be expected to drop rapidly from about 2050 onwards. The question is, however, whether a high level of prosperity for ten billion people is even thinkable. Can we escape the current crisis without all having to tighten our belts?

At the moment there are an increasing number of people who all but despair of the current situation and demonize growth as the root of all evil. There is also the idea of completely reorganizing public finance, to the point of abolishing interest and compound interest. Such approaches underestimate the amount of vitality which the world needs in order to create sufficient wealth for 10 billion people. A “programme of going back” is not acceptable for most, especially not in democratic processes. At the most, this might be acceptable following catastrophes or lost wars, but one ought not to play with the thought of these kinds of developments.

However wrong today’s ill-reflecting concept of growth may be, the demonizing of growth and the **underestimation of the potential of innovation** are equally perilous. We do not find ourselves within a zero-sum game in which it is necessary to distribute scarcities. At the most, this holds true for resources, but not for what we are able to obtain from them when proceeding in an intelligent manner. A reasonable future is conceivable only if we succeed in bringing about a **substantial and continuing global growth** with significantly different respective rates of growth for the rich world and for the developing world over a long period of time, while maintaining **consistent protection of the environment and resources** on a global scale. **Protection of the environment and resources** comes first; growth enters the picture only when this condition is met. Such growth must be part of a Global New Deal and because the environment needs to be protected, this must be a **Global Green New Deal**.

In this process, the creative power of market processes, creative destruction **in the Schumpeterian sense**, and the power of innovations need to be made use of. Simultaneous innovations in both technology and governance are called for in order to avoid the boomerang effect, in which context the governance must of course be of a supranational character.

How is this to be envisaged? How can one imagine a double factor of 10? And what needs to be done to that end? The starting point is the so-called **future formula 10 ~> 4:34** of the

author. This basically says that the world, if the correct procedures are employed, can become 10 times as rich in 70 years than it is today, in which context today's rich world can become four times, and today's developing countries 34 times as rich. The size of the population in the poor countries thereby doubles. The social balance on the globe will then be roughly equivalent to that found in Europe today. The scarcity of resources is handled through appropriate assignation of rights, price developments, new technologies and alternative life-styles. **Qualitative growth** is the actual challenge. The (typical) life-style of the future would then be much less demanding in resources than today's, especially since resources will be more expensive. High-quality creative services in turn will be much cheaper.

Many people have difficulty imagining a double factor of 10. A tenfold increase in global economic performance within 70 years without additional exploitation of the environment, no extra consumption of resources because of an increase in eco-efficiency by a factor of 10 – all these, for many, are beyond possible. But that is exactly what is being aimed for today in the field of **Green Buildings**. And the market as a high performance innovative system is up to this task, especially when returns on financial assets are not too high. Suffice it to recall that in the seventeenth century, there were only one-tenth of the number of people living today, that 90 percent of people worldwide and more than 50 percent in Europe were working in agriculture, and that Germany as well as Europe went through recurrent famines nevertheless. And now, we have ten times as many people in the world, only 3 percent still work in agriculture in the rich world, and globally, we are producing food for 13 billion people. Half of this, however, is being processed through livestock units (especially cattle), while 24,000 people starve every day – a regulation deficit due to the lack of a **global social system** (e.g. minimal daily allowances for those in need co-funded globally) which would provide everybody with a minimum supply of the purchasing power needed to avoid starvation.

## 6. The Power of Innovation is the Key to a Good Future

If we use the power of innovation and consistently implement the restrictions on the usage of resources, which presupposes global coordination and internalization of adequate prices into the global economy, then we have every chance of a global economic miracle and of prosperity all over the world. The goal of **Muhammad Yunus**, the Nobel Peace Prize laureate in 2006, is to overcome poverty on this globe, which can be attained. We can combine sustainability and wealth, but this calls for a greatly improved global governance and its implementation in terms of compliance and Corporate Social Responsibility in view of solving global problems. This is the noblest task of the economy and of global leadership: serving the people, solving social problems, and supplying the necessary goods and services. And all this in such a way as to consistently protect the environment, save resources for future generations, and make the dignity of every human being count.

## 7. Eco-social Instead of Market-radical

The programme described can be implemented. The way of getting there is not anything new; it is well known from the sphere of the nation-state. But the issue must be put on the agenda anew, and at the **global** level. The answer to today's crisis and lack of direction is the eco-social and at its core ordoliberal approach of regulated markets typical of Europe (**social**

**market economy**) and a few Asian national economies (**network economies**). For this economic ordering model at a **global** level, the following equation applies:

$$\text{Market Economy} + \text{Sustainable Development} = \text{Eco-social Market Economy}$$

This model would need to be established in the context of the global economy, and at the end of the day would translate, within the framework of a **Global Contract**, the requirements of a global ethic and of intercultural humanism into a form of **global domestic policy** of a **global democratic character**. The European Union constantly demonstrates the efficacy of this approach in its enlargement processes. The **Montreal Protocol** is also worth mentioning as a successful example of international cooperation, which was agreed upon following the same logic. A contemporary approach for advancing such a pathway globally is represented by a **Global Marshall Plan**, which links the building up of structures and the implementation of standards to the co-financing of development.

“ *In every crisis there lies an opportunity.* ”

## 8. Is There Any Hope?

In every crisis there lies an opportunity, although one usually also pays a high price during (such) a crisis. Today, this high price consists in the significantly deteriorated situation of states which are now facing very high debts. Working off such mountains of debt is **not** going to succeed through tightening the belts in the area of social welfare – the scale of such an undertaking would demolish democracy. Instead, the practical approach is to finally **tax** the global economic processes, and especially also the value creation processes in the financial sector adequately. This is necessary for reasons of regulative policy and is a question of both justice and prudence, but would also slightly increase the friction in certain trading processes, which are too fast by now, thus bringing about more stability, and furthermore, would improve transparency in addition to the ability to manage such processes in the widest terms. Tax harmonisation is of central importance, but so is **keeping tax havens in check**, not only through increased transparency, but also through minimum taxation levels.

Today, the considerably more difficult situation of nation-states promotes considerations in the direction described. The transition from **G8 to G20** is significant. Especially questions about the global social situation, resources and climate pose themselves differently at the G20-level than at the G8-level. Two-thirds of the global population and 90 percent of global economic performance are represented by the G20. This is a considerable approximation to a more democratic global governance structure.

There is hope that the G20 will consistently address the issues of tax havens and better governance of the financial sector. And perhaps there is hope too in the field of climate change. At least at the concrete level of facts the problems concerning the future can (in principle) be brought under control. We are in a good starting position as regards capacity, knowledge, methodology and the necessary financial, human and technical resources. We only need to realize that the **current situation calls for a broad cooperation of states**. There is a way we can walk together now in order to attain a reasonable future: a double factor of 10 made possible through an adequate global governance system – **eco-social instead of market-radical**.

*More information at: [www.faw-neu-ulm.de](http://www.faw-neu-ulm.de), [www.oesf.de](http://www.oesf.de), [www.oesfo.at](http://www.oesfo.at), [www.senat-der-wirtschaft.de](http://www.senat-der-wirtschaft.de) or [www.globalmarshallplan.org](http://www.globalmarshallplan.org).*

*It is possible to subscribe to the weekly newsletter of the Global Marshall Plan Initiative at the latter address, free of charge. Books can also be ordered there.*

*Author Contact Information:*

*E-Mail: [radermacher@faw-neu-ulm.de](mailto:radermacher@faw-neu-ulm.de)*

*Website: <http://www.faw-neu-ulm.de>*

## Rio+20

*They Delivered What They Could Deliver  
And It Was More (And Different)  
Than You Might Have Thought*

**Robert E. Horn**

Fellow, World Academy of Art and Science;  
Visiting Scholar, Stanford University

### Abstract

*This reflection on Rio+20 examines many of the major social institutions and how they fulfilled their functions during the United Nations Conference on Sustainable Development at Rio. The institutions are: 1. Nation-states as a collective. 2. Individual nation-states. 3. Vanguard institutions (some NGOs). 4. Action and convening NGOs. 5. Global media. 6. Governments of nation-states acting domestically 7. Individual governments in bilateral and multilateral situations. 8. Similar institutions in different countries acting together. 9. Businesses. 10. Global science. Each is considered within the assumptions of what the society expects them to deliver (in general), what is possible for them to deliver, and what they did deliver at Rio. In approaching Rio+20, our account differs considerably from much of the reportage by the mainstream media.*

If you read the mainstream media reportage you would have concluded that Rio+20 was a “failure”. The government delegations did not produce a strong declaration, full of commitments, of reducing poverty, stopping climate change, and developing economies sustainably. But my personal sense was different from what I read. I was there for 7 days of the conferences and meetings. I also read about 50 media accounts of the event. That reportage, to a large degree, wasn’t what I experienced.

It seemed to me that this “reportage” was built mostly around the expectations of the leaders of organizations that I call below the “confrontational NGOs.” In short, these NGOs had “expectations” or more appropriately, “wishes” that were out of line with what one could realistically expect (given what social science knows about political behavior). One could predict with considerable certainty that they would be extremely disappointed. Thus, one of the filters through which many of the media framed their stories was through these expectations and the resultant “failure” to meet them.

But that wasn’t the whole story of Rio+20. Not by a long shot. Rather than engage in a tit-for-tat critique of the mainstream reportage, I will describe what I saw and what perhaps we can begin to make of it.

One of the ways to look at an international conference like Rio+20 is through the lens of the major institutions of global civilization such as governments, businesses, NGOs,

the media, etc. Together, they form the human ecosystem of institutions that humans have created. Together, they delivered what they could deliver. We can step back and ask: “What did they deliver with respect to sustainability (both for the planet’s ecosystems and the continued thriving of humanity)?”

## **1. What was Rio+20?**

Official name: The UN Conference on Sustainable Development, held in Rio de Janeiro, Brazil on 20–22 June, 2012. Themes: “The Future We Want” and “The Green Economy”. The “+20” marks the 20<sup>th</sup> anniversary of the Earth Summit held in Rio in 1992 during which the international treaties ‘The Convention on Biological Diversity’ and ‘The Framework Convention on Climate Change’ were signed and ‘Agenda 21’ was formulated.

## **2. What Happened?**

50,000 people came to Rio de Janeiro to dialogue. Almost 4,000 of them were journalists. 100 were heads of states. The government officials met for 3 days and produced a document called the Rio Declaration. Almost 10,000 non-governmental organizations were registered. They convened around 6,000 side-events lasting an average of one and a half hours each. At least, 2,000 business leaders were there for five full days of major business side-events. A “People’s Summit” from civil society met in a park which was a considerable distance from the convention halls. Scientists had several-day meetings ahead of the official government meetings.

## **3. The Mood**

Upbeat. Everybody worried, but hopeful about the future. All with a proliferation of ideas to put human civilization on a more positive course. In 30 or more pavilions and tents in several large clusters, some more permanent than others. Scattered around the city. Government negotiators were in one pavilion. The major stakeholder groups in two others. The press had a third. All these were clustered around a food court pavilion. Across the street from the convention center was yet another field full of large tents and pavilions given over to the nations of the world – a kind of mini world’s fair.

## **4. The Outcomes: Governments Working Together**

In the media around the world, the spotlight was on the 180 nation-states and what they could put together in an international consensus process. And what the nations acting together could deliver is a 49-page Declaration mostly filled with suggestions – to each other and to other institutions – but few commitments.

Some people fantasize that nation-state leaders can decide anything they want to at any time, and do anything. Not so. I will list some of my assumptions about the behavior of institutions.

***Assumption One:*** Nation-states can only agree to do on the international stage what their domestic politics and their national power (soft and hard) permit.



**Assumption Two:** Sometimes, under unusual sets of circumstances, they can act together and create new global institutions (in this case read: treaties of which the two signed in 1992 are examples). Rio+20 was not such a situation.

These two assumptions that come out of observations of governments trying to make treaties and other agreements provide us with quite different expectations. The governments working together on the Rio Declaration delivered what one could expect from these expectations. It should be noted that 180 countries working together this year at Rio+20 were able to agree on three modest actions to strengthen international institutions.

Firstly, the UN Environmental Programme was made a “universal membership” body (all nations are now members). This gives it a stronger foundation and mandate within the UN special agencies.

Secondly, the UN Commission on Sustainable Development was upgraded and proposed to have a status equal to the UN Economic and Social Council (ECOSOC), and thus can report directly to the UN General Assembly. These are to be formally approved at the UN General Assembly meeting beginning in September 2012.

A third outcome of the Declaration was a consensus on setting a process for creating Sustainable Development Goals (SDGs) for 2030. These are an upgrade to the Millennium Development Goals that expire in 2015. The governments agreed on a two-year timeframe to develop the SDGs (2014) and to identify the means of implementation.

Noting a shift in the framing of the international dialog, Conservation International said: *“Of greatest importance was the fact that for the first time we saw both governments and businesses explicitly recognizing that natural capital (bio-diversity and ecosystem services) is the essential core element of sustainable development and that healthy ecosystems must be the foundation of human well-being. This is an extraordinary and transformative change in mindset, as it finally moves the environment from a marginal issue to a central component of future development strategies.”*

## **5. The Outcomes: Confrontational NGOs**

**Assumption Three:** Human societies need vanguard institutions (some with international scope and scale), usually called NGOs, whose job is to monitor the boundaries and frontiers of global civilization’s future and to assess, forecast, warn, cajole, plead, shout, protest in anger or otherwise attempt to move societies in different directions.

So, one would expect that the failure of the actions of the 180 countries acting together would greatly frustrate the leaders of these NGOs. Their job is to deliver criticism – particularly in the case of businesses and governments – on the speed and effectiveness of the other institutions moving to a sustainable future.

It was the NGOs’ expectations (read: disappointments) which were featured in many of the media accounts of the conference. So, we heard statements from Friends of the Earth International saying, “Once again, corporate polluters have held UN decision-making hostage to furthering their economic interests, at the expense of people’s well-being and the planet.” Kumi Naidoo, the global head of Greenpeace, said the organization was so “disappointed”

by what Rio+20 could deliver that they decided to move to a “war footing” with the financial sector of global business. I thought to myself, “Just doing their job in the ecosystem of institutions we all live among.”

## 6. The Outcomes: Media

**Assumption Four:** Taken together, the global media organization is also an institution. Its job is to report what is happening, often by being stenographers for the rhetoric of the leaders of other sectors. Because they have to depend on attracting readers, the media tend to focus their stories on conflict and the most outrageous behavior of people in the other institutions.

The journalists, print, TV, and film, who were at Rio+20 (mostly) provided headlines such as these:

“A colossal failure of leadership and vision” (quoting World Wildlife Fund).  
“Environmental summits lose value as past pledges go unmet” (Toronto Globe and Mail).  
“Diplomats agree on ‘weak’ text for Rio +20 green summit” (Reuters).  
“Rio+20 declaration talks fail almost before they begin” (New Scientist).  
“Rio+20: Progress on Earth issues ‘too slow’ – UN chief” (BBC).

Thus, the media, for the most part, delivered the news in fragments focusing as much as possible on the sharp edge of the debates and the most audible critics.

## 7. The Outcomes: Initiator NGOs

**Assumption Five:** Many NGOs can use their institutional flexibility and influence to convene, organize, and institutionalize large initiatives that governments and businesses find difficult to get off the ground.

Some NGOs gathering together with governments and businesses made major announcements and commitments along these lines. They showed what they could deliver. One of these is a major reforestation initiative.

USAID’s Deputy Administrator, Ambassador Donald Steinberg, announced that the U.S. Government and companies of the Consumer Goods Forum are forming a new partnership to work together to reduce deforestation by “greening the supply chain” and, within 100 days, would hold a global partnership dialogue. With all due respect to my colleagues who have been in the room negotiating, I don’t think these are side events. This is the main event. For me, this was the most succinct summary of Rio+20.

*“The Consumer Goods Forum, representing more than 400 companies and brands operating with combined annual revenues of over US\$3.1 trillion, has pledged to achieve zero net deforestation in its supply chains by 2020.”*

The Consumer Goods Forum, representing more than 400 companies and brands operating with combined annual revenues of over US\$3.1 trillion, has pledged to achieve zero net deforestation in its supply chains by 2020.

Summing up the conference, Sha Zukang, a Chinese diplomat and Secretary-General of the summit, reported that 692 side commitments by governments, businesses, and NGOs were made at Rio valued at \$513 billion.

## 8. The Outcomes: Individual Governments

**Assumption Six:** Governments of nation-states are major institutions and have somewhat more flexibility in what they can accomplish acting separately than they can have acting together with other governments.

Individual governments are also major institutions in the world. A number of individual governments made announcements of significance. Notable among these, for example, was British deputy prime minister Nick Clegg's announcement that the British government will require all companies listed on the London Stock Exchange to report their greenhouse gas emissions publicly.

The Brazilian state of Pará that covers a large part of the Amazon committed publicly to get to zero net deforestation by 2020.

South Africa, Denmark, France, and Brazil said they would implement UNEP's global reporting of environmental country footprints for their companies.

Countries like Kiribati and Cook Islands in the Pacific and the Maldives, which had been leaders in the group of "Small Island States" announced that they were creating the world's largest marine reserves incorporating the ocean around their more than 2000 km islands. They also noted that they were becoming the first "Large Ocean States".

**Assumption Seven:** Individual governments can also make bilateral and multilateral agreements and join with other NGOs and businesses to start new initiatives (that are easier to accomplish than coming to consensus with the other 180 nations).

That happened at Rio+20 – in a big way. Here are some examples of that.

The US government announced a \$2 billion commitment to a clean energy development program of aid for Africa. And the US Agency for International Development announced a conference within 100 days to implement the Consumer Goods Forum's pledge to have zero net deforestation by 2020. A large number of big international companies are part of this including Coca-Cola, General Mills, Kraft, and Colgate.

I noted in Axiom One that national governments are limited by what their domestic politics will permit (i.e., you cannot do anything if you are not reelected). The corollary to that axiom is that nation-states do have more flexibility to act within their own borders, again, domestic politics permitting. A few months prior to Rio+20, a group of parliamentarians calling themselves Global Legislators Organization (GLOBE) released a report that showed significant movement at the domestic level among many governments. Their report said:

*"Legislation is being advanced, to varying degrees, in all of the countries studied [16].*

*Most of the legislative activity has taken place over the last year and a half – contrasting sharply with the difficulties experienced by the international negotiations*

*over the same timeframe. This demonstrates that the shape of the debate is changing from one about sharing a global burden – with governments naturally trying to minimize their share – to one of a realisation that acting on climate change is in the national interest. It is particularly encouraging that the large developing countries of Brazil, China, India, Mexico and South Africa – who together represent the engine of global economic growth – are developing comprehensive laws to tackle climate change.”*

GLOBE President, Rt Hon. John Gummer, Lord Deben wrote, “*The study illustrates that the shape of the debate on climate change is shifting from being about sharing a global burden – with governments naturally trying to minimise their share – to a realisation that acting on climate change is in the national interest.*”

What this says to me is that a growing awareness has been arising over the last 20 years since the 1992 Rio Earth Summit and is being translated into possibilities for action within nations. And as the awareness of sustainability and climate-change challenges increases what individual nations can deliver, the way of change is itself changing.

## **9. The Outcomes: Coalitions of the Willing**

**Assumption Eight:** Institutions in different countries find themselves having similar interests, goals, and capabilities that can translate into coordinated action.

Eight of the world’s big development banks are shifting their transportation investments (\$175 billion – not new money) from road and highway construction to urban transport, including buses, trains, and bicycle lanes.

A “Natural Capital Declaration” put together by the Global Canopy Programme and the UN Environment Programme engaged 57 countries, banks, companies and investors to pledge to measure wealth in terms of natural capital. This puts a “green accounting system” into national and company accounts. The World Bank and 86 private companies signed on to ecosystem services (the value that air, water, forests, and ecosystems provide to the human economy). Signatories included China Merchants Bank, Puma, Dow Chemical, Unilever, and Mars.

Ban Ki-moon’s ‘Sustainable Energy for All (SE4ALL)’ initiative kicked off at Rio as well, with more than 50 governments planning together to achieve the three goals of the initiative: to ensure energy access for approximately two billion people who have no electricity, double the share of renewable energy and double energy efficiency. Key stakeholders, including governments, businesses, banks, civil society pledged \$50 billion to achieve these goals by 2030.

Another group was there: the justices and prosecuting attorneys of many countries who were concerned about sustainable development, poverty, and human rights. I did not attend these sessions. But among the topics introduced was the possible criminalization of peacetime “ecocide” in the same treaty that already exists for wartime massive destruction of ecosystems. As far as I can tell, there was no agreement, and, indeed, no recommendation on making ecocide an international crime against humanity — not this year.

## 10. The Outcomes: Business

**Assumption Nine:** In the global economy, businesses have great scope and scale in delivering goods and services and, in many cases, greater flexibility and capability to deliver rapid change to the sustainability and climate change situation than governments or NGOs.

Businesses deliver around 60 - 70% of global GDP. They too were showing an increasing awareness of how the future would have to change. And they had the willingness to take action on climate change and sustainability. Here are three (of the hundreds) such announcements made at Rio.

Microsoft committed to going carbon neutral in its operations in over 100 countries.

Infosys, the big Indian computer and outsourcing services company, committed to reducing energy consumption by 50% and sourcing 100% of its electricity from renewables by 2018.

Bank of America has announced a ten year \$50 billion fund for environmental investment.

The insurance companies of the world are beginning to realize their common interests and goals. At Rio+20, they got together as a group and released a set of principles of sustainable insurance. It is clear that insurance companies and reinsurance companies are carefully looking at the issues of climate change and sustainability with an intense focus on pricing risk. They will be reassessing annual insurance premiums for property damage and liability. And they have influence in the global economy. They control, some say, up to 7% of global assets.

It may be that we will look back on this public shift in business strategies as the major outcome of the Rio+20 conference.

## 11. The Outcomes: Science

---

*“Science delivers, with notable exceptions, dense, specialized, sometimes pretty obscure findings that are barely comprehensible to people in other social institutions.”*

---

**Assumption Ten:** Science in our civilization has the responsibility for observing, conceptualizing and reporting major processes and trends on the physical, social, economic, and cultural aspects of the planet. It delivers, with notable exceptions, dense, specialized, sometimes pretty obscure findings about the immense complexity of the planet that are barely comprehensible to people in other social institutions.

It was science that got this whole enterprise going in the first place. Rio+20 was initiated and energized as a result of what science has been discovering and saying for the past 40

years. And the scientists, meeting a few days before the meeting, did not disappoint. For the most part, they gave us complex, lengthy appraisals of the physical situation, clouded with caution about uncertainties and unknowns and notice of the “need for further research.”

Well, these are our human institutions. They were all present at Rio+20. They were all there delivering what they could deliver – not more, not less.

So, Rio+20 gave us an opportunity to see what human institutions, as now constituted, could deliver in the face of perhaps the greatest challenge ever to face humanity and an accelerating, potential global disaster. As the Declaration said, *“We reaffirm that climate change is one of the greatest challenges of our time, and we express profound alarm that emissions of greenhouse gases continue to rise globally. We are deeply concerned that all countries, particularly developing countries, are vulnerable to the adverse impacts of climate change, and are already experiencing increased impacts including persistent drought and extreme weather events, sea level rise, coastal erosion and ocean acidification, further threatening food security and efforts to eradicate poverty and achieve sustainable development”* (para. 190).

Greater awareness was present at Rio+20. What is hard to assess coherently is the overall level of global awareness that might lead to continued effective action.

## 12. Another Lens – Perhaps a Global “Movement” Slowly Coalescing

Speaker after speaker assured their audiences — as if in a ritual — that sustainability was the most important thing for those gathered to agree upon.

And the whole audience nodded. The message was repeated in panel after panel.

And almost all speakers exhorted the assembled that the most important thing to do was to “collaborate.” And, it appeared to me, the audience nodded. At one point, I thought that “collaborate” was the most-used word at the conference, almost beyond the endless repetition of the word “sustainable.”

What was happening here? What is to be made of such rituals?

**Assumption Eleven:** We are a groupish species. We need to know that our closest community agrees with us and us with them.

And any major change in our group direction needs to have lots of this kind of agreement. We need to hear our group leaders say what they (and we) are thinking about our purposes and goals. And, after that we can get busy on the actions we are able to take responsibility for.

I am struggling here to find the right words to describe what seemed to be happening among the 50,000 people assembled. There was a growing sense of identity, of “we” are all in this together. But what do we “call” ourselves? Are we a “movement?” Do we have

---

*“There was a growing sense of identity of “we” are all in this together. But what do we “call” ourselves? Are we a “movement?” Do we have the potential power of a global movement?”*

---

the potential power of a global movement? Huge numbers of the 50,000 people assembled represented whole organizations that were part of this “we.” Some of the business executives there lead organizations with a hundred thousand workers and more. There was a wider sense of “shared identity” happening.

But, one of the things largely missing from the gathering is something that Rio, the city, is known for – the elements of the carnival. What was hard to find at Rio+20 were massive art works – like the floats and huge beautifully costumed dancing, singing groups. What was missing was that kind of ritual that bonds people together in another way than rhetoric from panel discussions and speeches. What was missing was a signature song, like “We shall overcome” that served the American Civil Rights Movement so well. We were like fans at a football game without a crowd cheer.

All this is the kind of thing that is hard to assess – even at a meeting like Rio+20. How big is the movement? How fast is it growing? How much agreement is actually there? What is its shape — in scope and scale? How powerful is it? How powerful could it become? How do we forecast the progress it will make? Will the movement achieve its goals within the timeframe that scientists have sketched out for planetary civilization? Those are questions I did not hear discussed at Rio+20.

*Author Contact Information*

*Email: [hornbob@earthlink.net](mailto:hornbob@earthlink.net)*



## **The Future of the Arctic: A Key to Global Sustainability**

**Francesco Stipo**, Fellow, World Academy of Art and Science;  
Chair, Legal & Political Committee, US Association, Club of Rome

**Anitra Thorhaug**, Chair, Energy & Resources Committee,  
US Association, Club of Rome

**Ryan Jackson**, Chair, Health, Population & Religion Committee,  
US Association, Club of Rome

**Keith Butler, Roberta Gibbs, James Gray, Philip Marshall, Andrew Oerke,  
Marian Simion, Lockey White, Bernard Zak.\***

### **Abstract**

*The USACOR Report forecasts that by 2050 the Arctic will become the major supplier of energy to the world, in particular oil and natural gas, and natural resources such as mineral water. In the coming decades, the population in the Arctic region is projected to increase significantly due to the expansion of exploration for resources. The Report recommends that a Zero emission policy be implemented throughout the Arctic area for water emissions into the seas, rivers, or estuaries and oceans. The Report recommends that the Arctic Council guarantees safe navigation and environmental protection, establishing a Fund to cover expenses to purchase icebreakers and towards the cost of the personnel in order to assist commercial navigation in the Arctic region. The Arctic Council shall also issue environmental rules to regulate the mineral exploitation in the region and ensure that the wildlife is protected and that the exploitation of resources is conducted in a sustainable manner.*

## **1. Legal and Political Issues**

### **1.1 Political status of the Arctic**

Throughout its entire history, the Arctic has been a relatively peaceful region. Prior to World War II and the Cold War, the Arctic's political and economic development was primarily influenced by indigenous peoples as well as European explorers and colonizers.

The Arctic Council (founded in 1996) has sought to increase cooperative efforts among its member states — Canada, Denmark (representing both Greenland and the Faroe Islands), Iceland, Norway, the Russian Federation, Sweden, and the United States.† The Nordic

\*This article is an excerpt taken from the 2012 report of the US Association of the Club of Rome. The full report is available on the website [www.usacor.org](http://www.usacor.org).

† See <http://www.arctic-council.org/index.php/en/about-us/members>

Council has also addressed and worked on similar issues as the Arctic Council.\*

Both the Arctic Council and the Nordic Council have worked to improve cooperation among their members in the areas of environmental protection and sustainable development. In 2011, the Arctic Council member states signed the Arctic Search and Rescue Agreement, the first binding treaty concluded under the Council's auspices. This year, the Arctic Council member states are negotiating a second binding agreement on oil spills in the Arctic.

While other organizations exist to provide regional cooperation and stability, the Arctic Council has the greatest potential to act as a forum for future economic development and trade, security cooperation, and diplomatic resolution of territorial sovereignty issues.

Furthermore, non-Arctic countries have expressed interest in participating in the activities of the Arctic Council, in particular, China that presented a formal petition to become an Observer in the Arctic Council.

### ***1.2 Disputes in the Arctic***

Boundary disputes between sovereign nations of the Arctic which are currently pending include these disputes:

1. Between Canada and the United States over a pie-shaped area extending from the eastern side of Prudhoe Bay into the Canadian Basin;
2. Between Canada and Greenland/Denmark over the boundary from the northern end of Baffin Bay northward from the Canadian Ellesmere Island and the north shore of Greenland towards the southern edge of the Lomonosov seabed ridge; as well as over Hans Island in the Nares Straits, a sea passage between Canada's Ellesmere Island and Greenland.
3. Between Denmark/Greenland and Norway over the boundary between the Greenland and Iceland seabed, east of Greenland/Denmark through the Greenland Sea and west of the Norwegian Svalbard archipelago.

A number of boundary disputes have been resolved. The dispute between Denmark and Norway over the continental shelf boundary between the Faroe Islands, Denmark, and mainland Norway was settled in a bilateral agreement in 1979. The controversy over the seabed boundary between Iceland and Jan Mayen, Norway, was settled through an international conciliation panel in 1981. The dispute between Iceland and Norway over the continental shelf between Jan Mayen, Norway, and Greenland/Denmark was resolved by the International Court of Justice in 1993. On September 17, 2010, Norway and the Russian Federation resolved the decades-old conflict over the disputed area in the Barents Sea, between Svalbard archipelago and the Novaya Zemlya archipelago. The agreement divided the disputed territory equally with plans to jointly develop boundary resources, which include an estimated 38 to 40 billion barrels of oil.

The Lomonosov Ridge controversy illustrates how a number of jurisdictional factors can interplay in a single dispute. In 2001, the Russian Federation submitted its claim to the extended continental shelf, including the Lomonosov Ridge, an under-sea protuberance that runs

---

\* See <http://www.norden.org/en/about-nordic-co-operation/countries-and-territories>

from the northern edge of the New Siberian Islands across the North Pole to the north-eastern edge of the Canadian Ellesmere Island and the north-western border of Greenland/Denmark, just north of the Amundsen Basin. The Commission on the Limits of the Continental Shelf has not decided the issue, but has referred the Russian Federation back to collecting scientific data that will be used to support or to deny their claim. The Russian Federation is in the process of submitting an amended claim by 2013.

The Northwest Passage Dispute is, in some sense, a boundary dispute, but more profoundly is a dispute over sovereign rights versus international rights in the various classes of maritime regions described by U.N. Convention on the Law of the Sea (UNCLOS), and indeed, a referendum on the legitimacy of UNCLOS itself. Specifically, the Northwest Passage dispute concerns the extent to which the waters of the northern Canadian Archipelago are international and the extent to which Canada is entitled to exercise its sovereignty over the waters of the Northwest Passage. Interestingly, in this dispute, the antagonists are the United States and Canada, two close allies. Historically, the United States as a marine power has plied the waters of the Northwest Passage as international waters. With the advent of UNCLOS and the extension of sovereign boundaries into what were once high seas, Canada has claimed sovereignty over the water between the islands of its northern archipelago. Nevertheless, under the terms of Parts II, III, IV and V of UNCLOS, the vessels of all nations have rights of innocent passage, not only through Straits, sovereign Exclusive Economic Zones and Contiguous Areas of coastal nations, but also through the twelve-nautical-mile Territorial Seas. However, if the northern boundary of Canada is taken to be the farthest extent of its most remote archipelago islands, then the enclosed waters become Internal Waters and so subject to the absolute sovereignty of Canada.

### ***1.3 The Future of Greenland***

A substantial development in the field of mineral exploitation can be found in Greenland. Over one thousand years after the Viking explorer Erik the Red gave it its current pleasant name to attract settlers, Greenland is becoming an important strategic land for both North America and Europe.

In 2000, the U.S. Geological Survey (USGS) estimated that there may be as much as 47 billion barrels of oil offshore Greenland, starting a new wave of oil exploration in the world's largest island. In 2008, the USGS reported that the Arctic could contain about 22% of the world's undiscovered oil and natural gas resources.

Oil and natural gas are not the only strategic commodities found in Greenland. According to Greenland Mining Services, a private mining company based in Nuuk, rocks from Greenlandic mines sent to laboratories for analysis have in most cases been shown to contain traces of uranium. Tests have revealed that radioactive substance is present all over the country.

Another important resource present in Greenland is drinkable water. A recent USGS report states that the largest source of freshwater on Earth, 7 million  $\text{mi}^3$ , is stored in glaciers and icecaps, mainly located in the Polar Regions and in Greenland, in contrast with two million  $\text{mi}^3$  stored in aquifers below ground, and just 60,000  $\text{mi}^3$  stored in lakes, inland seas and rivers. The Ilulissat Glacier in Western Greenland is one of the fastest and most active glaciers in the world and produces 10% of all Greenland's ice fields, corresponding to around 35 billion tons of ice a year.

Greenland is renegotiating its relationship with Denmark, which has ruled the island since 1775. A non-binding referendum on Greenland's autonomy was held on November 25<sup>th</sup> 2008 and was passed with 75% approval. There are two main obstacles to the island's independence: Greenland's need for Danish economic subsidies and the percentage of Danish royalties on Greenland's resources. Greenland has full control over the issuance of mining licenses but Denmark currently receives half of the revenue from oil and mineral resources, a percentage that Greenland is trying to reduce.

Denmark remains responsible for Greenland's foreign affairs and defense. But Greenland's claim over Hans Island against Canada is an issue of foreign policy dealt directly by Greenland rather than Denmark.<sup>1</sup>

There is a high likelihood that Greenland will become a new independent country within 5 or 10 years.

The island's independence and its potential ability to supply North America with essential resources such as oil, water and uranium are good arguments in favor of its access to the North American Free Trade Agreement. Free trade with NAFTA countries would produce dramatic benefits to the Greenlandic population in terms of access to low cost medicine and technology manufactured in the USA and Canada, as well as inexpensive textile products from Mexico. Greenland has been so far reluctant to enter free trade agreements to protect its fishing industry. For this reason, it withdrew from the European Economic Community in 1985. But the new mineral discoveries have the ability to transform the ice-capped island into Saudi Arabia of the Arctic, an economic phenomenon that would inevitably increase its population and economic dimension. In this case, the current protectionism would be replaced with free and fair-trade policies that are more appropriate to foster Greenland's economic development. If this happens, Greenland can either join NAFTA and enter a bilateral free trade agreement with the European Union (as Mexico did), or establish bilateral free trade agreements with both the NAFTA countries and the European Union.

Another important issue is security. As an independent country, it would be in Greenland's interest to join NATO and the Arctic Council. Denmark's position in the Arctic Council would not automatically transfer to Greenland. Therefore, Greenland would have to join both organizations as a new member.

Because of Greenland's geostrategic importance, the United States would have all the interest in inviting Greenland to be a member of NATO for negotiating the installment of a missile-defense system on the island.

#### ***1.4 The application of the U.N. Convention on the Law of the Sea to mineral exploitation in the Arctic***

A common definition of the Arctic policy is fundamental to establish the rights to mineral exploitation in the region.

In 1970, United Nations General Assembly Resolution 2749, the *Declaration of Principles Governing the Seabed and Ocean Floor*, was adopted by 108 states, including the United States, declaring the deep seabed as the "Common Heritage of Mankind". In 1982, the UNCLOS codified the customary law concept of Common Heritage of Mankind, applying

it to “the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction” under Article 136. The International Seabed Authority was created by UNCLOS to administer access and exploitation of this common heritage. While the concept of the deep seabed as a common heritage is an established custom, the establishment of an agency to administer that heritage is not. The ISA, which is mostly focused on mineral exploitation, is the agency charged with regulating seabed resources in the deep sea, including oil and gas. However, because oil and gas reserves generally are found on the continental shelf, and the Exclusive Economic Zone (EEZ) is generally defined as up to and including 350 miles of actual continental shelf, the International Seabed Authority’s regulatory infrastructure is almost completely geared towards the exploitation of minerals.\*

All Arctic littoral states define their jurisdictional rights to the Arctic Ocean area using the general framework of UNCLOS, according to the Ilulissat Declaration on 28<sup>th</sup> May 2008. Currently, U.S. companies cannot submit applications to the International Seabed Authority for drilling and exploration in the deep sea until the U.S. ratifies the convention, and the new binding tribunal elements of UNCLOS won’t apply to the U.S. without its accession to UNCLOS.

The five surrounding Arctic states — Russia, the United States, Canada, Norway and Denmark (via Greenland) — currently have an Exclusive Economic Zone (EEZ) of 200 nautical miles (370 kms; 230 miles) adjacent to their coasts, which is provided for by both UNCLOS and modern custom. Those with broader continental shelves with more than 200 miles, who are signatories of UNCLOS, can apply to the Commission on the Limits of the Continental Shelf for an extension of the EEZ up to 350 nautical miles if they can make a good case for it, and Russia already has applied.

The U.S. Government has argued, time and again, that deep seabed mining is a freedom of the high seas under customary international law. This position is based on Article 2 of the High Seas Convention of 1958.

Under this view, the U.S. contends that its companies enjoy a right of access to seabed minerals and that this right can only be altered by its acceptance of a different legal regime through the processes of conventional or customary international law.

The 1980 Seabed Act of the United States affirms that “it is the legal opinion of the U.S. that exploration for and commercial recovery of hard mineral resources of the deep seabed are freedoms of the high seas pursuant to Article 2 of the 1958 High Seas Convention”.†

The UNCLOS Implementing Agreement reached in 1994 weakened the provisions to which the United States

*“The Arctic can play a key role in global sustainability if the exploitation of resources such as oil, natural gas and water is conducted in a manner that will not damage its ecosystem.”*

\*When proper claims are approved by the Commission on the Limits of the Continental Shelf.

†USACOR author Lockey White’s opinion is that the ISA’s authorization or other substitute authorization by the international community is required for all nations to exploit the deep seabed, including countries that did not ratify the UNCLOS because, under emerging peremptory norms, unilateral exploitation would not be appropriate under international law.

most objected (guaranteeing it a seat on the Council and eliminating the provisions compelling the transfer of technology), but retained the framework in which mining in international waters would be conducted under the authority of the International Sea-Bed Authority.\*

The Arctic can play a key role in global sustainability if the exploitation of resources such as oil, natural gas and water will be conducted in a manner that does not damage its ecosystem. The mineral resources in the Arctic can supply a large portion of the increasing world demand for energy and water. It is the duty of all Arctic nations to establish clear criteria for the exploitation of the resources in the region for the benefit of mankind.

## **2. Energy and Resources**

### ***2.1 What is the Arctic?***

What do we mean when we speak of the Arctic? The precise limits and definition of the Arctic region may be defined differently for different purposes.<sup>2</sup> For example, lawmakers and policy analysts may use a political definition of the Arctic (i.e. the member states of the Arctic Council), whereas cartographers may define the Arctic in terms of latitude (i.e. the area north of 66°30'N latitude, the Arctic Circle). For the consideration of resource and environmental issues, however, it is useful to refer to an ecological definition of the Arctic, conventionally understood as that part of the extreme polar region of the Northern Hemisphere where the mean July temperature is less than 10° Celsius. Restated in more intuitive terms, it is the region “where the soil is permanently frozen and where trees cannot grow”.<sup>3</sup> This definition of course only collaterally refers to the fact that inside this terrestrial tundra perimeter, the largest spatial portion of the Arctic region is oceanic. However, this latter definition conveys the real limitations that the extreme conditions of the Arctic impose on both environmental and human economic activity and is used herein.

### ***2.2 Defining the Problem of Sustainability in the Arctic***

The Arctic is a fragile, irreplaceable environmental area easily degraded. It is chiefly an oceanic area with fluctuating extremes of natural conditions (climate, light availability) which reflect processes that are both planetary and anthropogenic. Since the end of the last Ice Age in the Arctic, the inhospitable conditions have limited *Homo sapiens* to a very few human groups living in very small numbers over millennia by hunting and gathering, with settlements chiefly along and/or near coastlines. Presently, growing demands for resources and access to other ocean basins through geographical features contained in the Arctic region will bring about human expansion; rapidly changing climate in the Arctic leads us to predict that technology will accelerate the process of resource extraction over the next 50 years. There are specific problems to overcome. Interactions of natural forces with mankind's efforts must be considered.

### ***2.3 The Biological Arctic Resources***

The areas of inflow from other oceans contain massive plankton communities, acknowledged to be the basis of the Arctic food chain, with associated prolific fish populations. The largest areas of the open water on or near the continental shelf and shorelines are predomi-

---

\*See National Intelligence Council <http://www.dni.gov/index.php/about/organization/national-intelligence-council-who-we-are>

nantly within the Law of the Sea limits of Russia, Greenland, Iceland, Norway, Canada, Finland, and the USA. Much of the central area of the ocean has been covered for millennia by ice.

There are four basic Arctic fisheries: three in the Atlantic (the Norwegian and Barents Sea, Iceland-east Greenland, and Newfoundland-Labrador), and one in the Pacific (the Bering Sea). As Erik J. Molenaar and Robert Corell put it:

*“Warmer Arctic surface and water temperatures, reductions in sea ice coverage and thickness, reduced salinity, increasing acidification and other oceanographic and meteorological changes are all factors that are certain to affect arctic marine ecosystems, accurate predictions cannot be made.”*

The anthropogenic effects will also bring large changes.<sup>4</sup>

## **2.4 The Arctic Mineral and Energy Resources**

Gas and oil production in the Arctic is presently about 16% of the total global production. The Arctic Council has estimated that up to one-fifth of the world’s undiscovered petroleum resources can be found in the Arctic. Further, they state that the Arctic’s share of the world’s presently-known petroleum resources is 12%. It is well-known that Russia is the most important gas and oil producer in the Arctic, and the bulk of proven Arctic oil and gas reserves is located in Northern Russia. (Note that together the production from Arctic Russia and Alaska result in 97% of the total Arctic oil and gas. Russia is predicted to contain the bulk of the undiscovered petroleum reserves while significant regions of petroleum are predicted to be in Alaska, Canadian offshore and the Norwegian Sea. Predictions include future, new oil-producing states occurring within Greenland and Iceland territorial waters).\*

## **2.5 Conclusions: Sustainability of Arctic Ecosystems and Economies**

The extreme conditions and the fragile and sensitive ecology of the Arctic mean that sustainable management and development of the region in the next 50 years will require a thoughtful approach to planning and regulation that consider not only the needs of future human generations, but the stability of the ecosystems that make the human economies of the Arctic possible. The exploitation of Arctic fisheries, forests, plus petroleum and mineral resources and increased shipping and tourism must not be allowed to compromise the integrity and function of natural systems and landscapes, which may well prove to be irreplaceable and of critical importance to the health of the planet.

# **3. Religion, Population and Health**

## **3.1 Religion in the Arctic**

In the case of the Arctic’s indigenous religions, the geo-climatic conditions that the Arctic population endured through millennia had prevented the development of more elaborate religious structures that would entice power and membership enlargement. As a result, doctrinal sophistication, elaborated forms of worship, and the building of elaborated sanctuaries are considerably absent, except for the presence of various “sacred grounds,” some protected by

---

\*Information summarized from the Arctic Council webpage - <http://www.arctic-council.org>



law today.<sup>5</sup> The Arctic forms of religiosity were simply limited to one's survival in relationship with the harsh nature, and thus focused exclusively on survival and healing, as seen in various forms of *animism* and *shamanism*<sup>6</sup> still in practice today.

Although during the 18<sup>th</sup> and 19<sup>th</sup> centuries, Christian missionaries largely converted the Arctic indigenous population to *Russian Orthodoxy* (e.g., Siberia, Alaska and parts of Finland), to *Protestantism* (e.g., northern Fennoscandia, Iceland, the Faroe Islands, Greenland, Alaska and parts of northern Canada), and even to *Roman Catholicism* [Alaska, Greenland (missions to the Norse), and parts of Canada], the indigenous religion survived Christianity in the form of myths, superstitions and legends that rule one's daily life, as well as one's harmony with the universe itself.<sup>7</sup> This is because the adoption of the Christian faith was not necessarily a replacement of religion, but a synergic combination and a merger of faiths that preserved key elements from the animist and shamanist outlook on life. Arctic shamanism was practiced as a restorative instinct toward healing, and toward the (re)establishment of man's harmony with the universe through preventive and curative measures. As the ritual leader, the shaman was the only one credited with the power to interpret the mystery of illness, cure the sick, control nature and predict the future. After years of training, the shaman's ritual itself implied going into a trance to communicate with the souls of the deceased.<sup>8</sup>

### ***3.2 Religious demographics of the Arctic peoples***

Given the rising trend of internal identity awakening, the recreation of tradition and symbols, as well as in light of various efforts for cultural preservation made by the Arctic Council and other entities, it is highly unlikely that Arctic religious spiritualities would disappear.<sup>9</sup> \* Yet, emerging challenges will be triggered by global competition over resources,<sup>10</sup> which, for the Arctic population and its spirituality, will be nothing more than a "resources curse." Given the resource-driven immigration into the Arctic, missionary activities will most likely parallel resource exploration in line with the common trend of the colonial era.<sup>11</sup> Such activities will most likely reinforce the existing religious organization, attempt to convert the existing agnostics, atheists, and ethno-religionists to Christianity and perhaps other religions, and even trigger proselytic activities between Protestantism and Orthodoxy.

### ***3.3 Population growth estimates***

About 4 million people live in the Arctic, half of whom are in the Russian Federation and about 1.3 million in the Nordic Countries, 130,000 in Canada and 650,000 in the US. The eight Arctic countries are Canada, Denmark with the Faroe Islands and Greenland, Iceland, Norway, Finland, Sweden, the Russian Federation and the United States. Arctic communities and indigenous people, in particular, rely on marine ecosystems which play an important role in their livelihood and well-being. In the Arctic Council, six indigenous organizations are recognized as parties to the Arctic Council. (Arctic Council Report).

The International Futures Model states that the population of Greenland and Iceland will increase by 50% in the next 50 years. The present trend of temporary workers being moved into projects in the Arctic will accelerate as jobs, commerce and industry get intensified. It is our first estimate that there will be a 2 to 3 times increase in the number of people moving

---

\*Cf. <http://www.arctic-council.org>

from Russia, USA, and the European nations to other Arctic regions. The increase is estimated to be between 1.3 million and two million from the USA, between four and six million from Russia and between 2.6 and 3.9 million from Europe, making the population of the region double at least to eight million or more, up to twelve million. Severe problems in maintaining food and other built spaces may occur. Problems will be encountered in constructing shelter and industrial built space, ridding the area of waste and materials to withstand the winter conditions.

Table 1: Population of Iceland over the next 20 years in millions  
(from *International Futures*, Hughes, 2006).

2010	2015	2020	2025	2030
0.321	0.3413	0.358	0.3711	0.3815

### 3.4 Health Issues

In past times, the Aboriginal health profile depended on naturally occurring parasitic-host relationships. As a result of European colonization and exploration, a plethora of diseases have evolved eg: *Trichinella spiralis* from consumption of uncooked polar bear and walrus, rabies from fox and dog, and brucellosis from infected deer.

In the coming decades, population in the Arctic region is projected to increase significantly due to the expected expansion of exploration for oil, natural gas and other resources. The increasing immigrant population in this region will have to adapt to the environment including weather and limited daylight in the winter. The infrastructure will have to be expanded to accommodate the growing population with access to drinking water, sewage, transportation and healthcare.

Emerging infectious diseases of the 21<sup>st</sup> century are raising multi-eyed medusal heads in the form of drug resistant *Streptococcus pneumoniae*, Helicobacter infection, hepatitis, *Haemophilus bacteremia* and meningitis. Coupled with immune-compromised individuals, pregnancy and neonatal demands comes an exponentially increased incidence of disease in healthcare workers, clinical laboratory staff and Public Health Officers, who provide the frontline for recognition, treatment and prevention of illness. These, of course, include methicillin-resistant *Staphylococcus aureus* (MRSA), respiratory syncytial viruses, syphilis, chlamydia, gonorrhea, drug-resistant tuberculosis, and Psychiatric disorders.

Future requirements will include increasing management of acute illness and injury from medical, surgical (even robotic and remote) sources, DNA diagnostics, and Stem cell research. The Arctic Council and Multinational Governmental Cooperation and Collaboration remain the Gold Standard for health in the Arctic region.

*The authors thank Dr. Nancy Maynard, Senior Research Scientist in Cryospheric Sciences, NASA, and member, US Association of the Club of Rome, for sharing her insights on the biological resources and the Future of the Arctic. We also thank Professor Graeme P. Berlyn, Harriman Professor of Forestry at Yale University and Editor of the Journal of Sustainable Forestry, for sharing his wisdom about potential future events in the terrestrial arctic and its*

*interaction with the marine arctic. We have also had substantive interactions with Professor Sirka Heinonen, Professor at the Finnish Future Research Center, School of Economics, Turku University and member of the Finnish Association of the Club of Rome and interactions with a series of members of the Canadian Association of the Club of Rome. We thank Dr. Mary Jo Ryan Duncan of Canada and Ireland for reviewing this substantively, as well as Andrew Oerke, CEO of the Greater Caribbean Energy and Environment Foundation.*

#### *Author Contact Information*

*Email : fstipo@hotmail.com*

### **Notes**

1. "Greenland Takes a Step Towards Autonomy" *Spiegel Online* 26 November, 2008 <http://www.spiegel.de/international/europe/0,1518,592880,00.html>
2. John Sater, *The Arctic Basin* (Washington, DC: Arctic Institute of North America, 1969). See discussion.
3. E.C. Pielou, *Naturalist's Guide to the Arctic* (Chicago: University of Chicago Press, 1994).
4. R. Corell et al., "The Arctic Council's Assessment of the Arctic by the Pew Charitable Trust" <http://www.arcus.org/witness-the-arctic/2005/2>
5. Mikhail Todyshev, Tamara Semenova, et al., "The conservation value of sacred sites: a case study from northern Russia," in Einarsson, Niels; Joan Nymand Larsen, Annika Nilsson, Oran R. Young. (Eds) *Arctic Human Development Report* (Reykjavik: Stefansson Arctic Institute & Oddi Printing Co., 2004), 57-58.
6. Mircea Eliade, Willard R. Trask and Wendy Doniger, *Shamanism: Archaic Techniques of Ecstasy* (Princeton: Princeton University Press, 2004).
7. Niels Einarsson, Joan Nymand Larsen, Annika Nilsson and Oran R. Young, (Eds) *Arctic Human Development Report* (Reykjavik: Stefansson Arctic Institute & Oddi Printing Co., 2004), 57. See also, David C. King, *Cultures of the World: Greenland* (New York, Marshall Cavendish Benchmark, 2009), 91-96.
8. Christina Pratt, *An Encyclopedia of Shamanism: Volume 1* (New York: The Rosen Publishing Group, 2007), 27.
9. Einarsson, Nyman Larsen, Nilsson and Young, *Arctic Human Development Report*, 50.
10. Richard Labévière, *La bataille du Grand Nord a commencé* (Paris: Librairie Académique Perrin, 2008).
11. Todd M. Johnson, Rodney L. Peterson, Gina Bellofatto and Travis Myers, *2010 Boston: The Changing Contours of World Mission and Christianity* (Eugene: Wipf and Stock Publishers, 2012).

### **Bibliography**

1. Arctic Council Declaration on the Establishment of the Arctic Council; *Joint Communiqué of the Governments of the Arctic Countries on the Establishment of the Arctic Council*.
2. Bergeron, Y. et al. (2004), "Past, current and future fire frequency in the Canadian boreal forest : implications for sustainable forest management," *AMBIO* 33, no.6: 356-360.
3. Bjerregaard, P. (2011), "The Arctic health declaration," *International Journal of Circumpolar Health* 70, no. 1
4. Bliss, L.C. et al. (1973), "Arctic tundra ecosystems," *Annual Review of Ecology and Systematics* 4: 359-399.
5. Briggs, Philip J. (1990), "The Polar Sea Voyage and the Northwest Passage Dispute," *Armed Forces & Society* 16, no. 3: 437-452.
6. Carey, John (1991), "Hot Science in Cold Lands," *National Wildlife* 29, no. 3: 4-10.
7. Corell, Hans (2009), "The Arctic: An Opportunity to Cooperate and Demonstrate Statesmanship" an Address at Vanderbilt University on February 2009.
8. Esseen, P. A. et al.(1997), "Boreal forests," *Ecological Bulletins* 46: 16-47.
9. Gerhardt, Hannes et al. (2010), "Contested Sovereignty in a Changing Arctic," *Annals of the Association of American Geographers* 100, no. 4: 992-1002.
10. Goodhart, Michael and Stacy Bondanella Taninchev (2011), "The New Sovereignties Challenge for Global Governance: Democracy without Sovereignty," *International Studies Quarterly* 55: 1047-1068.
11. Haftendorn, Helga (2011) "NATO and the Arctic: is the Atlantic alliance a cold war relic in a peaceful region now faced with non-military challenges?," *European Security* 20, no. 3: 337-361.
12. Hong, Nong (2011), "Arctic Energy: Pathway to Conflict or Cooperation in the High North" *Singapore International Energy Week* October 4, 2011.

13. Ikenberry, John G. (2010) "Who Owns the Arctic," *Foreign Affairs* 89, no.2: 154-155.
14. Kramer, Andrew E. (2010), "World Briefing Europe; Russia-Norway Pact on Sea Border" *The New York Times* September 16, 2010.
15. Kondro, W. (2009), "Arctic Health Research," *Journal de L'Association Médicale Canadienne* 180, no. 1: 29.
16. Laurberg, P. et al. (2012), "Vitamin D changes in an Arctic Inuit society in transition," *Bone Pages* 50, Supplement no.1: 104-105.
17. Parkinson, A.J. (2010), "Improving human health in the Arctic: the expanding role of the Arctic Council's Sustainable Development Working Group," *International Journal of Circumpolar Health* 69, no. 3: 304.
18. Pedersen, Torbjorn (2011), "International Law and Politics in U.S. Policy making: The United States and the Svalbard Dispute," *Ocean Development & International Law* 42: 120-135.
19. Pedersen, Torbjorn (2006), "The Svalbard Continental Shelf Controversy: Legal disputes and Political Rivalries," *Ocean Development & International Law* 37: 339-358.
20. Pielou, E.C (1994), *A Naturalist's Guide to the Arctic* Chicago: University of Chicago Press.
21. Schmiegelow, Fiona and Mikko Mönkkönen (2002), "Habitat Loss and Fragmentation in Dynamic Landscapes: Avian Perspectives from the Boreal Forest," *Ecological Applications* 12: 375-389.
22. Schulze, E.D. et al. (2000), "Managing Forests After Kyoto," *Science* 289, no. 5487: 2058- 2059; Myneni et al., *Proceedings of the National Academy of Sciences* 98: 14784-14789, 2001; Gorham, *Ecological Applications* 1: 182-195, 1991.
23. Smith, Reginald (2011), "The Arctic, A New Partnership Paradigm or the Next Cold War?" *Joint Force Quarterly* No. 62.
24. United Nations Convention on the Law of the Sea, Montego Bay, 1982.
25. U.S. Department of State Diplomacy in Action, <http://www.state.gov/t/pa/prs/ps/2011/05/163285.htm>.
26. Ying, Ding (2009), "The New Enclosure Movement A Russian claim to Arctic territory starts another international dispute over polar land grabs" *Beijing Review* August 23, 2009.

## Book review — 2052: A Global Forecast for the Next Forty Years Report to the Club of Rome

By Jorgen Randers (Professor of Climate Strategy, BI Norwegian Business School, Oslo).  
White River Junction VT: Chelsea Green, June 2012, 392p, \$24.95pb. ([www.2052.info](http://www.2052.info))

**Reviewed by Michael Marien**

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

*2052: A Global Forecast for the Next Forty Years* is a report to the CoR commemorating the 40<sup>th</sup> anniversary of *The Limits to Growth*, written by one of the four original authors. This broad forecast is “an informed guess tracing the big lines in what I see as the probable global evolution toward 2052...the most likely global roadmap to 2052 so that I would know what I am in for.” Since publication of *The Limits to Growth* in 1972, “humanity remains in solid overshoot...and we can discern the early signs of the coming gradual destruction of the ecosystem” (p.xv).

### 1. Five Big Issues toward 2052

“The big question is how fast the transition to sustainability will happen...the sustainability revolution has started, but is still in its infancy” (p13). The transition will require a fundamental change to a number of systems that govern current world developments. The next 40 years will be strongly influenced by how we handle five central issues:

- ***The End of Uncontrolled Capitalism:*** “slow and insufficient response to our challenges will dominate”; old-fashioned capitalism will survive in parts of the world, but will be strongly modified elsewhere;
- ***The End of Economic Growth:*** continuing technological advance will come to our partial rescue, but lack of space and cheap resources will force solutions with a lower ecological footprint to fit within the carrying capacity of the planet;
- ***The End of Slow Democracy:*** the fundamental question is whether democracies will agree on a stronger state and faster decision-making before we run into the brick wall of self-reinforcing climate change;
- ***Intergenerational Conflict:*** the era of generational harmony will come to an end, leading to slower economic growth and a smaller pie to share;
- ***The End of Stable Climate:*** negative impacts will be significant, but not disastrous before 2052; there will be more droughts and floods, and sea level will be 0.3 meters

higher; “self-reinforcing climate change will be worry number one, with methane gas emissions from the melting tundra leading to further temperature increase, which in turn will melt even more tundra” (p47); the world will still be operational, but with higher operating costs and scary prospects for the rest of the 21<sup>st</sup> century.

## 2. The Global Forecast

Several *Highlights* of the forecast:

- a) “global population will stagnate earlier than expected because fertility will fall dramatically in an increasingly urbanized population”;
- b) “resource and climate problems will not become catastrophic before 2052” due to increased social investment, but there will be much unnecessary suffering;
- c) the short-term focus of democracy and capitalism will ensure that “wise decisions needed for long-term well-being will not be made in time”;
- d) “global population will be increasingly urban and unwilling to protect nature”;
- e) the impact will differ among five regions analyzed here: “the most surprising loser will be the current global economic elite, particularly the US...China will be the winner” (p355).

Some *Details* of the forecast:

- \* Disparities: The world in 2052 will be one of huge regional and class differences; there will be social friction because of distributional inequity; regional variations in increased temperature will range from 0°C to >4°C;
- \* World Population: Continuing decline in fertility, only partly offset by a continuing rise in life expectancy, will cause “global population to reach a maximum of some 8.1 billion people in the early 2040s,” thereafter “declining at 1% per year and it will be back to current levels (7 billion people) by 2075” (pp62-64);
- \* Workforce: Potential workforce will follow the pattern of population: it will first grow, then peak, and then start to decline; “the number of people aged 15 to 65 will peak some five years before the peak in total population”; thus, the support burden will stay more or less constant because the rise in the number of the elderly population will be offset by a decline in the number of children;
- \* Productivity: Productivity growth will peak in the 2020s and then decline toward the middle of the century; in 2052, GDP per person will grow at only 1%/year; productivity growth will be hampered by erratic weather and growing inequity that will disturb the peace;
- \* GDP Growth: World GDP will be 2.2 times as big as today, enabling higher average consumption rates but also resulting in higher emissions and more rapid depletion of resources; world GDP will start to decline just after 2052, despite dramatic increases in resource and energy efficiency;

- \* Investment Growth/Consumption Decline: Emerging problems will mean increased investment, forced or voluntary; this will take up a larger share of GDP, lowering the share available for consumption; investment is currently 25% of GDP and will need to be increased to >30%; “global consumption will grow toward stagnation in 2040 and begin to fall around 2050”;
- \* Rising Costs: New costs will emerge, e.g.: substitutes for scarce resources, solutions for dangerous emissions, replacements for ecological services such as water that were formerly free, protections against future climate damage like sea-level rise, rebuilding real estate and infrastructure destroyed by extreme weather, and maintaining armed forces to defend resource supplies and fight off immigration; the cost of such developments “could easily exceed 10% (of world GDP) in the long run of a badly handled future”;
- \* Energy Use: About 87% of today’s global energy use is supplied by coal, oil, and gas; energy intensity will fall by a third by 2052 while the global economy doubles—thus energy use will grow by 50%;
- \* Changing Energy Mix: Use of conventional oil has probably peaked, and peaks in both coal and gas use are expected before 2040 due to very rapid increase in use of renewable energy, which will grow from 8% of energy use in 2010 to 37% in 2050 (this shift will be slowed by the cheap intermediary solution of replacing coal with gas); the nuclear share of world energy will be one-half of today’s contribution—below 3%;
- \* Emissions: CO<sub>2</sub> emissions from energy will peak in 2030, but overall emissions from energy use will still be 40% above global emissions in 1990; carbon capture and storage (CCS) will have a limited role in reducing CO<sub>2</sub> emissions in 2052, dwarfed by increases in energy efficiency and renewables;
- \* Rising Temperature: “Average temperature will go from plus 0.8°C relative to preindustrial times in 2012 to plus 2.0°C in 2052, and a maximum of plus 2.8°C in 2080” (p241). In 2052, “there will be visible climate damage and growing worry about the future” (p119);
- \* Urbanization: “More people will seek shelter inside modern city walls, leaving a small rural population to fend for itself against increasingly violent weather and ecosystem change”;
- \* Adaptation: “By 2052, voters in the well-governed part of the world will have seen enough damage to be genuinely concerned about the possibility of self-reinforcing climate change in the last half of the century”; a tremendous effort will finally be under way to reduce emissions for the benefit of all, in parallel with an extraordinary effort to adapt to the new climate;
- \* Food: Production will continue to grow in the decades ahead, and *Homo affluensis* will have moved down the food chain to less refined foods; but food will be unevenly distributed then as now, and many will starve; as we get closer to 2052, agriculture will be increasingly affected by climate change; use of genetically modified organisms will increase but prove unsustainable in the long run;



- \* Managed Degrowth: Forward-thinking regions within some nations will increasingly focus on managing their inevitable degrowth by trying to build regional resilience focusing on local food and energy;
- \* Sustainability Paradigm: Growth in GDP will remain a central ambition in most countries for many decades; “the sustainability crowd is still a tiny minority, and the paradigm shift is probably several decades into the future”; by 2052 global society will increasingly be seeking sustainable well-being based on planet-friendly energy and resources;
- \* Modified Capitalism: Global society will interfere, to some extent, with operation of the free market to ensure that investments flow toward what is publicly needed rather than what is most profitable; thus, under “modified capitalism,” a stronger role for wise government;
- \* China as World Leader: “China will be the world leader in 2052...the premier driving force on the planet,” with a population 3.5 times bigger than the US, an economy nearly 2.5 times larger, and consumption >70% of the US equivalent (the US could maintain its hegemony, but its system of governance does not seem capable of quick, bipartisan decision making);
- \* Jobs: There will be as many jobs in the future as in the past, relative to the workforce; “I see little reason why there should be higher levels of unemployment in the future”;
- \* Wild Cards: Some wild cards: abundant oil or gas making new renewables less competitive, a financial meltdown, nuclear war, a deadly disease killing two billion people, collapse of ecological services such as bee pollination, counter-revolution in China leading to lower emissions and reduced investment in green technology, a citizen’s rebellion in the US that fundamentally changes the tax laws, a dedicated global effort to stop climate change.

### 3. Regional Futures

- \* The US: The economy will grow at an average rate of only 0.6%/year over the next 40 years (reaching zero by 2052), because it is already a mature economy with high productivity, it has not been investing sufficiently (investment is only 16% of GDP—less than two-thirds the 24% global average), and the US must repay the debt run up over the last decades; as a consequence, “per capita consumption levels in 2052 will be some 10% lower than in 2010” (p267); energy use will be more or less constant, with a huge shift from coal and oil to gas, and renewables as the largest source of energy by 2052; emissions from energy use will decline nearly one-half by 2052—35% below 1990 levels;
- \* China: “Tremendous economic growth” is expected over the next 40 years, averaging 3.5% per year but much higher in the next 20 years. Despite high savings and investment (currently at >35%), consumption per capita will grow fivefold by 2052. But China’s “footprint on the planet will be substantial,” and climate change will create significant problems of sea level rise and desertification; energy use will more than double by the 2030s; agricultural output will increase by 25% before it peaks in the 2030s and starts to decline;

- \* OECD-less-US: The old industrialized market economies other than the US have more than twice as much population as the US; population will remain constant until 2025 and then start a slow decline so that it will be 10% lower in 2052 than today; aging will lead to an increase in the support burden by some 10% after 2030; total GDP will peak in the early 2030s at some 15% above current level; very fast growth in renewables will reduce gas use after 2035, and the nuclear industry will be in steady decline; overall emissions will be 55% below the current rate and 50% below 1990 emissions;
- \* BRISE: Brazil, Russia, India, South Africa and ten big emerging economies (Indonesia, Mexico, Vietnam, Turkey, Iran, Thailand, Ukraine, Argentina, Venezuela, and Saudi Arabia) had a total of 2.4 billion people in 2010 (half in India) and will peak by 2052 at well below 3 billion; collective GDP in the 14 countries will triple by 2052, with per capita GDP growing from \$6K to \$16K; emissions from fossil fuels will not plateau until the 2040s despite efficiency increases; the region is subject to potential climate disasters (e.g., inundation of SE Asian countries by melting glaciers in Tibet, drying out of the rain forest in Brazil, insects killing the boreal forest in Russia); in sum, the region will be “in lively development” over the next 40 years, but with widely varying quality in governance;
- \* Rest of the World: This eclectic blend of 186 countries had a total population of 2.1 billion in 2010, which will peak in the 2050s at 3.1 billion due to education and contraception; GDP will grow three times its current size by 2052, and GDP will grow from \$4K to \$8K. Food production will outpace population growth, and the energy system will grow gradually. The area of cultivated land will start to decline around 2040, and the ROW region will need food imports by 2052.

#### 4. “Overshoot and Collapse” Updated

The concern about “overshoot and collapse” was first articulated in the 1972 *Limits to Growth* report. This forecast chooses “Scenario 3” from *The Limits to Growth*, which describes a shortage of nonrenewable resources and dangerous pollution postponed until the mid-21<sup>st</sup> century due to application of technology. “The story of the 2052 forecast is one of overshoot caused by delayed societal response to greenhouse gas emissions being allowed to increase beyond sustainable levels for generations. It is a story of lower consumption growth (and in the rich world consumption decline) resulting partly from the costs of trying to mitigate the climate problem” (p305). The world will experience numerous cases of overshoot and decline before 2052, but it will not experience overshoot and collapse before 2052, when average per capita consumption will peak, and global average temperature will surpass the danger threshold of 2°C. This forecast of developments to 2052 is “quite gloomy,” but “not catastrophic” (p323).

The human ecological footprint has expanded continuously since 1972, and will become heavier. The human footprint can expand beyond planetary limits. When the footprint approaches a limit, society normally reacts, but only after some delay. “Currently the human demand on the biosphere exceeds the global bio-capacity by some 40%” (p311). The world of 2012 is in overshoot, but this is a temporary phenomenon. In each instance of overshoot, humanity has to move back into sustainable territory, either through “managed decline” or

by “collapse induced by nature.” The world has not yet experienced large-scale environmental collapse. The challenge is solvable in principle, but hard to address in practice.

## 5. What We Should Do

The final chapter discusses what “global society ideally should have done”: increase energy efficiency, shift to renewable energy, stop destroying forests, and invest in carbon capture and storage. All of these actions are technically feasible and not especially expensive. If properly executed, the effort would not reduce employment. With a lower discount rate and more realistic pricing, many climate-friendly solutions are competitive at current prices.

“The saddest aspect of my forecast is probably the fact that there will be no wage rise—and possibly a decline in real disposable income—in the rich world over the next 40 years... for most who are younger and poorer, this will seem like an ominous future” (p327). The answer is to decide on a different success criterion, choosing well-being rather than material gain as the appropriate goal. It took 30 years from when the current success measure of GDP was invented in the 1930s to regular use for policy guidance in the 1960s; we now need to institute “monthly measures of national well-being in much less than 30 years” (p328).

*“It took 30 years from when the current success measure of GDP was invented in the 1930s to regular use for policy guidance in the 1960s; we now need to institute “monthly measures of national well-being in much less than 30 years.”*”

This said, 21 provocative “pieces of personal advice” are offered:

- 1) Focus on satisfaction as a core goal, rather than income (e.g., maximizing life satisfaction as long as income stays above a certain threshold);
- 2) Don’t acquire a taste for things that will disappear (the future will be urban, dense, and crowded; don’t develop a taste for life in suburbia);
- 3) Invest in great electronic entertainment and learn to prefer it (virtual worlds will increasingly compete with the real world for our attention; fascination with the real appears to be an acquired taste, and tastes are changing);
- 4) Don’t teach your children to love the wilderness (humanity is eliminating wild nature from the planet; those who have been taught to love wilderness will have fewer places to go, farther away; however, love of untouched nature is largely an acquired taste);
- 5) If you like great biodiversity, see it now (despite continued efforts to conserve and restore biodiversity, climate change will take its toll);
- 6) Visit world attractions before they are ruined by the crowd—or increasing social unrest (cultural diversity is seemingly disappearing even faster than biological diversity);
- 7) Live in a place that is not overly exposed to climate change (the general picture is well-known: avoid traditional flood zones, sea level locations, areas that are already too hot or too dry, and mountains that are currently frozen—which will “give off landslides when the permafrost lifts 200 vertical meters by 2052);

- 8) Move to a country that is capable of decision-making (democracy and the free market have solved a number of complex problems in past generations, but society will be facing problems not easily solved by these well-tested means, notably global warming; thus “choose as your new homeland a country that is capable of acting proactively in the decades ahead”);
- 9) Know the unsustainabilities that threaten your quality of life (map out the problems your location will face in the next decade or two—both physical threats such as erratic weather, brownouts, and migration flows and non-material threats such as higher taxes, new legislation, and cultural decline);
- 10) Get an education (it guarantees a more interesting life and ensures greater choice; if unemployed, fight for your rights, because “unemployment is a distributional issue” that can always be solved by changing national policy, e.g.: tax the rich and/or print more money so as to create public employment);
- 11) Encourage your children to learn Mandarin Chinese (more than 1.5 billion people already know this language, and it is important to have “direct access to the future hegemon”);
- 12) Stop believing that all growth is good (if you want to stay happy in the next 40 years, refine and revise your thinking about growth, because “a number of things are going to decline” for better and worse; “in the future growth won’t be generally good”);
- 13) Remember that fossil-based assets will lose their value (as global energy use peaks around 2040 and energy efficiency increases);
- 14) Invest in things that are not sensitive to social unrest (in that tensions will rise in the next several decades because of mounting inequities);
- 15) Do more than your fair share to promote sane perspective, policy, and practice in your communities, companies, and households;
- 16) In business, explore the most urgent unsustainabilities on the corporate radar—the first things that will go seriously wrong if the world evolves according to this forecast (the solution is not always unprofitable, e.g. Philips moved from producing cheap but energy-intensive light bulbs to much more intensive low-watt bulbs);
- 17) In business, don’t confuse growth in volume with growth in profits (e.g. windmills and photovoltaics are fast-growing markets but do not guarantee a profit because of too many investors);
- 18) In politics, support only initiatives with short-term benefits if you want reelection. The only leaders able to force wise long-term policy onto their people seem to be the EU and China’s Communist Party;
- 19) In politics, remember that the future will be dominated by physical limits (future politicians will have to use much time on issues of depletion and pollution—issues that won’t go away for a long time, such as land for agriculture and forests, freshwater, oceans; the aim is to reduce energy intensity and climate intensity);
- 20) In politics, accept that equal access to limited resources will trump free speech (in a resource-constrained world, allowing scarce resources to be in the hands of a minority will lose legitimacy; “over the next 40 years politicians will increasingly be pushed to

consider the rights of future generations...hopefully by the end of the century there will be an International Court of Intergenerational Justice” (p350); in an increasingly crowded world, “collective well-being will be more important than individual rights”);

- 21) As a final word of encouragement, “don’t let the prospect of a suboptimal long-term future kill your hope...even if we do not succeed in our fight for a better world, there will still be a world with a future—just less beautiful and less harmonious than it could have been” (p351).

## 6. Comment

This 40-year forecast is very useful and highly provocative. It is particularly useful for pointing to the necessary rise of social investment in response to global warming that will displace some consumption. The 21 pieces of advice for individuals and organizations are especially thought-provoking. A close reading is strongly advised for anyone concerned about world futures and the turbulent decades ahead, although everyone will surely find some points of disagreement.

At first glance, this report appears to be unique. However, it is useful to contrast **2052** with *2025: Scenarios of US and Global Society Reshaped by Science and Technology* by Joseph F. Coates, John B. Mahaffie, and Andy Hines (Oakhill Press, 1996/508p), an equally audacious work that made 107 generally optimistic assumptions about the future, mostly about technological progress (e.g, many natural disasters mitigated or prevented by 2025, and, less probably, 120mpg cars in widespread use). Global warming is mentioned, but is not a central theme as in Randers' forecast. In Chapter 8 on “Managing the Planet,” Coates et al. offer a hopeful scenario where “sustainability has emerged as a core global value” (p227), which is far from the case today. Could Randers also be overly optimistic?

Randers' forecast is assisted (but perhaps complicated) by thirty-four “2052 Glimpses” of 3-4 pages each by writers such as Herman Daly, Jonathan Porritt, Mathis Wackernagel, John Elkington, Paul Gilding, and original *Limits to Growth* co-author William W. Behrens. These brief contributions, which Randers endorses fully or in part, appear throughout the text, and are listed together on pp359-365, but not in the table of contents.

Most important, some of the **2052** assumptions and oversights deserve highlighting and critique.

The most questionable assumption is the startling core forecast of world population peaking at 8.1 billion in the early 2040s, and then declining to the present level of 7 billion by 2075. Randers justifies this by assuming rapid decline in fertility rates offsetting more gradual decline in mortality rates. But decline in fertility may be slower than expected in Muslim areas and among religious fundamentalists, while decline in mortality may be faster by conquering cancer and other diseases, and perhaps even aging itself. In contrast, the just-issued **2012 World Population Data Sheet**, by veteran demographer Carl Haub of the Population Reference Bureau, projects world population at 9.624 billion in mid-2050, a slight increase from Haub’s 2010 projection of 9.485 billion (see Global Foresight Books' Book of the Month, Aug 2010). The difference of >1.5 billion in Randers' and Haub’s forecasts is significant, and deserves debate. (Also note that Haub’s forecast for 2050 has been slowly creeping upward over the last decade!)

Randers' assumption of 2°C temperature rise by 2052 with a maximum of 2.8°C in 2080 may be somewhat conservative. See, for example, the discussion by Clive Hamilton in *Requiem for a Species* (Global Foresight Books' Book of the Month, May 2010), reporting that the new consensus among a select group of worried climate scientists, revised upward, is for a warming of a very worrisome 4°C or more by the 2070s or 2080s, or possibly the 2060s. Hamilton also cites Hans Schellnhuber, director of the Potsdam Institute for Climate Impact Research, warning that if much of the methane trapped in permafrost is released, “we will be toast.” Randers makes some reference to this trend (which is already apparent), but is more restrained.

Randers does briefly mention several negative “wild cards” such as methane (more accurately a “not-so-wild card” possibility, if not a probable development). But wild cards can also be positive, and Randers does not mention possible game-changing contributions that might be made by nanotechnology and new energy technologies such as ultra-low-cost designed biofuel from algae, or small modular nuclear reactors. Similar to widespread release of methane, the possibility of major new technology is also a “not-so-wild card”— a critical distinction that, unfortunately, is not made in the futures literature (a major development of 10-30% probability is far different than a “wild card” of literally 2% probability, or a “black swan” event that is even more improbable).

Randers' assumption that unemployment will more or less stay at current levels should also be questioned, as well as his lack of attention to potential climate tipping points.

Anyway, despite these complaints, Randers' forecast deserves widespread attention, and will hopefully accelerate the long-term sustainability trend and rekindle attention to the limits to undifferentiated growth as defined by obsolete industrial-era measures.

*Author Contact Information*

*Email: MMarien@twcny.rr.com*

*Website: <http://www.globalforesightbooks.org/>*

