PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

NEW PERSPECTIVES ON MAJOR GLOBAL ISSUES

Volume 4, Issue 1 | October 2019 | ISSN 2038-5242

Inside This Issue

ARTICLES

The acronym of the South-East European Division of The World Academy of Art & 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 to Harmonia represents the symbolic coupling of Eastern learning and Western love of beauty. The youngest son of Cadmus and Harmonia was Illyrius. The city of Zagreb, which is the formal seat of SEED, was once part of Illyria, a region in what is today referred to as the Western Balkans. Cadmus will be a journal for fresh thinking and new perspectives that integrates knowledge from all fields of science, arts 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.

Copyrighted to & Published *under Open Access policy guidelines by* The Mother's Service Society, 16192, Coastal Highway, Lewes, DE 19958, USA

Visit http://cadmusjournal.org/content/editorial-policy for Editorial Policy.
Websites: www.cadmusjournal.org – www.worldacademy.org – www.newwelfare.org
E-mail: editor@cadmusjournal.org

Editorial Office: 5, Puduvai Sivam Street, Venkata Nagar, Pondicherry 605011, India
Printed by: Akaram, Plot No.1, Nirmala Nagar, Thanjavur, India

PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

NEW PERSPECTIVES ON MAJOR GLOBAL ISSUES

Volume 4, Issue 1

October 2019

CADMUS VISION

The world is in need of guiding ideas, a vision, to more effectively direct our intellectual, moral and scientific capabilities for world peace, global security, human dignity and social justice. Today we face myriad challenges. Unprecedented material and technological achievements co-exist with unconscionable and in some cases increasing poverty, inequality and injustice. Advances in science have unleashed remarkable powers, yet these very powers as presently wielded threaten to undermine the very future of our planet. Rapidly rising expectations have increased frustrations and tensions that threaten the fabric of global society. Prosperity itself has become a source of instability and destruction when wantonly pursued without organizational safeguards for our collective well-being. No longer able to afford the luxury of competition and strife based primarily on national, ethnic or religious interests and prejudices, we urgently need to acquire the knowledge and fashion the institutions required for free, fair and effective global governance.

In recent centuries the world has been propelled by the battle cry of revolutionary ideas—freedom, equality, fraternity, universal education, workers of the world unite. Past revolutions have always brought vast upheaval and destruction in their wake, tumultuous and violent change that has torn societies asunder and precipitated devastating wars. Today the world needs evolutionary ideas that can spur our collective progress without the wake of destructive violence that threatens to undermine the huge but fragile political, social, financial and ecological infrastructures on which we depend and strive to build a better world.

Until recently, history has recorded the acts of creative individual thinkers and dynamic leaders who altered the path of human progress and left a lasting mark on society. Over the past half century, the role of pioneering individuals is increasingly being replaced by that of new and progressive organizations, including the international organizations of the UN system and NGOs such as the Club of Rome, Pugwash and the International Physicians for the Prevention of Nuclear War. These organizations stand out because they are inspired by high values and committed to the achievement of practical, but far-reaching goals. This was, no doubt, the intention of the founders of the World Academy of Art & Science when they established this institution in 1960 as a transnational association to explore the major concerns of humanity in a non-governmental context.

The founders of WAAS were motivated by a deep emotional commitment and sense of responsibility to work for the betterment of all humankind. Their overriding conviction was on the need for a united global effort to control the forces of science and technology and govern the peaceful evolution of human society. Inhibiting conditions limited their ability to translate these powerful motives into action, but they still retain their original power for realization. Today circumstances are more conducive, the international environment is more developed. No single organization can by itself harness the motive force needed to change the world, but a group of like-minded organizations founded with such powerful intentions can become a magnet and focal point to project creative ideas that possess the inherent dynamism for self-fulfillment.

Orio Giarini *Garry Jacobs* *Ivo Šlaus*

CADMUS
New Perspectives on Major Global Issues
Volume 4, Issue 1, October 2019

CONTENTS

Inside this Issue

Humanity is approaching a watershed. The challenges confronting the world today cannot be effectively addressed by incremental changes in existing institutions and policies. Neither the speed of change nor the magnitude is sufficient to keep pace with the rapidity of technological developments and social evolution. Effective response requires fundamental change in our values, conceptual framework, ways of thinking and relating to one another and the world we live in—a change of consciousness. The articles included in this issue reinforce the need for a paradigm change in the fields of economics, governance, education, global security and climate change. The normal tendency of the human mind is to see these challenges as separate from each other, treating each problem as if it had its own independent reality that could be addressed in isolation from the rest. We are now compelled to accept that all aspects of social reality are one and inextricably integrated with one another. The only viable solution is to replace piecemeal reductionist ways of thinking and acting with comprehensive, transdisciplinary perspectives and initiatives that engage and embrace all sectors, stakeholders and levels of society. The leadership needed is that which will unleash a global social movement which expresses the growing awareness and rising aspirations of humanity as a whole. The knowledge needed is a knowledge of the process of transforming the long, slow, zigzag course of natural evolution into a more conscious, swift and direct process of social transformation. The recent emergence of youth activism to address the climate challenge is an unprecedented sign of the awakening of a unifying global consciousness rich with promising seeds for a better future. These seeds need to be honored and consciously nurtured until they blossom with new possibilities.

We hope you enjoy this issue. Select comments or reviews of articles will be published in the WAAS newsletter.

Editors

CADMUS, Volume 4, No.1, October 2019, 1-13

Emerging New Civilization Initiative (ENCI):
Emergence from Emergency*

Carlos Alvarez-Pereira
Member, Executive Committee, Club of Rome;
Fellow, World Academy of Art & Science

Abstract

Our conscious mind enables us to grasp complexity, but almost forces us to think in a linear and mechanistic way about "solutions" to the "problems" we face. This paper is an attempt to confront that dilemma of humanity, which may be the foundation of our growing divorce from life, as exemplified by rapid climate warming, loss of biodiversity and over-exploitation of resources, as well as by increasing social inequality. We explore here the multiplicity of descriptions and approaches currently used to address the huge challenges of humanity´s self-defeating course. If we recognize that complex systems do not change through purposeful planning, it follows that we need a shift in epistemology to start asking better questions, appreciating complexity rather than suppressing it. Exploring our blind spots may bring hints for the path forward towards reconciling humanity with life as a whole, through mutual learning. This paper reviews the state of these questions, and it obviously does not bring the answers, but gives us hope that the learning process can continue in fundamentally new ways.

1. Setting the Scene: Why are we doing this together?

The world is full of confusing signals. Life expectancy has been steadily increasing. Literacy is slowly but surely reaching the entire humanity. Not without obstacles and setbacks, women are emancipating themselves everywhere. For most of the world (6 out of 7 non-Western parts of humanity), aspirations for better levels of wellbeing are now a more tangible dream. Science and Technology are breaking barriers in our knowledge and capacity to act. To many, caring for one another is the name of the game. Science and Technology are also creating the possibility of dystopian futures with deeper divisions between winners and losers. Relentless competition is still the name of the game. Human-induced climate change and other effects of industrialization are destroying the vitality of processes on which human life depends. Exhaustion of workable fossil fuels is closing an era of energy metabolism with extraordinary returns. Millions of people have to move to be alive, and families are torn apart. Signs of collapse are accumulating. Humanity is thriving. Humanity is committing suicide.

How do we make sense of these contradictory signals, some hopeful, many frightening? Is tragedy the inescapable reverse of hope? Do we have the collective intelligence to face

* This essay is an outcome and a personal interpretation of the Open Debate & Engagement Meeting co-organized by the Club of Rome (CoR) and the World Academy of Art and Science (WAAS) in Dubrovnik on 21-22 March 2019. See credits and references at the end.

the challenges, mostly created by ourselves? None of the incumbent discourses is able to answer these questions. Business answers, as usual, are disappointing so many people that all kinds of fears are emerging. And they are amplified and exploited in unscrupulous ways to create divisions and conflicts among us. Risks of undesirable futures are growing fast. "Will our children be ok?" is an uncomfortable question for millions of parents all over the world. And living in a so-called "developed" country does not ensure anymore a positive answer. As shown by movements like the Extinction Rebellion and Fridays for Future, the identification of modernity with progress, on which most of present civilizations are built, is being challenged.

All attendants of the Dubrovnik Meeting shared the conviction that these issues are relevant for the present and future of humanity. The elusive conciliation of human development and a healthy biosphere is especially critical. The alarm raised for good reasons by the Club of Rome and "The Limits to Growth" created a wave of growing awareness of our existential contradictions, but prospects of a sustainable future are not closer compared to 50 years ago. Recent assessments have shown that fulfilling the UN Sustainable Development Goals (SDGs) is unlikely to be realised within the biophysical limits of our sole life-thriving planet. Combining both may be feasible, but only if we were to depart substantially from our current pathways.

Whatever our position in society is, we are also committed in thought, advocacy and action to change the course of things towards a more harmonious path among humans and with the biosphere. And, to varying degrees, we experience confusion and frustration due to the gap between public discourse and the reality of (in)action. After some years of stagnation, CO_2 emissions were again on the rise in 2017. The world invests in renewable energies several times less than what is required to meet the Paris Agreement goals. The recent IPBES report shows how dramatic the loss of biodiversity is. Social inequalities have been growing for decades, and the world is in the grip of violence, wars and serious tensions between big powers.

One could say that humanity sits at a crossroad between tragedy and transformation. But that is a simplistic metaphor. Tragedies are already happening in so many places. At the same time, multiple transformations are ongoing, many of them driven by a relentless impetus towards expansion of our material capabilities (and hence footprints) and by processes of technological innovation framed for that purpose. Do these transformations work by default for desirable futures? Human societies are anything but static, on the contrary they seem to be accelerating, but in what direction? Are we not stuck in high-speed gridlocks in which everything seems to change in order for nothing fundamental to change? Reasons abound to declare emergency, in particular in regard of global warming and threats to biodiversity. But how would that emergency work? Beyond public declarations of concern are we able to start real action for transformation of a substantially different kind? How do we build upon multiple emergencies to enable the emergence of a new and harmonious balance of humanity within nature?

One could say: the SDGs already address all relevant dimensions of the transformations we need. We only face an issue of implementation; how do we create enough political will to design and execute the appropriate policies? But our educated intuition makes us feel this is

not enough, or maybe not even the right thing. The SDGs framework gives a strong political legitimacy to the drive towards sustainability, but it is based on a decomposition method. It splits the complex, interdependent whole into pieces (goals) and then into more pieces (indicators) as if proclaiming a detailed wish list was enough guidance to walk the way to the future we want. On the contrary, we think, guess or feel that nothing but paying attention to complexity will do the trick.

Vitality is exactly in the interactions between parts of a complex system. Life cannot be found and understood by splitting apart and trying to optimize separately each one of the myriads of sub-systems which are parts of life. And this creates the **paradox of conscious purpose**. On the one hand we are conscious of systemic complexity. We know it is not reducible to something "manageable" through linear thinking and conscious planning. Climate change is a complex, long-term and gigantic feedback loop from nature affecting our lives now. We could say we did not know it would happen, but actually we did not care about consequences, we ignored complexity. We know we cannot do that again, but we long for direct ways to the future we want, we long for "solutions". How can we make complex systems change in the direction we want, if defining linear targets is already an act of reductionism betraying complexity? Will not complexity strike back again? It does everyday.

So, why are we together and what are we trying to do? We adopt a holistic, global and long-term perspective of humanity and life at large. We are aware of the depth and interdependencies of the challenges that humanity faces. We believe in the opportunity of emergence from emergency, towards the necessary unity of mind and nature. But, if we are true to ourselves, we do not know (yet) how to keep complexity in focus, while at the same time trying to create large-scale changes in a desirable direction. We are coming together from many and diverse backgrounds. We share the unique adventure of **asking better questions** and humbly figuring out **how humanity can reconcile with life as a whole**. Nothing less would suffice.

2. Multiple Descriptions: How deep and complex is the issue?

The Dubrovnik Meeting confirmed that reality admits multiple descriptions, many different angles from which new inquiries can be tried. But it also affirmed that none of the descriptions is free from our self-inflicted existential threats. In talking about the basic metabolism of human societies, there is no way (other than deliberate denial) to ignore the devastating consequences of our dependence on fossil fuels. Nor is there a way to ignore that other sources of energy also have their downsides. In talking about production and consumption processes, how can we not see that their dynamics lead to endless expansion of material throughputs? And hence to a double driver towards collapse: the exhaustion of non-renewable resources and the pollution produced by growing waste.

When we think about individual behaviours, a battlefield of contradictory trends comes to mind. It seems dominated for the moment by the obsession on me, myself and mine, and by instant gratification. A consumerist "société du spectacle" is much facilitated by online social networks where everybody competes to catch the attention of the world, if even for a

moment. And the widespread obsession on individual performance runs in parallel with the pressure to always consume something new, and with our rising anxieties. There are also completely different signs, of course. But overall what is feeding our aspirations and sense of wellbeing?

"ENCI invites us to explore a paradigm shift towards seeing the world as an interconnected whole and to bring such a view into the mainstream discourse of global sustainability transformations."

If we talk about societal and political arrangements, a big gap exists between the complexity of the challenges we face and the instruments of governance we have. 75 years after the founding of the United Nations Organization, the prospect of some kind of peaceful and enlightened world government is not getting closer (if it ever did). Overall, the capacity to act has moved from conventional politics to a complex entanglement of public and private actors characterized by short-termism, inequality of influence and radical unpredictability. In this context, tensions coming from the many unsustainabilities of our development models are being channelled into usual power games based on division and conflict.

If we consider our understanding and care for others, living next door or on the other side of the Earth, we still imagine human history as a race towards performance, with winners and losers. While we know a lot more than before about other geographies, cultures and traditions, we do not depart from the idea that development is a linear path. In the race, some western cultures have developed during a certain period a mastery of specific institutions, knowledge and technologies which have made possible what we call progress. And in our reading of the past, this legitimates the present as the only possible time. We seem to ignore the obvious: that "progress" has meant darkness and oppression for the rest of the world. That rest is now Most of the World, in terms of population and also increasingly of power. We also know now that the extension to the whole Earth of the incumbent model of development is incompatible with keeping the biosphere in a range of conditions suited for human life. Should we not open non-linear readings of history? Should we not learn together different lessons from the past, by listening to other cultures, ancient and new, and to our imagination?

If we look at the frameworks of interpretation we use to make sense of reality, they are still dominated by the paradigm of classical mechanics, born at the onset of western dominance, which implies assuming dualism and objectivity, rationalism, reductionism, linearity and determinism. All very practical characteristics, except that in the meantime physics has developed many additional paradigms in response to the limitations of classical mechanics. But in our thinking about ourselves and the behaviours of individuals and societies, we hold onto the good old framework of mechanicism, against all evidence that life is more complex than that. Can we change the course of things if we do not change the frameworks we use to give them a meaning?

3. The Vision: Why do we invoke the emergence of new civilization(s)?

In October 2018 the Club of Rome adopted the **"Emerging New Civilization Initiative"** as one of its core themes. In parallel, the **"New Paradigm Project"** of the World Academy of Art and Science is being developed since it was launched at the UN in Geneva in 2013. The term "civilization" is of course ambiguous. It is used in many different ways and for different purposes, sometimes even to justify conflict among humans. But it can be useful to express the depth of what we are talking about.

"Economics must be freed from incumbent dogmas if we want to start questioning policies in inconvenient and fruitful ways."

If we look at the foundations of our societies, all of them are called to change significantly. Starting with our relationship to the natural matrix from which we obtain food, energy and space. The shift is from exploiting her with no consideration of the consequences of living within her, taking care of her health as much as ours (in the long term both are actually the same thing). Second, in our relationships to other humans, shifting from separation and conflict to care for one another (no doubt, a huge shift). Third, our relationship to time, shifting from an endless expansion which does not make sense any longer in a full world, to delving deeper into creativity and mutual learning while material sufficiency becomes the rule. And fourth, our understanding, shifting from the illusion of absolute knowledge and control as appropriate for our exploitative goals, to the recognition of complexity and unpredictability as ultimate foundations of life. Of course these changes are not separate dimensions to achieve in parallel, just different aspects of the same paradigm shift.

This shift is as important in the history of humanity as agricultural and industrial revolutions. But it is also of a very different nature: instead of accelerating our impacts on the environment, we have to reverse them and regenerate. For all these reasons ENCI invites us to explore a paradigm shift towards seeing the world as an interconnected whole and to bring such a view into the mainstream discourse of global sustainability transformations. It will substantially contribute to overcoming the current value crisis and work towards making humankind a collectively responsible actor in the era of the Anthropocene. Anchored in the CoR´s fundamental mission to take a global, systemic and long-term perspective, it will explore transformative pathways towards an emerging family of human civilizations characterized locally and globally by dynamic balance and harmony among ourselves and with life as a whole.

Does "new" mean we reject existing cultures and achievements and start from scratch? Do we go back to nature and abandon modern cities and all signs of industrialization? Our approach is not that simplistic. "New" means we have a deliberate intention to transform ourselves and the world through a shift of unprecedented scale. The expression "emerging new civilization(s)" is not descriptive in a scientific sense. It is deliberately provocative, evocative and mobilizing. It is about overcoming together our many high-speed gridlocks and

frustrations towards something else, because we have to rethink our problems in frameworks different from those which created them.

And it is also crucial for the narrative. Emergency helps to mobilize in a context of immediate and existential threat. But emergency alone is not enough and could be misleading. We are at multiple tipping points as a result of many imbalances. New forms of human civilization can emerge to reconcile our wellbeing with the biosphere. Or in a world increasingly filled with fear, hate and chaos we can fail collectively. We need to offer people something else, other than frightening prospects of catastrophes, in order to take the right path in that bifurcation. Not that we should paint rosy sketches of an ideal future and an easy and smooth transition. But we need to offer something more meaningful than the present. And there is nothing more meaningful to humans than taking care of each other. That is how we survive, even in the harshest conditions. What is new and emerging? It is the different meanings of our presence on Earth, based on the whole experience of humanity, from the wisdom of ancient cultures to the latest of our scientific inquiries. Based on what we already know, including the ancient and modern wisdom, it is getting clearer that the more we know, the less we know. Based on a combination of humility and hope, we can work together to reconcile humanity with life as a whole.

4. Multiple Perspectives: Which approaches were present in Dubrovnik?

Reality admits multiple descriptions. And the reflection on our systemic dysfunctions and how to solve them also admits multiple approaches. The challenge may be daunting. If we recognize that everything is interdependent on everything else, where do we start? Where is the thread to pull from this gigantic Gordian knot to untangle it? Using a sword as Alexander did is tempting. This is why, as manifestations of present gridlocks become more evident, simplistic answers to complex crises are proliferating. This is not our path. We dare to face complexity because we know that ignoring it is dismissing life, and can only bring tragedies.

In Dubrovnik many different approaches were present. Much more than one per participant. Elements of responses to the question “where do we start from?” came out in the debate. What follows is by construction a summary, so it cannot be faithful to the richness of conversations, but it gives a hint of it. To be clear, this is not a taxonomy, rather a first attempt to describe a complex ecology of ideas that are interconnected, and not mutually excluding.

Technological Innovation is a perspective, probably the most usual suspect when talking about the future. Transformations are happening everyday and technology plays a significant role in them. And of course moving from the use of fossil fuels to renewable sources of energy is to a large extent a technical and technological challenge. Beyond that, expectations are high that technologies could contribute to addressing the contradictions of our development models. Most notably biotech (including biomimicry), genetic engineering and digitalization (including the so-called “Artificial Intelligence”) are invoked. Learning more from biological processes and using our capacity to acquire, transmit and process information seem like no-brainers, but does the framing of science and technology today ensure that they will bring solutions to our existential risks or is their dynamic simply accelerating the same trends we need to avoid?

Regenerative and Wellbeing Economics is a vast domain of thinking and action in which many activists, academics and entrepreneurs are involved all over the world, in many cases in local communities. It is getting growing attention, also from governments (Costa Rica, Iceland, New Zealand and others coming). No doubt, if we pretend to shift our societies, rethinking economic and financial processes is mandatory, transforming the ways we produce and consume, and also the ways we invest. And in that rethinking, achieving wellbeing for humans cannot be in contradiction to a healthy biosphere. Circular economy and decoupling wellbeing from resources are parts of the responses. But they are more rapidly proclaimed than executed. The crisis of the "gilets jaunes" in France puts this forward: is getting to the end of the month contradictory to preventing the end of the human species? Hopefully not, but the question rightly connects the issues of social inequality and environmental sustainability. And we do not yet have all the answers. Is putting prices on the environment (on trees and lakes and birds...) a way to solve the dilemma? Or just the contrary, should we not recognize the incommensurable value of life and restrict the use of money to where it is really useful? In any case, economics must be freed from incumbent dogmas if we want to start questioning policies in inconvenient and fruitful ways. Some questions are old, some are new, but there is no way that unlimited growth of material throughput in a finite planet can continue to be the main part of the answer.

For many, the transformation of economic processes cannot happen without a shift in our behaviour as consumers. This is one of many reasons to address **Inner Transformation** as another perspective of systemic change. It is a call to individuals to move from awareness and the anxiety it brings towards higher levels of consciousness about our relationships with others and with nature as a whole. In this perspective the role of education is obviously critical, not only in regard of coming generations but also for lifelong learning as a process combining individual and collective transformations. Some examples of successful and peaceful transitions from agrarian to industrialized societies in Nordic countries may be explained through this approach. But a question comes to mind. The acquisition of new capacities to adapt individually to a new but already existing paradigm (the industrial revolution) seems to be easier than the exercise we have in front of us. Can an individual transformation by itself create a new paradigm? Will the present obsession with individual performance override the collective dimension?

The perspective of **Collective Leadership** is a structured attempt to respond to the insufficiencies of our governance systems, in particular regarding global limits and the protection and development of common goods. It emphasizes the process of transformation itself rather than predefined goals. Taking into account the complexity of issues without the intention of reductionism, this approach relies on our capacity to create new pathways through collective deliberation among stakeholders. And instead of an omniscient conception of enlightened government from the top, it promotes the stewardship of sustainability transformations at multiple scales. But are stakeholders ready to adopt perspectives not necessarily compatible with their established interests? Will institutions have enough flexibility to overcome their own arrangements of control and command? And ultimately, will the establishment profiting from the existing distribution of power accept a new paradigm without domination and exploitation? Under what conditions could that happen?

Another important perspective comes from questioning the whole process of modernity by listening to usually unheard voices and adopting the lenses of so many cultures and societies which have been dismissed and almost obliterated. Not to replace the western perspective by the non-western, rather to admit that everything human is contextual, that a multiplicity of views is possible and desirable and then trans-contextual analysis is required to acknowledge complexity. **Ubuntu**, the African philosophy stating that "I am because we are," is a humanist approach to hold the complexity of interdependencies. It also connects with the wisdom of indigenous societies which have managed to survive in Most of the World with a completely different and more harmonious relationship with nature. What can we learn from them? Also, what can we learn from China officially adopting the goal to become an "ecological civilization"? What from Japan in its appreciation of balance and its experience in dealing with emergencies? "Nothing human is alien to me" was said very long ago. Understanding the interconnectedness and richness of what makes us human might as well opening more windows into the feeling, intuitive and non-verbal communications within and between us would help us feel and get closer to nature in a sensual way that makes us better attuned to living in harmony with it.

Our relationship to complexity was of course omnipresent in the Dubrovnik Meeting. And it is uneasy: we still think we have to deal with it in a non-complex way. Living systems are flows of interdependencies among large numbers of autonomous agents (cells, living beings, organizations,...), from which myriads of networks, structures and forms can emerge in self-organized ways. Contexts and scales are not separated and their connections can make the difference, especially at critical points where the behaviour of a system can shift completely. This approach builds on holistic perspectives rather than reductionism. Instead of separation, it puts interdependencies at the core, which requires accepting essential uncertainty, and questioning dualism and objectivity by recognizing the need to observe the observer and the mental frameworks in use. This approach also questions rationalism in that cognition processes are themselves complex: reality is not fully accessible to our conscious understanding. But at least our limited access is enough to make us aware of our limitations! Let us assume then that complexity and uncertainty are foundations for the emergence of life and that knowledge does not bring certainty nor predictability except at local levels. Adopting such a perspective would mean a fundamental shift in our relationships with ourselves and the world. **Embracing Complexity** or **Dancing with Systems** would make us more aware of the constant process of mutual learning in interaction with the ecosystem of which we are part, a learning relying on aesthetics, beyond what we are able to express in any single language.

5. The Blind Spots: Which questions are we not (yet) asking?

Our perceptions and the mental frameworks through which we create meaning condition our access to reality. The distance from reality to conscious understanding feeds blind spots, i.e. the many manifestations of complexity that we do not see for whatever reasons, also because many times we do not want to see them, keeping our eyes wide shut. The first and crucial blind spot is of course to think that we do not have blind spots, that our capacity to

access reality, even if imperfect and incomplete, is nonetheless objective and continuously improving, which may be the case or not.

"If we put the label "capital"on something, we take for granted it has a natural right to reproduce itself because it helps to create value."

Beyond this philosophical (and uncomfortable) question, we have many blind spots relevant to our future as a species. A big one is that, for the time being, sustainable development is an oxymoron. When we look at evidence, not only do we behave as if we had two planets at our disposal, which is a call for urgent reduction of our ecological footprint. The real issue is that, as of today, high levels of human wellbeing imply high levels of ecological footprint. And vice-versa, low footprints imply low levels of wellbeing (at least as we presently define "wellbeing"). Since all humans aspire to wellbeing and admittedly deserve to enjoy it in an equitable manner, the conundrum is not a minor one. How do we achieve high wellbeing with low footprint?

This blind spot is related to one we could call "rentism" and is almost universal. It is the idea that past achievements deserve a rent in the future. If we put the label "capital" on something, we take for granted it has a natural right to reproduce itself because it helps to create value. The issue comes when capital disconnects from any productive process and from reality itself, when it becomes a pure abstraction in silico, where it reproduces itself in a fictitious way without the backing of any human activity. At that point we start taking for granted that the past should have greater rights than the future, because the real yields of fictitious capital absorb more and more resources and finally inhibit the potential for further possibilities. The (pressing) question that arises is: can we combine the imperatives of democracy, ecology and rentism at the same time? In an increasingly financialized world, do the demands of rentism leave room for taking care of human wellbeing and the health of the biosphere?

Yet another blind spot, even more universal: the first principle of social organization is still to establish who are "Us" and "Them". Heritage is still based on kinship, and we indulge ourselves with the individual as a microcosm, while alone we are strictly nothing. But distinction (you and I are not the same) drifts very easily into the fantasy of exclusion because it is useful to ground a moral superiority of "Us" over "Them" (and hence I deserve more than you). And we build artificial (or real) walls to treat Us and Them with different codes of conduct. This is the foundation of exploitation, of the many weak by the few strong, of helpless natural resources, of future time as the scarcest resource. Going way beyond distinction, exclusion is ingrained in our mental frameworks. How could we reconcile with life as a whole without getting rid of this blind spot?

These are just some examples of blind spots. There are many more, including of course the ones we are not yet aware of, those to which we are truly blind. Unveiling them as much as we can is a big part of our program of inquiry.

6. What is the Unique Role of CoR and WAAS combined?

"ENCI is at the leading edge of understanding how complex systems change."

In the aftermath of "The Limits to Growth" and other initiatives raising the alarms on the sustainability of human development, many organizations have been created all around the world and are now active in different ways to address the manifold challenge we face. The proclamation of the SDGs and the Paris Agreement in 2015 has made politically correct the inclusion of sustainability issues in the agendas of governments and corporations. All this has created a space for thinking and acting towards sustainability, which has some characteristics of a market: many actors are competing in it for scarce resources (attention and funding) provided by a small number of key players (governments, businesses, philanthropists, media). This of course is a tragic paradox: in such competition, there are high risks that the selection criteria will be consistent with our current practices (including linear thinking) rather than being open to completely new possibilities. In a way we apply to the survival of humanity the same rules of the framework that has created the problem in the first place.

That said, and for reasons even more substantial than competition, the uniqueness of ENCI is relevant. Its role is not to decide which level of description or which of the perspectives described above is the most appropriate. They are all necessary at the same time: a clear differentiator of ENCI is to embrace complexity by holding simultaneously several levels of description and emphasizing their interdependencies. ENCI is at the leading edge of understanding how complex systems change. How can we purposefully change a complex, living system of which we are part? Can we be reliable observers of our interdependencies and ourselves? Can we be external observers of a system, which we aspire to transform as if it was a mechanism that we can tune? We have here a **double bind**, two contradictory injunctions at the same time: **recognize complexity around us and create change as if complexity was reducible**. We like to say we are systemic in our thinking and a second later we claim for linear solutions. This is no longer possible, even if almost everybody in the sustainability domain is living in this contradiction (or not even seeing it).

This is where the unique role of ENCI lies. At the leading edge of understanding the systemic dysfunctions responsible for humanity's multiple crises, ENCI creates new conversations among many different perspectives, allows new and better questions to be asked and opens the space for new possibilities to be considered. It does not only talk about complexity, it holds complexity, so that the shape of the responses matches the shape of the issues. Conversations on truly new paradigm(s) are actually just starting. They have to include unheard voices and angles, avoid confrontations leading to binary dilemmas, absorb from all wisdoms and contribute to making sense of the world in a different way. **Complex systems do not change in alignment with purposeful planning, they get unstuck through mutual learning.**

ENCI exists to shape these conversations at a global level. By connecting and supporting those who are at the forefront of stimulating and shaping them, it reinforces a shared

commitment and interest in forming long-term alliances with each other. This is our unique contribution to the reconciliation of humanity with life as a whole.

7. What Comes Next?

The ENCI venture is not linear. It does not have a well-defined plan to get from A (now) to B (the salvation of the world) in 10 easy steps. Sometimes confusion lies in the obsession for clarity, and we see so much of that around us. On the contrary, ENCI is about allowing ourselves to enter into real dialogues, not a succession of monologues. Asking unthinkable questions and listening to unheard voices are ways to make what seems impossible, as described above, become inevitable, for the sake of life.

As a first step this document is distributed for comments, suggestions and crazy ideas from everyone. All feedbacks are welcome. The ENCI Team (see below) will then discuss concrete ideas of next steps, in particular in the context of the Annual Conference of the Club of Rome to be held in Cape Town, 4-7 November 2019.

Author Contact Information
Email: calvarez@innaxis.org

Credits

This paper does not pertain to an individual contribution, it is rather the outcome of many inspiring dialogues and readings, put down in black and white by the main author, Carlos Alvarez-Pereira. Invaluable ideas, creativity and support have come from Nora Bateson and Mamphela Ramphele. And notable inputs originated from the rest of the ENCI Team, namely Garry Jacobs, David Korten, Petra Künkel and Paul Shrivastava, as well as from all attendants of the Dubrovnik Meeting. Not to mention the authors of the references listed below, of course.

References

1. Alvarez-Pereira C. (2016) "Towards a Society of Living". *Eruditio,* volume 2, issue 2, 72-101.
2. Alvarez-Pereira C. (2019) "Digital for Life? Blind Spots of AI and its Reframing for Desirable Futures". IEEE International Conference on Cognitive Informatics & Cognitive Computing, Milano, 23-25 July 2019.
3. Andersen L.R., Björkman T. (2017) "The Nordic Secret. A European Story of Beauty and Freedom". Fri Tanke.
4. Bardi U. (2017) "The Seneca Effect. Why Growth is Slow but Collapse is Rapid". Springer. *Report to the Club of Rome.*
5. Bardi U., Sgouridis S. (2017) "In Support of a Physics-Based Energy Transition Planning: Sowing our Future Energy Needs". Biophys. Econ. Resour. Qual. (BERQ) 2:14.
6. Bateson G. (1979) "Mind and Nature: A Necessary Unity". E.P.Dutton.
7. Bateson N. (2016) "Small Arcs of Larger Circles: Framing Through Other Patterns". Triarchy Press.
8. Bateson N. (2017) "Warm Data". International Bateson Institute.
9. Bauman Z. (2008) "The Art of Life". Polity Press.
10. Bonneuil C., Fressoz J.B. (2013) "L´évènement Anthropocène. La Terre, l´histoire et nous". Éditions du Seuil.
11. Brundtland G.H., Ehrlich P. et al (2012) "Environment and Development Challenges: The Imperative to Act". University of Tokio Press.
12. Capra F., Luisi U. (2014) "The Systems View of Life. A Unifying Vision". Cambridge University Press.
13. Ceruti M. (2004) "Taches aveugles, écologies du changement, dynamiques d´auto-organisation". Conférence ACX-APC & AFSCET, Paris, Campus Jussieu, 26/10/2004.

14. Daly H. (2008) "Towards A Steady-State Economy". Report to UK Sustainable Development Commission, 24/4/08.
15. Fiorini R.A. (2018) "Transdisciplinary Education for Deep Learning, Creativity and Innovation". *Eruditio*, volume 2 issue 4, July 2018.
16. Funtowicz S., Ravetz J. (1993) "Science for the Post-Normal Age". *Futures*, volume 25, number 7, September 1993, 739-755.
17. Georgescu-Roegen N. (1971) "The Entropy Law and the Economic Process". Harvard University Press.
18. Göpel M. (2016) "The Great Mindshift: How a New Economic Paradigm and Sustainability Transformations Go Hand in Hand". Springer.
19. Graeber D. (2011) "Debt: The First 5000 Years". Melville House.
20. Hayashi Y. (2019) "Note on New Civilization. A Japanese Perspective". Private communication.
21. Healey R. (2009) "Holism and Nonseparability in Physics". Stanford Encyclopedia of Philosophy, Stanford University.
22. Hoffman R. (2012) "On the Need for New Economic Foundations. A Critique on Mainstream Economics". *Cadmus,* volume 1, issue 5, 77-85.
23. Jackson T. (2009) "Prosperity without Growth. Economics for a Finite Planet". Routledge Ed.
24. Jacobs G. (2014) "Ways of Knowing: Life Beyond Chaos". *Eruditio*, volume 1, issue 4, 9-30.
25. Jantsch E. (1980) "The Self-Organizing Universe. Scientific and Human Implications of the Emerging Paradigm of Evolution". Pergamon Press.
26. Korten D. (2018) "Ecological Civilization and the Earth Charter: Pathway to the World that Can Be". Private communication.
27. Korten D. (2019) "Economics for the People of a Living Earth". Private communication.
28. Künkel P. (2018) "Stewarding Sustainability Transformations. An Emerging Theory and Practice of SDG Implementation". Springer. *Report to the Club of Rome.*
29. Kunneman H. (2010) "Ethical Complexity". In "Complexity, Difference and Identity: An Ethical Perspective" (Cilliers P., Preiser R., editors). Springer.
30. Lanier J. (2010) "You Are Not a Gadget". Penguin Books.
31. Laszlo E. (2008) "Quantum Shift in the Global Brain: How the New Scientific Reality Can Change Us and Our World". Inner Traditions Bear and Company.
32. Lietaer B. (2011) "Au coeur de la monnaie. Systèmes monétaires, inconscient collectif, archétypes et tabous". Éditions Yves Michel.
33. Lovins H.L., Wallis S., Wijkman A., Fullerton J. (2018) "A Finer Future: Creating an Economy in Service to Life". New Society Publishers. Report to the Club of Rome.
34. Maturana H., Varela F. (1980) "Autopoiesis and Cognition: the Realization of the Living". D.Reidel Publ.
35. Maxton G. (2011) "The End of Progress: How modern economics have failed us". John Wiley & Sons.
36. Meadows D.H. et al (1972) "The Limits to Growth". Signet, 8th edition. *Report to the Club of Rome*
37. Meadows D.H. (1999) "Leverage Points: Places to Intervene in a System". The Sustainability Institute.
38. Meadows D.H. (2002) "Dancing with Systems". The Systems Thinker, vol 13, no 2.
39. Morris I. (2015) "Foragers, Farmers and Fossil Fuels: How Human Values Evolve". Princeton University Press.
40. Nagan W. (2013) "The Conceptual and Jurisprudential Aspects of Property in the Context of the Fundamental Rights of Indigenous People". New York Law School Law Review, vol 58, 875-917.
41. Nešković N., Vučinić V. (2019) "On the transdisciplinary and transideological character of the new paradigm of human development". International Conference on Approaching 20??. Podgorica, 16-18 May 2019.
42. Odum H., Odum E. (2001) "A Prosperous Way Down". University Press of Colorado.
43. Ostrom E. (1990) "Governing the Commons: The Evolution of Institutions for Collective Action". Cambridge University Press.
44. Ostrom E. (2007) "A diagnostic approach for going beyond panaceas". PNAS, vol 104, no 39, 15181-15187.
45. Pauli G. (2010) "The Blue Economy: 10 years, 100 innovations, 100 million jobs". Paradigm Publications. *Report to the Club of Rome*.
46. Peccei A. (1977) "The Human Quality". Pergamon.
47. Piketty T. (2013) "Le Capital au XXIe siècle". Éditions du Seuil.
48. Polanyi K. (1944) "The Great Transformation. The Political and Economic Origins of Our Time". Beacon Press.
49. Postman N. (2005) "Amusing Ourselves to Death: Public Discourse in the Age of Business". Penguin Books.

50. Prigogine I. (1997) "The End of Certainty. Time, Chaos and the New Laws of Nature". Free Press.
51. Ragnarsdottir K.V. (2015) "How does Permaculture Stack Up in the Real Economy". International Permaculture Conference, London.
52. Randers J., Rockström J. et al (2018) "Transformation is Feasible. How to Achieve SDGs within Planetary Boundaries". Stockholm Resilience Centre. *Report to the Club of Rome*.
53. Renn O., Chabay I. et al (2018) "Global Sustainability Strategy Forum". Institute for Advanced Sustsainability Studies (IASS).
54. Richta R. et al (1966) "Civilization at the Crossroads: The Social and Human Context of Scientific-Technical Revolution". International Arts and Sciences Press, 3rd edition.
55. Rosa H. (2005) "Une critique sociale du temps". La Découverte.
56. Rushkoff D. (2019) "Team Human". W.W. Norton & Co.
57. Schor J. (2014) "Sustainable Lifestyles and the Quest for Plenitude". Yale University Press.
58. Sen A. (1999) "Development as Freedom". Oxford Economic Press.
59. Spash Clive L. (2008) "Deliberative Monetary Valuation and the Evidence for a New Value Theory". Land Economics, volume 84, no 3, August 2008, 469-488.
60. Steffen W. et al (2015) "Planetary Boundaries: Guiding human development on a changing planet". Science, published 15/1/15.
61. Sterman J.D. (2006) "Learning from Evidence in a Complex World". American Journal of Public Health, vol 96, no 3, 505-514.
62. Stirling J.D. (2014) "Towards innovation democracy? Participation, responsibility and precaution in the politics of science and technology". UK Government Office of Science.
63. The World In 2050 Initiative (2018) "Transformations to Achieve the Sustainable Development Goals". International Institute for Applied Systems Analysis (IIASA).
64. Turner G. (2014) "Is Global Collapse Imminent? An Updated Comparison of The Limits to Growth with Historical Data". Research Paper No. 4, Melbourne Sustainable Society Institute, University of Melbourne.
65. UN World Commission on Environment and Development (1987) "Our Common Future". Oxford University Press.
66. Valero A., Valero A. (2015) "Thanatia. The Destiny of the Earth´s Mineral Resources". World Scientific.
67. Weizsäcker E.v. et al (2010) "Factor 5: Transforming the Global Economy through 80% Improvements in Resource Productivity". Routledge. *Report to the Club of Rome*.
68. Weizsäcker E.v., Wijkman A. et al (2018) "Come On!: Capitalism, Short-Termism, Population and the Destruction of the Planet". Springer. *Report to the Club of Rome*.
69. Zhou J. (2019) "The Technological Turning Points of an Ecological Civilization". Private communication.

CADMUS, Volume 4, No.1, October 2019, 14-38

Stewarding Aliveness in a Troubled Earth System

Petra Kuenkel
Co-founder and Executive Director, Collective Leadership Institute, Germany;
Member of the Executive Committee, Club of Rome

Sandra Waddock
Professor of Management, Galligan Chair of Strategy, and Carroll School Scholar of Corporate Responsibility, Boston College's Carroll School of Management, USA;
Councilor, SDG Transformations Forum

Abstract

The state of the world suggests we are at a crossroad—the next 15 to 20 years will have a decisive impact—more than in any period before—on the conditions of life on Earth. Rising awareness about the urgency of dealing with climate change is symptomatic of an increasing concern for the future of humanity and our life support system. Most approaches to solving the global challenges, however, stay within a framework of thinking that calls for technical and administrative solutions only. The questions regarding the underlying conceptual foundation of how transformations are approached are seldom asked. Yet, if—as many scientists predict—humanity needs to rise up to our capacity for a stewardship approach to stabilize the trajectories of our planet, it becomes clear that we need to become more humble partners of life's potential to renew and replenish. This article argues that understanding what gives life to systems can become a guiding force for approaching the large systems change we so deeply need. It explores the conceptual foundations for principles that govern socio-ecological systems in support of what the authors term 'systems aliveness': the capability of small and larger systems to gain resilience, regenerate and maintain their vitality in mutual consistency with other systems. The idea is that the capacity to create the transformative change such as that envisioned by aspirational goals like the United Nations' Sustainable Development Goals (SDGs) can be enhanced by understanding such principles, and translating them into the design and implementation of collective action. The paper draws from multiple, interdisciplinary sources to build the conceptual scaffolding and the academic support for the six principles: intentional generativity, mutually consistent wholeness, permeable containment, emergent novelty, contextual interconnectedness with requisite diversity, and proprioceptive consciousness (Kuenkel, 2019; Waddock & Kuenkel, 2019). We argue that applying these six principles to transformation initiatives potentially provides a pathway to a new civilization with human and ecological flourishing.

1. Stewarding Aliveness in a Troubled Earth System

The state of the world suggests we are at a crossroad—the next 15 to 20 years will have a decisive impact—more than in any period before—on the conditions of life on Earth.

Rising awareness about the urgency of dealing with climate change is symptomatic of an increasing concern for the future of humanity and our life support system. The climate crisis has made its way into the headlines of international news agencies. But the many related and interdependent sustainability issues such as water scarcity, deforestation, ocean pollution, topsoil erosion, and growing inequality, among many others, only slowly gain the attention they require. They are often labelled as intractable or 'wicked problems' (Churchman, 1967; Rittel & Webber, 1973; Waddock et al., 2015).

Addressing such issues has been articulated by the United Nations' *Sustainable Development Goals* (SDGs, 2017) in the 17 aspirational goals for the world to achieve by 2030. However, most approaches to solving the global challenges stay within a framework of thinking that calls for technical and administrative solutions only. The questions regarding the underlying conceptual foundation of how transformations are being approached, are seldom asked. Yet, if—as many scientists predict—we need to rise up to our capacity for a stewardship approach to stabilize the trajectories of our planet (Steffen et al., 2018) we need to become more humble partners of life's potential to renew and replenish.

This article argues that understanding what gives life to socio-ecological systems can become a guiding force for approaching the large systems change we so deeply need. It explores the conceptual foundations for principles that govern socio-ecological systems in support of, what the authors term *'systems aliveness': the capability of small and larger systems to gain resilience, regenerate and maintain their vitality in mutual consistency with other systems.*

The idea is that the capacity to create the transformative change such as that envisioned by aspirational goals like the United Nations' Sustainable Development Goals (SDGs) can be enhanced by understanding such principles, and translating them into the design and implementation of collective action. In developing these principles, we draw from multiple, interdisciplinary sources that build the conceptual scaffolding and the scientific support for widening the understanding of what helps systems into aliveness (Kuenkel, 2019; Waddock & Kuenkel, 2019). Applying these six principles to transformation initiatives potentially provides a pathway to a new civilization with human and ecological flourishing.

2. Understanding Systems Aliveness

Fundamentally, the SDGs (and the largest systems change initiatives) can be interpreted as an attempt to shift dysfunctional patterns of activity in human and socio-ecological systems towards more functional, more flourishing—or alive—patterns that work better for all, including living beings other than humans (Cooperrider, 1990; Cooperrider & Whitney, 2005; Bushe, 2011; Kuenkel, 2019). Most actors busy with the practice of managing change, however, understandably focus on the technical content of transformations only—be it reducing CO_2 emissions, creating legislation around climate-friendly behavior, or measuring of ecological footprints. While these tangible outcomes are important, the sole focus on technical solutions misses out on an incredibly important lever for change. Conceptually, but

often with little awareness, all technical solutions involve strategic interventions that help shift dysfunctional patterns of interactions—between people and between people and nature. They allow the system in change to become more alive (Kuenkel, 2019) by contributing to resilience, regeneration, and vitality of the parts and the whole. Systems aliveness (Kuenkel, 2019; Weber, 2016) or what Weber (2013) calls 'enlivenment' is arguably at the foundation of successful transformative change. More generally, successful systems—in the sense of sustainability—exhibit many features of aliveness.

A system is here defined as a set of interrelated elements that constitute a whole with structural or agreed upon boundaries, embedded in a larger whole. Depending on the level of focus, a system can be a geographical area, an ecosystem, an organization, or a nation-state. To understand how to achieve transformative change at scale, we need to understand how healthy systems operate.

Moreover, we need to understand what creates, maintains, or regenerates aliveness in systems. We can learn from natural systems such as forests or thriving ecosystems, and also from socially cohesive and well-functioning human systems. They all display certain mutually supportive characteristics that work together. It is time actors in transformative change made use of this knowledge to bring about the large systems change needed.

Systems aliveness can be defined as the capability of a system—small or large—to develop a sufficient degree of vitality and resilience as well as the ability to maintain and renew these in collaboration and interaction with other systems. Systems aliveness is always relational and interdependent. It emerges in mutual consistency with smaller and larger systems. With reference to a pattern approach, *systems aliveness* refers to a recognizable patterned process of *transformations* as well as a recognizable patterned outcome—*sustainability*. In human systems 'aliveness' is often palpable as generating vibrancy (Ritchie-Dunham & Pruitt, 2014), energy, and excitement about possibilities among participants.

In transformative large systems change that aims at 'alive' socio-ecological systems, the change ahead needs to be mirrored in the willingness to engage productively with different stakeholders to solve issues of common concern (Kuenkel, 2015). When the probability of contributing to 'systems aliveness' emerges, it helps actors to engage in the multitude of actions, activities, and initiatives necessary to effect such change.

This article looks at what would help us become aware of aliveness in systems and how we can become stewards of increasing systems aliveness. It argues that understanding principles of 'what gives life' to living systems, can inspire strategies for successful large system transformations.

However, large system change is composed of many smaller systems changes. By definition it has breadth and depth (Waddell et al., 2105). Breadth means it takes place at scale in emergent processes that can only be planned to a certain degree. It is inherently complex, occurring across multiple interconnected systems, sectors, or geographies and involving multiple actors. Depth means that it demands change at multiple levels of analysis,

altering relationships, assumptions, and activities of different actors and subsystems in fundamental ways (Waddell et al., 2105). Such change can at best be guided by vision or normative frameworks (e.g., the SDGs or COP21 agenda), or, as this article argues, it can be collectively stewarded using the occurrence of systems aliveness as guidance.

The scale, scope, and complexity of the current troubled Earth (Folke et al., 2010; Chapin et al., 2011) suggest that any attempts towards transformative change takes place in contexts that tend to be emergent, co-evolutionary, non-linear, multi-party, and inherently unpredictable in their outcomes since different parts of complex adaptive systems are interdependent, constantly in flux (dynamic), and interactive (e.g. Allen, 2000; Choi et al., 2001; Waddock et al., 2015).

From this conceptual background, it seems clear that in large system transformation efforts, numerous different actors are likely to take initiatives all presumably aimed at dealing with the problems, some of which will be coordinated and others not, and some of which will succeed and others not. In order to increase the likelihood of success, this paper argues that we need a better understanding of the foundational principles of 'what gives life' to systems. Such principles, which constitute a pattern of relational interaction, can help actors bring what architect Christopher Alexander (1979, 1999) called the 'quality without a name' to transformative system change and to ideas about how to develop flourishing socio-ecological systems more generally.

For an understanding of the relational nature of the principles, we render the concept of patterns crucial. 'Patterns of aliveness' are here defined as compositions of life-enhancing, interacting, relational mesh works of mental or physical structure in systems of any size, embedded in larger systems, in a transient, temporary state of dynamic balance at the edge of continuously emerging change. They are characterized and influenced by the quality of relational interaction between subsystem or systems properties that enhance the system's overall capability to stay alive, grow further, generate new life, and live in mutual consistency with larger systems.

This article argues that understanding aliveness and its patterned composition is central to conceptualizing transformative change in complex adaptive systems. Among the major roots of the intellectual foundation for principles of systems aliveness is Alexander's (1979, 1999) pattern language, which gives 'life' to architectural forms. Alexander's ideas are extended by Finidori and colleagues (2015) to pattern language 4.0, which explicitly applies the notion of pattern language to systemic change. Jane Jacobs' (1961) seminal urban studies work, *The Death and Life of Cities*, emphasizes what lives life in urban design. Work on the 'web of life' by physicist Fritjof Capra (1995, Capra & Luisi, 2014), Maturana and Varela's Santiago theory of Cognition (1987; 1991), Weber's (2013) integration of economic and biological systems theory that frames the concept of 'enlivenment,' and Swanson & Miller's (2009) explanation of living systems theory, among other sources identified below, are also major intellectual roots for the principles. Table 1 summarizes the principles and identifies the main sources used to develop them.

Table 1. Sources for System Aliveness Principles and Human System Characteristics
Source: Adapted from Waddock & Kuenkel, 2019.

Living Systems Principle	**Definition**	**Source(s) Used**
1) Intentional Generativity	Purpose or the urge that living systems have to continue into the future, including the capacity of natural systems to renew, replenish, and restore themselves in the process of staying resilient. Purpose or intentionality combined with generativity is a central aspect of living systems at all levels of complexity	Alexander (1979, 1999) Ericson (1953) Finidori et al. (2015) Fullerton (2015) Gleick (1987) Jacobs (1961) Jones (2014) Lorenz (1963) Maturana & Varela (1991) McDonough & Braungart (2010) Swanson (2009) Waddock et al. (2015) Weber (2013, 2016)
2) Permeable Containment	Systems need to have 'sufficient' definitional boundaries or 'enclosures' to create some sort of meaningful identity, in combination with a degree of openness to new inputs and outputs that allow for change and development because living systems need inputs of energy and other resources, while wastes sometimes need to be released to other systems (where they become new resources for that system), through permeable, but not completely open barriers.	Alexander (1979, 1999) Ashby (2011) Capra & Luisi (2014) Fullerton (2015) Jacobs (1961) Prigogine (1996)
3) Emerging Novelty	The capacity of systems to change and evolve as situationally appropriate, by growing, becoming more complex, developing new properties, or declining, changing and adapting through innovations, enabling forms of learning, invention, and similar processes that create novelty or innovation.	Capra & Luisi (2014) Fullerton (2015) Gilligan (1982) Holling (1973) Jacobs (2002) Kauffman (1995, 2016) Kohlberg (1976) Lovelock & Sahtouris (2000) Schrödinger (1992) Torbert et al. (2004) Weber (2013, 2016) Wilber (1998a, 2017)

4) Contextual Interconnectedness and Requisite Diversity	Different elements in any system are integrally and inextricably linked in symbiotic, interdependent, and dynamic relationships, recognizing the communication networks and feedback loops in living systems that enable the system to change and evolve in the process of emerging novelty. Sufficient variety of types, uses, sizes, and levels of entities enable constant (re-)balancing, renewal, regeneration, change, and dynamism, while maintaining system identity (permeable containment) over time.	Ashby (2011) Boisot & McKelvey (2011) Capra (1995) Capra & Luisi (2014) Folke, Holling & Perrings (1996) Fullerton (2015) Holling (1973) Jacobs (1961) Kuenkel (2015, 2016) Maturana & Varela (1987) Maurana & Varela (1991) Schrödinger (1944) Weber (2013)
5) Mutually Enhancing Wholeness	Living systems are integrated entities constituted of identifiable yet nested 'wholes' or holons (Koestler, 1968) that provide coherence and orientation, or mutual consistency (Sahtouris & Lovelock, 2000). Systems must be considered as wholes because they cannot be fully understood by being fragmented into their parts.	Alexander (1979, 1999, 2002) Ashby (2011) Bohm (1980) Fullerton (2015) Jacobs (1961) Koestler (1968) Lipton & Bhaerman (2009) Sahtouris & Lovelock (2000) Swanson & Miller (2009) Weber (2013) Wilber (1998a,b, 2017)
6) Proprioceptive Consciousness	The ability of humans to become aware of the emergence, evolution, and interdependence of systems in which they are embedded and to be aware of and reflect upon the self and the system as changes are made in the deliberate hope of improvement	Bohm (1980) Wilber (1998b) Wilber et al. (2008) Richards (2001) Kohlberg (1967, 1973) Kegan (1994) Meadows et al. (1972) Meadows (1999) Capra & Luisi (2014)

Basically, since 'life' is a biological process, we believe that the principles identified are integral to natural systems—and as the work on architecture and urban studies suggests, they can also be applied to the human systems on which large systems change focuses. We base our conceptual approach to an understanding of systems aliveness on the following propositions drawn from the literature sources displayed in Table 1.

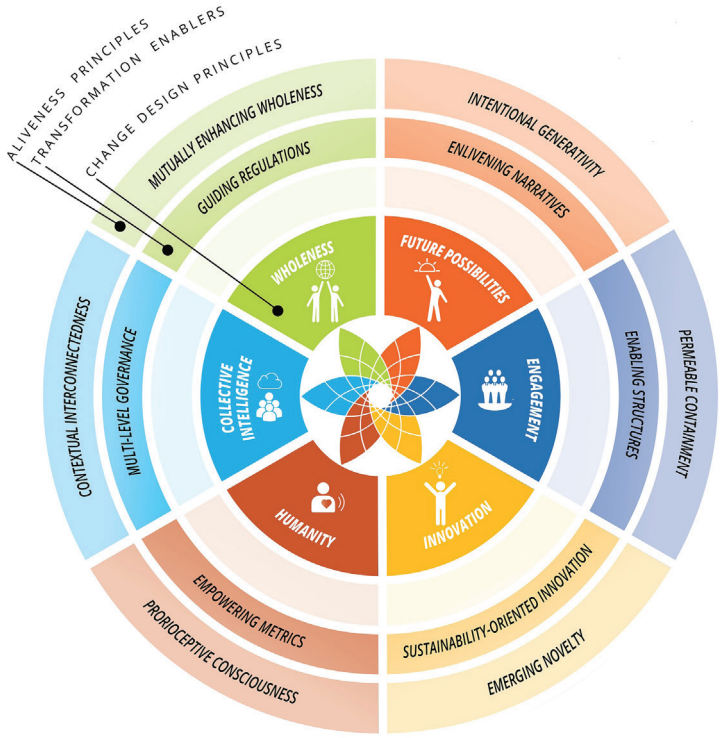
- The degree of aliveness in a living system is the result of a pattern of mutually supportive and reinforcing properties creating feedback-loops of communication in contextual interconnectedness. The emergence and the degree of aliveness come about as a result of this relational interdependency—in space, in interaction, in movement, in consciousness—in the form of patterned connectivity. This interconnectedness means that in a very real way the principles are linked and can only be teased apart conceptually.
- Systems aliveness is a consequence of living and non-living properties of systems in responsive interaction with each other. It rests on diversity in complementarity and reciprocity. Even under the most severe conditions of destruction, life has the inherent capacity to reconstruct 'patterns of aliveness.'
- Systems aliveness is also a result of a growing connectivity between fractals of patterns, which connect subsystems with each other and nested systems within larger systems. It rests on processes in dynamic balance that allow for creative and agile responses to disturbances and strive for perfection while never entirely reaching it.
- Human beings, like the rest of nature, are in the constant pursuit of 'patterns of aliveness'. They can sense or recognize 'aliveness' and consciously enhance it. The individual sense of aliveness and the overall aliveness of a human system are connected and can be consciously co-created.
- Systems aliveness can be recognized as the quality of a patterned composition of mental or physical structures in natural or human systems. The emergence of such a structure follows certain organizing principles. Human beings can steward systems aliveness.

3. Principles Enhancing Systems Aliveness

Principles can be thought of as fundamental truths or propositions that underlie beliefs, behaviors, or reasoning. Among other things, principles exemplify how natural phenomena work, and provide guidance about what is desirable and positive in a system, governing policies and objectives. Recent work has posited that there are six core principles for what 'gives life' to socio-ecological systems (Kuenkel, 2019; Waddock & Kuenkel, 2019), drawn from a wide variety of disciplines. These principles are: intentional generativity (purpose), permeable containment (boundedness), emerging novelty (novelty), contextual interconnectedness and requisite diversity (connectedness and diversity), mutually enhancing wholeness (wholeness), and proprioceptive consciousness (consciousness). In what follows we provide a sense of the intellectual foundations from which these principles are derived and suggest how they might be applied in the case of large-scale transformation efforts.

The interrelatedness between the principles and the applied strategies is captured in the stewardship architecture in Fig. 1.

Figure 1: The Stewardship Architecture (Source: Kuenkel, 2019)



These principles seem equally important and support each other. That said, they may or may not be inclusive of all possible characteristics that give life to systems, but they do represent a synthesis of major writings on different explications of 'aliveness'. They draw together what we believe are the central characteristics that observers and change makers of any flourishing system or systems change process need to understand and build into transformational change initiatives and that characterize healthy socio-ecological systems. While they may overlap and interact, there is enough differentiation among them to justify presenting them as six distinct principles.

3.1. Systems Aliveness Principle 1: Intentional Generativity

The first principle for what gives life its *intentional generativity* or the urge that living systems have to continue into the future, including the capacity of natural systems to renew, replenish, and restore themselves in the process of staying resilient. Purpose or intentionality

combined with generativity is a central aspect of living systems at all levels of complexity. For the design of transformative change in human systems, the principle of *intentional generativity* means to tap into the human desire to shape a better future collectively in communities of different scales. The human desire to shape future collectively is invigorated by focusing on *future possibilities* and emphasizing new images, ideas, and symbols that change the way people think and act (Bushe, 2011).

3.1.1. The Conceptual Background of Intentional Generativity

Intentional generativity or purpose is implied in the fundamentals of biological understandings that place self-production or *autopoiesis* (self-creation) (Maturana & Varela, 1991) at the heart of what aliveness or 'enlivenment' means (Weber, 2013, p. 30). This self-production, basically 'purpose' or a drive to continue to exist or reproduce (Swanson, 2009), is the very essence of what it means to be alive. Weber claims that this drive means that all living entities have intentionality that creates meaningfulness around the entity's existence (Weber, 2013, p. 30; also, 2015, p. 14; also, Swanson, 2009). This intentionality includes a relational aspect among living entities. 'Natural systems thrive because they are regenerative,' following what McDonough & Braungart (2010) call a 'waste equals food' approach, where nothing is wasted. The centrality of meaning in the drive for aliveness and care for the future (Erickson, 1953) suggests the fundamental role of intentionality or purpose in creating generative or flourishing systems—even when that purpose is simply to create more life. This principle is central to life's capacity to co-create, rehabilitate, and maintain the aliveness of systems.

3.1.2. *Intentional Generativity* in the Design of Transformative Large Systems Change: Creating Enlivening Narratives

Large systems change—such as dealing with the climate crisis—requires new ways of thinking and acting. Generativity in this context means replacing restrictive and prescriptive approaches to change with purpose seeking approaches, behaviors and activities (Finidori et al., 2015) to arrive at more open, creative, and imaginative (generative) outcomes (e.g. Dutton, 2003). In large systems change, this principle translates into supporting purposeful and self-organized change with *enlivening narratives* that invigorate the capacity of people to generate positive futures collectively. The emerging discourse on recalibrating the world economy as one in service of life can be seen as enacting the principle of *intentional generativity*. Current examples of enlivening narratives include e.g. the human responsibility to 'further life-enhancing structures and patterns' in the Potsdam Manifesto (Dürr et al., 2005); Korten's concept of an 'Earth Community' (Korten, 2007); and the 'well-being' approach (Organisation for Economic Co-operation and Development [OECD], 2015). Other examples are the concept of the 'regenerative economy' (Fullerton, 2015); the concept of the 'blue economy' (Pauli, 2010); the B-Team's 'Great Transformation' approach,* and the 'Meadows Memorandum' (WellbeingEconomy, 2017).

As Fullerton (2015, p. 42) points out in discussing 'regenerative capitalism,' intentionality or purpose-seeking emphasizes more open-ended, ideal-oriented and organic processes that

* Source http://bteam.org/

guide but do not prescribe activities. When powerfully developed in human systems, the principles of *intentional generativity* form a sort of 'glue' or 'attractor' in a complex system that keeps initiatives and activities generally heading in the desired direction (e.g., Lorenz, 1963; Gleick, 1987; Waddock et al., 2015). Hence, attending to the principle of *intentional generativity* and translating it into enlivening narratives and methodologies that support people to collectively shape future allows for creative, emergent (generative) approaches that move systems towards greater functionality over time (Finidori et al., 2015). It is important to note, however, that living systems generativity is contained by living systems forming boundaries around systems and subsystems, which leads to the second principle.

3.2. Systems Aliveness Principle 2: Permeable Containment

The second principle of *permeable containment* means that systems need to have 'sufficient' definitional boundaries or 'enclosures' to create some sort of meaningful identity, in combination with a degree of openness to new inputs and outputs that allow for energetic exchange. That is, living systems need inputs of energy and other resources, while wastes sometimes need to be released to other systems (where they become new resources for that system in the 'waste equals food' framing of McDonough & Braungart [2010]), through permeable, but not completely open barriers. *Permeable containment* holds generativity in check to help maintain the identity of the system, while still allowing necessary change to occur. For the design of transformative change in human interaction systems, this principle means that it is important to engage the human desire for belonging, identity, meaning-making exchange and fruitful collaboration. Participation and *engagement* of stakeholders as a way of ensuring that change processes become effective because this fosters a sense of ownership and identification with envisaged outcomes.

3.2.1. The Conceptual Background of *Permeable Containment*

Containment describes a space with an identifiable boundary and internal relational interaction. Alexander's (1979, 1999) pattern language approach describes structures and patterns in their relationships or what Alexander called 'centers' of design elements that foster aliveness. Alexander argued that aliveness is a quality that can be generated step by step, by incorporating one pattern, and related network linkages, at a time, into different wholes. This incorporation creates an evolutionary or unfolding process, 'one pattern at a time,' very similar to the processes of emergence and co-evolution in natural systems (Capra & Luisi, 2014). These interactive processes give qualities of 'life and spirit' to places that have them (Alexander, 1979, p. 134). The notion of community suggests what is meant by permeable containment: despite the fact that the term 'community' implies a certain sense of identity or containment, it is still possible for participants to enter and leave. Activist and urbanist Jane Jacobs argued that the idea of identity or containment, which she called 'centering,' is a core element of successful and vibrant parks (Jacobs, 1961; similarly, Alexander, 1979, 1999). Swanson's living systems theory (2009) also identifies permeable containment as the core (see also Ashby, 2011, p. 2020), for it is at the edges or boundaries of identifiable systems where new information, ideas, energy, and life forms are input and are exchanged outwardly (also Capra & Luisi, 2014). At the edge of the 'container' is what Fullerton (2015) calls 'edge

effect abundancy.' Inputs into permeably contained systems provide new energy and outputs allow excess energy to be dissipated and developed into new structures (Prigogine, 1996).

3.2.2. *Permeable Containment* in the Design of Transformative Large Systems Change: Growing Networks for Enabling Structures and Processes

If climate change continues at the current rate, it seems predictable there will be more economically and environmentally induced migrations; water scarcity may lead to wars, environmental destruction to health hazards, and subsequently to social unrest (Hanjra and Qureshi, 2010; KPMG, 2012; Rockström et al., 2009; Vörösmarty et al., 2000). Many experts see the current societal, economic and institutional structures as dysfunctional and warn of the dangers for natural and human systems (Armitage et al., 2009; Daily, 1997; Folke, 2006). Structures created by humans, such as institutions, laws, procedures, incentive systems, or others, are forms of 'containment' that can be more or less supportive of systems aliveness. For example, the slow pace of the implementation of the minimal climate agreement reached in Paris in 2016 is partly due to economic structures and partly due to mental structures that deny climate change as a reality (Stern, 2008). It is complicated by the structural set-up of nation-states, which can be seen as a form of containment currently prioritizing internal interests at the expense of the whole (Biermann, 2014). Yet, structures as such are not the problem if they do not impede learning and adaptation. Hence, containment in the form of structures and processes needs to be renewed, shifted, changed, adjusted, or maintained to serve systems aliveness.

In the context of large systems change, it is also important to recognize the coherence and identity of existing (nested and interactive) structures when changes are attempted. Change agents need to ensure that such change allows for new identifiable or contained systems to be developed, while simultaneously recognizing the embeddedness of old systems. In large systems change the principle of *permeable containment* translates into the need to acknowledge organizational or community identity, manage reliable and transparent step-by-step transformation processes, ensure inclusivity in decision-making between different societal stakeholders, and foster multi-stakeholder collaborations (Kuenkel et al., 2011; Pattberg et al., 2012).

New forms of organizing collaborative change, from combating biodiversity loss to the reduction of plastic waste, in increasingly local to global networks across societal stakeholders or academic disciplines, are forming around certain perceived collective identities. They can be seen as meta-structures (Waddell, 2010) that build different forms of containment more suitable to overall systems aliveness. Networks can influence outdated institutional arrangements and create change systems geared at addressing complex sustainability challenges such as water scarcity, biodiversity loss or renewable energy. Shifting large systems towards aliveness requires attention to structures that hold dysfunctionality in place and the establishment of new structures and identities that allow for new patterns of interaction for systems aliveness. Conducive structures and processes alone, however, are not enough to enhance aliveness in systems. Permeable containment as a principle is therefore tightly linked to the next principle, emergent novelty.

3.3. Systems Aliveness Principle 3: Emerging Novelty

> *"Innovation does not happen in isolation. Rather, it is socially constructed and built on encounters, conversations and exchange of ideas."*

Emerging novelty is defined here as the capacity of systems to change and evolve as situationally appropriate, by growing, becoming more complex, developing new properties, or declining. 'Alive' systems are constantly changing and adapting through innovations, enabling forms of learning, invention, and similar processes that create novelty or innovation. Life, while maintaining its permeable containment, is constantly creating the new (and, in some sense, destroying the old), both in terms of pathways or how things happen. Humans involved in systems change accomplish similar objectives by deliberately creating a climate for *innovation* in organizations or in the social realm (Stamm, & Trifilova, 2009). New ideas—new memes—help to frame a new story on which people can act (Waddock, 2015; Blackmore, 2000). Emotionally compelling goals that are not too rigidly defined can unlock inventiveness in organizations and social change (Kuenkel, 2017). For the design of transformative change in human interaction systems, this principle means that change processes need to be built on the human desire to venture into the unknown and create new pathways.

3.3.1. The Conceptual Background of *Emerging Novelty*

Weber (2016) argues that life or 'enlivenment' is fundamentally creative, emergently self-constructing ever more complexity and creating novelty and new pathways (p. 81). Capra & Luisi (2014) further note that living systems are highly adaptive, manifesting endlessly new creative forms that, because of complexity, are not predictable. Permeable containment as discussed above allows for new energetic inputs or positive entropy, as well as negentropy or negative entropy (Schrödinger, 1992), while these inputs may lead to perturbations (Maturana, & Varela, 1991) that eventually change the system's structure. Living systems create 'experiments' with novelty that keep the whole intact while enhancing resilience (Holling, 1973). The principle of *emerging novelty* suggests a new understanding of 'growth.' Life always wants, in a sense, to create new life and maintain conditions that enable the system to flourish (see intentional generativity, above). Growth, then, might be considered an essential aspect of aliveness or vitality, however, it is not 'growth' as commonly understood, i.e., getting bigger, on which nature relies. 'Growth' in nature takes the form of abundance, manifested as greater complexity with more diversity of life forms (Weber, 2013), and ever-greater interconnectedness in thriving systems (see the next principle).

3.3.2. *Emerging Novelty* in the Design of Transformative Large Systems Change: Encouraging Sustainability-oriented Innovation

Innovation drives the growth of organizations and the development of societies. Prototyping new ideas, testing their relevance, and building the financial and organizational infrastructure to apply them are paramount. In large system change, *emerging novelty* means

that change agents need to recognize the need to avoid too much stasis. This recognition mirrors the current discourse on innovation for sustainability and the rise of the methodology of design thinking (Liedtka & Ogilvie, 2011), which acknowledges that innovation does not happen in isolation. Rather, it is socially constructed and built on encounters, conversations and exchange of ideas (Stamm, 2008).

Innovation for sustainability is an evolving process requiring challenging existing knowledge, learning together, reframing reality, and understanding something new. More recently, public sector actors are using various kinds of 'innovation labs' in regional and developmental planning (e.g., Carsensen & Bason, 2012), combining experimental methods with stakeholder consultation and collaboration. Creating 'aliveness' in systems in change contexts can mean fostering change from all parts of the system, creating opportunities for experimentation, and allowing new patterns of interaction to emerge and stabilize. It also means recognizing that disruption and innovation are likely to be constants. For change agents in complex systems the idea of constant change means that invigorating a zest for novelty and fostering the ability to recover from disturbances are essential to transform human societies and overcome global challenges. More practically, the process of setting goals, identifying indicators, and monitoring results must include unexpected emerging novelty and should not depend on the idea that a stable state can ultimately be reached. *Emerging novelty*, however, not only rests on relational interaction, but is also embedded in a constant communication flow, which leads to the next principle.

3.4. Systems Aliveness Principle 4: Contextual Interconnectedness and Requisite Diversity

Contextual interconnectedness means recognizing life's vast communication network that engenders constant interaction, reflection, and reaction in endless reciprocal feedback-loops that benefit from requisite variety and complexity in diversity. Different elements in any system are integrally and inextricably linked in symbiotic, interdependent, and dynamic relationships. Contextual interconnectedness is a form of balancing process that helps provide both stability and change to a living system. For the design of transformative change in human interaction systems, this principle means that systems aliveness requires diversity and variety in change endeavors, coupled with multilateral communication that engenders networks of networks in dialogue. Relationship building through meaningful conversations leverages *collective intelligence* and subsequently invigorates networks for change.

3.4.1. The Conceptual Background of *Contextual Interconnectedness*

Vital living systems are contextually interconnected in that they are comprised of inextricably related, interdependent parts that generate sufficient emerging novelty and diversity to permit adaptation to the constant internal and external change characteristic of living systems. Indeed, science now tells us that at the quantum level all is connected (e.g., Capra, 1995; Capra & Luisi, 2014; Weber, 2013). Life is a highly interconnected network of constant communication and interaction, with recursive feedback-loops (Weber, 2016) in a constant co-emergent and adaptive process in which different aspects of a system are

'entangled' with others (Capra, 1995; Capra & Luisi, 2014). Contextual interconnectedness recognizes the inherent complexity yet the holistic nature of the world around us, including physical systems in the quantum sense (Capra & Luisi, 2014), as well as social systems and organizations.

Contextual interconnectedness suggests that humans need to live in harmony with nature's opportunities and constraints (c.f., Fullerton, 2015), recognizing that we are embedded in and interdependent with, rather than dominating over, other living beings, nature, and the 'nonliving' world. Similarly, Weber (2013) with his concept of 'Enlivenment,' a wordplay on the notion of human 'Enlightenment,' integrally links humans to and embeds them in nature, rather than separating humankind from the rest of the world, suggesting a path for system change initiatives that operate in harmony with natural dynamics. Yet at the core of interconnectedness is requisite diversity, which like requisite variety (Ashby, 2011), emphasizes the need in healthy systems for a sufficient variety of types, uses, sizes, and levels of entities in a system. This diversity enables constant (re)balancing, renewal, regeneration, i.e., change and dynamism, while maintaining the system identity (permeable containment) over time.

Requisite diversity, a combination of Ashby's and Jacobs' terminology, is a central element of vital systems, particularly as it allows for systemic resilience combined with stability (Holling, 1973; Folke et al., 1996). Healthy and vibrant systems and initiatives provide enough diversity among their interconnected elements that disturbing one or two elements will not result in what Maturana & Varela (1987) term 'disruptive perturbation' or systemic collapse. Requisite or a sufficient amount of diversity is, in a sense, a shield for a system that provides resilience and continued flourishing even in the face of setbacks and obstacles. *Contextual interconnectedness* suggests that relationships and dialogue are a core aspect of what it means to be alive (Wheatley, 1999), and possibly particularly what it means to be human.

3.4.2. *Contextual Interconnectedness* in the Design of Transformative Large Systems Change: Establishing Multi-level, Multi-stakeholder Governance

Like successful urban settings and architecture, nature, Weber (2013) argues, deals in abundance, diversity, that is, a form of wildness that is contained yet paradoxically not contained. Such abundance does not have the 'efficiency' that seems important in today's businesses, economic institutions, and societies. Flourishing natural systems, including human ones, have variety, diversity, and 'wasted' resources, i.e., abundance and diversity. From a large system change perspective, based on this principle, change efforts are likely to be more successful if they incorporate more diverse elements, different levels, and different types of action and initiatives. It has been widely acknowledged that the urgency and the multiplicity of sustainability challenges demand collective action at multiple levels of the global society (Folke, 2006; Raskin, 2016; Rockström et al., 2009; Steffen et al., 2007; Kuenkel, 2019). Multi-stakeholder collaboration and dialogues could become new forms of governance that could advance as complementary to the formally existing global structures (Bäckstrand, 2006; Biermann, 2014; Lodge, 2007; Boström et al. 2015).

Interconnectedness is intensely reflected in the emergent discourse and practice of multi-stakeholder initiatives around issues of common concern, for example, water, food security, and climate change, among SDGs. Ansell and Gash (2012) explored the emerging concept of 'collaborative governance', defining it as 'a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets' (p. 544). Such approaches often provide new pathways that move beyond negotiations between opposing societal groups. The emergent discourse on governance systems indicates that human progress in the Anthropocene (Steffen, Crutzen, & McNeill, 2007) requires multi-level, multi-issue, and multi-stakeholder dialogic and collaborative spaces in which the variety of socially constructed realities can be explored and harvested for a constructive future. They need to negotiate between the interest of the part and the interest of the whole, which leads to the next principle.

"What gives life to systems emphasizes wholeness, not fragmentation."

3.5. Systems Aliveness Principle 5: Mutually Enhancing Wholeness

Mutually enhancing wholeness means that living systems are integrated entities constituted of identifiable yet both parallel and nested 'wholes' or holons (Koestler, 1968) supporting each other. These wholes at multiple levels provide identity, coherence, and orientation, or mutual consistency (Sahtouris and Lovelock, 2000). Both the architect Alexander (2002) and the quantum physicist Bohm (1980) argue that aliveness emerges from an underlying wholeness (in Bohm's term the 'implicate order') and (in Alexander's term) the degree of life in a certain space that mirrors this wholeness. Living systems must be considered as wholes because they cannot be fully understood by being fragmented into their parts. For the design of transformative change in human interaction systems, this principle means that change processes need to foster the human capability to relate to a larger system or bigger stories—to the next level *wholeness*—and engage the willingness to contribute to the world's development beyond the individual interest. The global agreement on the 17 SDGs is one indicator that shows leveraging this capability is possible.

3.5.1. The Conceptual Background of *Mutually Enhancing Wholeness*

The principle of mutually consistent wholeness argues that living systems need to be considered as purposive open systems (Swanson, 2009, p. 143) holistically, and understood as subsystems nested within (or operating dynamically and interactively with) and complementary to other (sub)systems (Swanson, 2009, pp. 42-43). Swanson (2009, p. 143) further argues that living systems theory's core contention is that forms of hierarchy and differentiation occur among system elements that co-creatively emerge higher level and more complex living systems. What gives life to systems emphasizes wholeness, not fragmentation (Fullerton, 2015; Weber, 2013; Alexander, 1979; Jacobs, 1961). This primacy of the whole (Fullerton, 2013) is why Alexander (1979) and Jacobs (1961) focused on whole entities in their respective architectural and urban studies work—buildings, communities, or

neighborhoods, not simply the constituent parts that build on and encompass other related parts in nested fashion. Though Alexander (1979) argues that the components of a given pattern language can be added in a step-by-step process to generate the whole, the key is that multiple interacting parts need to be integrated systemically for the 'whole' to give evidence of life.

Similarly, Weber (2013, p. 32) argues that 'The individual can only exist if the whole exists, and the whole can only exist if individuals are allowed to exist,' in the relationship that ecologists call 'interbeing' (Weber, 2013, p. 37). There are synergistic, symbiotic, and epigenetic (co-evolutionary) (Lipton & Bhaerman, 2009) reasons why biological systems thrive as a whole and why they cannot be dismantled into their component parts and retain their vitality. Such thinking is reflective of the African expression of *Ubuntu*, 'I am because we are,' which means that the individual cannot exist independently of the other or the whole community. Alexander discusses pattern language applied to architecture, stating 'Life comes from the particular details of the way centers in the wholeness cohere to form a unity, the way they interact, and interlock, and influence each other' (Alexander, 2002, p. 106). The key to 'life' is that the parts of a given pattern come to be integrated into a whole, though Alexander indicates that 'the wholeness comes first; everything else follows' (Alexander, 2002, p. 106; also Bohm, 1980).

3.5.2. *Mutually Enhancing Wholeness* in the Design of Transformative Large Systems Change: Developing Guiding Regulations & Balancing Resource Allocations

The awareness of the entire system is especially important in large systems change initiatives where the dynamics are such that interactions and outcomes cannot be controlled or predicted. Designing transformative change in such systems, however, requires going beyond methodologies for participatory involvement. Change agents need to look at properties of large systems that have a decisive impact on behavioral change. At the level of the whole system (even though this will be composed of layers, such as communities, national entities and global structures) it is important to look at how regulations and resource allocations can safeguard or rehabilitate overall systems aliveness (Capra & Mattei, 2015). For example, resource allocations in the form of investment strategies geared to safeguard sustainability would be oriented strictly towards long-term goals with equal allocations to structural support for transformative social and economic change (Bozesan, 2016), direct investments in climate friendly infrastructure, and sustainability related international cooperation.

Guiding regulations often require decisive action at the policy level, such as the decision to phase out combustion vehicles, close down nuclear energy plants, or introduce new economic paradigms such as the Circular Economy (CE) (Ghisellini et al., 2016). Increasingly important are voluntary regulations, such as voluntary social and environmental standards that create a form of soft law guidance rather than formal mandate. Examples are the global Equator Principles (Wright & Rwabizambuga, 2006), sustainable seafood and forestry standards (Anders & Caswell, 2009; Higman, 2013), and the OECD guidelines for multinational companies (Ferenschild, 2002), which are government approved non-binding recommendations to multinational corporations on how to operate in a responsible way.

Voluntary regulations can have an enormous impact in establishing awareness of the need for whole systems aliveness. They also engender networks of action and reflection that provide the ground for accelerated transformation to sustainability. Regulations work best in concert with *enabling structures* such as reliable administrative procedures, self-organized stewarding entities, or broad-scale transformation networks. Even the best regulations and the most responsible resource allocations require feedback systems that engender learning and reflection, which leads to the last principle.

3.6. Systems Aliveness Principle 6: Proprioceptive Consciousness

In developing the six principles, we debated whether a principle related to consciousness could apply to all living systems, or only to the human realm. We decided to take a broader view and follow Maturana and Varela (1991) by approaching consciousness and the related capacity of cognition as a general property of living systems, and not only as a result of human thought. Human consciousness is the most complex manifestation of this general property, and thus significantly impacts evolving reality, especially in the Era of the Anthropocene. Hence, the sixth principle of proprioceptive consciousness refers to the essential role of cognition in the process of life and the ability of life to become aware of its emergence, evolution and interdependence. For the design of transformative change in human interaction systems, it means attending to the presence of *humanity* as the most profound sense organ for aliveness in self and others and to foster encounter, reflection and mindfulness as well as feedback mechanisms that enhance awareness.

3.6.1. The Conceptual Background of *Proprioceptive Consciousness*

The Santiago Theory of Cognition (Maturana and Varela, 1991) suggests that cognition, as a function of consciousness, is involved in the self-generation and self-perpetuation of living systems (see also Capra, 1995). It includes perception (recognition), emotion (meaning or sense-making), and behavior (agency). Maturana and Varela argue that all living systems are cognitive systems and that the process of life is a process of cognition, saying that the organizing activity of living systems at all levels of life is a continuous mental, or learning, activity (Maturana and Varela, 1987). In their view, the structure of reality, that is, the world people perceive, is created through cognition and in turn structures cognition—living organisms recognize structural patterns and co-create them. The organizing activity of living systems at all levels of life can be seen as a continuous mental or learning activity, so that life and cognition are inseparable (Maturana & Varela, 1987).

Learning also defines the existence of the mind; it occurs in each system capable of forming feedback loops, and feedback loops are found in the simplest organisms capable of perception and thus of cognition. Physicist David Bohm (1980, p. 75) described the related capability of the human mind as a conscious form of proprioception, that is, an ability to observe thought while simultaneously thinking and acting, for which he suggested dialogue as an important methodology. In the context of systems and system change, Bohm's idea suggests that greater awareness of and reflection on the implications and consequences of human action and thinking are needed to deal with systemic challenges like climate change

and sustainability. Such reflective practice can broaden human awareness and generate greater openness to opportunities, as well as the capacity to take what Wilber (1998; Wilber et al., 2008) calls a multi-perspectival (multiple perspectives) approach to systems and situations, assessing them without judgment and with compassion for the individual and the whole (Richards, 2001). The principle of proprioceptive consciousness is central to life's capacity to maintain patterns of aliveness.

3.6.2. *Proprioceptive Consciousness* in the Design of Transformative Large Systems Change: Co-designing Empowering Metrics

For large systems change, it is important to remember Maturana and Varela's proposition (1991) that whatever happens in a system is determined by causal relationships, described as structural determination. In their view, the actual course of change in a system is influenced or determined by its structure, rather than only by direct influence of its environment, which is an important realization for the transformation to sustainability. This view mirrors situations in which possibilities for changes in human thinking and behavior exist, yet are constrained by existing historical and deeply embedded structures in thinking, organizing, and acting that need to be acknowledged. As Göpel argues (2016) mind-shifts are possible; humankind can break free from negative path dependencies and choose new pathways, albeit on the backdrop of existing structures of thinking. In a sense, the collaborative approaches of transformative large system change are testimony to a leap towards post-conventional development (Kohlberg, 1973, 1976; Kegan, 1994) among many change agents. Taking self-reflective positions, understanding the numerous points of view and perspectives, can contribute to changing mental models (Senge, 1990) and subsequently paradigms (Meadows, 1999). Yet, what holds mental structures in place, globally, and also in societies and institutions, are often metrics—the various forms of measurements of what is defined as progress. The types of metrics and the way they operate, however, can have an enormous influence on large systems change. If introduced and unquestioned over time, metrics can develop their own dynamic and cause damage to systems, especially if what is measured does not contribute to systems aliveness. The most obvious example is the Gross Domestic Product (GDP), an increasingly criticized but still widely-unquestioned measurement, that guides global development in the wrong direction, for example, by including the costs of alleviating environmental damages (such as oil spills) as part of an economy's growth (Costanza et al., 2014).

We argue that metrics in large systems change need to serve their original purpose, that is to foster awareness and reflective consciousness, which often requires changing both *what* is measured and *how* it is measured. The famous Club of Rome report, '*Limits to Growth*' (Meadows et al., 1972) drew on facts, figures, and predictions, suggesting that metrics could contribute to a rising awareness that current economic expansion and growth paradigms could not be sustained. There is a growing discourse on sustainability metrics and how they can support sustainable development. Sustainability metrics reflect the inherent complexity of the societies, geology, and biology with which they engage (Hezri and Dovers, 2006; Moldan et al., 2012) and move the application of metrics towards a more integrated worldview that has systems aliveness at its core. Examples of early attempts to change metrics in favor of more live-giving qualities are the OECD Better Life Index (Mizobuchi, 2004), the Gross

National Happiness Index,* the Genuine Progress Indicator,† and the more traditional Human Development Index.‡ Also, in the emerging attempts to find ways of monitoring SDG implementation at multiple levels of the global society bottom-up approaches involving many societal stakeholders are on its way (Rickels et al., 2016). For the design of transformative change in large systems, it is therefore important to look at which forms of measurements support systems aliveness, raise awareness of patterns of aliveness and empower people to act towards sustainability.

4. Towards Transformation Literacy in Large System Change

In describing the principles that enhance systems aliveness in their togetherness and illustrating them with examples of how they can be applied in large systems change, we have made an attempt to show that transformative change initiatives can be related to life's organizing principles. Moreover, we argue, those change initiatives must more consciously contribute to systems aliveness by attending to all six principles when designing and implementing change. Fig. 1 shows the relation of the principles with each other and Table 2 explains the ways they manifest in transformative large system change, as discussed above.

Table 2: The Systems Aliveness Principles and their Application in Transformative Systems Change (Source: adapted from Kuenkel, 2019)

Systems Aliveness Principles	**Application in the Design of Transformative Systems Change**	**Exemplary Guiding Questions**
1) Intentional Generativity Invigorating the human capability to collectively shape the future.	**Creating Enlivening Narratives:** Foster stories of possibilities; create future narratives that inspire minds and hearts for sustainability.	How do we build resonance for transformative change? How do we invigorate the capacity to shape the future collectively?
2) Permeable Containment Engaging the human desire for belonging, meaning-making exchange and structured collaboration.	**Growing Networks for Enabling Structures and Processes:** Build dynamic networks; co-create structures that enhance self-organization; revisit and adjust institutional arrangements.	How can we bring stakeholders together in a climate of collective action? How can we leverage the potential of networks for dynamic change?

* For more details, see the following source: http://www.grossnationalhappiness.com/nine-domains/.

† For more details, see the following source http://rprogress.org/sustainability_indicators/genuine_progress_indicator.htm.

‡ For more details, see the following source http://hdr.undp.org/en/content/human-development-index-hdi.

3) Emerging Novelty Building change on the human desire to venture into the unknown and create new pathways.	**Encouraging Sustainability-oriented Innovation:** Allocate space and support for prototyping technological and social innovations; foster and amplify pioneering advances for sustainability.	How do we accelerate the discovery of new pathways? How do we nurture emerging potential and foster pioneering approaches?
4) Contextual Interconnectedness and Requisite Diversity Leveraging the human capability to thrive on diversity and act in networks of networks in dialogue.	**Establishing Multi-level, multi-issue governance:** Establish new and contextually relevant forms of collective sense-making and collective co-creation in multiple stakeholder settings.	How do we establish structured dialogue and negotiate future pathways? How do we leverage multiple perspectives and expertise?
5) Mutually Enhancing Wholeness Tapping into the human desire to contribute to improving life and the capability to engage with a bigger picture or the whole system.	**Developing Guiding Regulations and Balancing Resource Allocations:** Set both voluntary and binding rules. Reallocate resources to sustainability.	How do we co-develop and agree on behavioral guidance? How do we manage the flow of resources? How do we ensure impact at scale?
6) Proprioceptive Consciousness Raising the human capability for reflection in action and the respect for the integrity of all life.	**Co-designing Empowering Metrics:** Create awareness of reality and future pathways; develop and co-design metric-based feedback systems for iterative learning.	How do we raise awareness for change? How do we develop meaningful and participatory measurements of progress?

The crucial insight from the development of these systems aliveness principles is that life seems to operate with the principles never in isolation from each other. Rather life operates in a dynamic balance like an orchestra, giving at times more attention to one set of instruments and at other times to other instruments, but never losing sight of the overall flow of the pattern. In contrast, human beings seem to focus on some manifestations of the six principles obsessively while losing sight of others. The invention and utilization of nuclear energy is a breath-taking example of a novelty created and further advanced in ignorance of all other

principles. It took disasters like Chernobyl and Fukushima to bring awareness back to some of the other principles.

"Working towards system aliveness is a continuous task."

The result of imbalance between the principles is always compromised or reduced systems aliveness that requires emergency action to get the system—often barely—back on track. Climate change and the transgression of planetary boundaries are examples that show how far the lack of human awareness—which can be interpreted as the absence of the principle of *proprioceptive consciousness*—of its impact on planetary aliveness has already progressed. It demonstrates how urgently, what Meadows (1999) called a paradigm shift, is needed in seeing the 'nature of reality.' Indeed, Meadows, an author of *Limits to Growth* by the Club of Rome (1972), argued that system transformation efforts demand finding leverage points, the most potent of which are shifts of mindsets and even the ability to transcend mindsets (Meadows, 1999). She noted that 'paradigms are sources of systems. From them and from shared social agreements about the nature of reality, come system goals and information flows,' as well as the policy shifts and other mechanisms of transformation she identified (Meadows, 1999, p. 18).

"System change necessarily occurs in the context of seeing humanity and the planet as a vast living—and alive—collaborative system."

The key factor in Meadows' insight is that how humans see reality—what the mindset of observers is—is central to human agency, because such mindsets inform feelings, thinking, and acting. That is why raising awareness and collective reflection—manifestations of aliveness principle #6—are so important for sustainability transformations. Capra and Luisi (2014) argue similarly that an understanding of life processes, such as what we have tried to articulate above, could be deeply informative as a conscious guide to transformative change.

In transformative systems a change in mindsets would mean shifting away, for example, from seeing SDG implementation or navigating the climate crisis as mere technical implementation challenges. It would mean acknowledging that the core underlying purpose of the SDGs or of staying below 1.5 degrees and within the Planetary Boundaries would mean continuously asking the question what kind of action, rule, incentive, campaign or change effort helps the creation, or sometimes rehabilitation, of aliveness in socio-ecological systems. Working towards system aliveness is a continuous task. In this context, the concept of collective stewardship (Kuenkel, 2019) assumes a new meaning. Co-creating, rehabilitating or maintaining systems aliveness should become the core management task in organizational, social and large system change. This imperative can be captured as a form of 'stewarding co-evolutionary patterns of aliveness' (Kuenkel, 2017; Waddock & Kuenkel, 2019), and would accelerate what Schneidewind (2013) calls 'transformative literacy'—the

capacity of multiple actors to better understand the features and dynamics of societal change processes and more effectively design transformative change.

There are no silver bullets when we take these life principles into account. They do, however, help us look at global transformation efforts through lenses of biology, physics, systems thinking, architecture, and urban studies, among others, to identify the characteristics that give life to systems so that they can be incorporated into change efforts. System change, we believe, necessarily occurs in the context of seeing humanity and the planet as a vast living—and alive—collaborative system. This system needs to function much better than in the past to avoid the planetary collapse predicted so many times. It needs to bring aliveness, i.e., 'what gives life' into the center of attention and incorporate these principles explicitly into change initiatives.

Authors Contact Information
Petra Kuenkel – *Email: petra.kuenkel@collectiveleadership.com*
Sandra Waddock – *Email: waddock@bc.edu*

Bibliography

1. Ansell, C. & Gash, A. (2012). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, *18*(4), 543–571.
2. Alexander, C. (1979). *The timeless way of building*. New York: Oxford University Press.
3. Alexander, C. (1999). The origins of pattern theory: The future of the theory, and the generation of a living world. *IEEE software*, *16*(5), 71-82.
4. Alexander, C. (2002). *The nature of order—Book one, The phenomenon of life*. Berkeley: Center for Environmental Studies.
5. Allen, P. M. (2000). Knowledge, ignorance and the evolution of complex systems. *World Futures: Journal of General Evolution*, 55(1), 37-70.
6. Anders, S. M. & Caswell, J. A. (2009). Standards as barriers versus standards as catalysts: Assessing the impact of HACCP implementation on US seafood imports. *American Journal of Agricultural Economics*, *91*(2), 310-321.
7. Armitage, D. R., Plummer, R., Berkes, F., Arthur, R. I., Charles, A. T., Davidson-Hunt, I. J., & McConney, P. (2009). Adaptive co-management for social–ecological complexity. Frontiers in Ecology and the Environment, 7(2), 95-102.
8. Ashby, W. R. (2011). Variety, constraint, and the law of requisite variety. *Emergence: Complexity and Organization*, 13 (1-2): 190-207.
9. Bäckstrand, K. (2006). Multi-stakeholder partnerships for sustainable development: rethinking legitimacy, accountability and effectiveness. *European Environment, 16*(5), 290–306.
10. Biermann, F. (2014). *Earth system governance: world politics in the Anthropocene*. Cambridge, MA: MIT Press.
11. Blackmore, S. (2000). *The meme machine* (Vol. 25). Oxford: Oxford Paperbacks.
12. Bohm, D. (1980). *Wholeness and the implicate order.* London: Routledge.
13. Boisot, M., & McKelvey, B. (2011). Complexity and organization-environment relations: Revisiting Ashby's law of requisite variety. In *The Sage handbook of complexity and management*, 279-298.
14. Boström, M., Jönsson, A. M., Lockie, S., Mol, A. P., & Oosterveer, P. (2015). Sustainable and responsible supply chain governance: challenges and opportunities. *Journal of Cleaner Production, 107*, 1-7.
15. Bozesan, M. (2016) Integral sustainability or how evolutionary forces are driving investors' trust and the integration of people, planet, and profit. In: Lehner, O. Routledge *Handbook of social and sustainable finance*, New York: Routledge, 296-321.
16. Bushe, G. R. (2011). Appreciative inquiry: Theory and critique. The Routledge companion to organizational change, D. Boje, B. Burns & J. Hassard (Eds.). London: Routledge, 87-103.
17. Capra, F. (1995). *The web of life*. New York: Anchor Doubleday.
18. Capra, F., & Luisi, P. L. (2014). *The systems view of life: A unifying vision*. Cambridge University Press.
19. Capra, F. and Mattei, U. (2015). *The ecology of law: Toward a legal system in tune with nature and community*. San Francisco: Berrett-Koehler.

20. Chapin III, F. S., Pickett, S. T., Power, M. E., Jackson, R. B., Carter, D. M., & Duke, C. (2011). Earth stewardship: a strategy for social–ecological transformation to reverse planetary degradation. *Journal of Environmental Studies and Sciences*, *1*(1), 44-53.
21. Choi, T.Y., Dooley, K.J., & Rungtusanatham, M. (2001). Supply networks and complex adaptive systems: Control versus emergence. *Journal of Operations Management*, 19(3), 351-366.
22. Churchman, C.W. (1967). Guest editorial: Wicked problems. *Management Science*, 14(4), B141-B142.
23. Costanza, R., Kubiszewski, I., Giovannini, E., Lovins, H., McGlade, J., Pickett, K. E. & Wilkinson, R. (2014). *Development: Time to leave GDP behind. Nature*, *505*(7483), 283-285. DOI: 10.1038/505283a
24. Cooperrider, D. L. (1990). Positive image, positive action: The affirmative basis of organizing. *Appreciative Management and Leadership*, 91-125.
25. Cooperrider, D., & Whitney, D. D. (2005). *Appreciative inquiry: A positive revolution in change*. San Francisco: Berrett-Koehler Publishers.
26. Daily, G. (Ed.). (1997). *Nature's services: Societal dependence on natural ecosystems*. Washington, DC: Island Press.
27. Dürr, H. P., Dahm, D., & Lippe zur RP, P. M. (2005, November). We have to learn to think in a new way. Moving Worldviews workshop, The Netherlands, Soesterberg.
28. Dutton, J. E. (2003). Breathing life into organizational studies. *Journal of Management Inquiry*, *12*(1), 5-19.
29. Erickson, E. (1953). Growth and crises of the "healthy personality," II. *Psyche*, 7(2), 112
30. Ferenschild, S. (2002). The OECD Guidelines for Multinational Enterprises – an insufficient step towards realization of social standards. Responsible globalization? *The OECD Guidelines for Multinational Enterprise. Discussion Paper*, Berlin: German Watch. Accessed at http://www.germanwatch.org/download/tw/oecd-e.pdf
31. Finidori, Helene, Sayfan G. Borhini & Thomas Henfrey (2015). Towards a fourth generation pattern language: Patterns as epistemic threads for systemic orientation. *Proceedings of the Purplsoc (Pursuit of Pattern Languages for Societal Change) Conference 2015*. Krems, Austria: Danube University.
32. Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*, *16*(3), 253-267.
33. Folke, C., C.S. Holling & C. Perrings (1996). Biological diversity, ecosystems, and the human scale. *Ecological Applications*, 6(4), 1018-1024.
34. Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T., & Rockström, J. (2010). Resilience thinking: integrating resilience, adaptability and transformability. *Ecology and Society*, *15*(4), 20.
35. Fullerton, John (2015). Regenerative capitalism: How universal principles and patterns will shape our new economy. Greenwich, CT: Capital Institute. Posted at: http://capitalinstitute.org/wp-content/uploads/2015/04/2015-Regenerative-Capitalism-4-20-15-final.pdf
36. Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, *114*, 11-32.
37. Gilligan, C. (1982). *In a different voice*. Cambridge, MA: Harvard University Press.
38. Gleick, J. (1987). *Chaos: Making a new science*. NY: Viking.
39. Göpel, M. (2016). *The great mindshift*. Cham: Springer International.
40. Hanjra, M. A. & Qureshi, M. E. (2010). Global water crisis and future food security in an era of climate change. *Food Policy*, *35*(5), 365-377.
41. Hezri, A. A. & Dovers, S. R. (2006). Sustainability indicators, policy and governance: Issues for ecological economics. *Ecological Economics, 60*(1), 86-99.
42. Higman, S. (2013).*The sustainable forestry handbook: a practical guide for tropical forest managers on implementing new standards*. Washington, DC: Earthscan.
43. Holling, C.S. (1973). Resilience and stability of ecological systems. *Annual Review of Ecological Systems*, 4: 1-23.
44. Jacobs, J. (1961). *The death and life of great American cities*. New York: Vintage.
45. Jacobs, J. (2002). *The nature of economies*. Toronto: Vintage.
46. Kauffman, S. (1995). *At home in the universe: The search for the laws of self-organization and complexity*. NY: Oxford University Press.
47. Kauffmann, S. (2016) *Humanity in a creative universe*,. New York: Oxford University Press
48. Kegan, Robert.(1994). *In over our heads: The mental demands of modern life*. Cambridge, MA: Harvard University Press.
49. Koestler, A. (1968). *The ghost in the machine*. New York: Random House.
50. Kohlberg, Lawrence (1973). Stages and aging in moral development—some speculation. *Gerontologists*, 1: 498-502.

51. Kohlberg, Lawrence (1976). Moral stages and moralization: The cognitive-developmental approach, in Thomas Lickona, editor, Gilbert Geis and Lawrence Kohlberg, consulting editors, *Moral Development and Behavior: Theory, Research, and Social Issues*, New York: Holt, Rinehart and Winston.
52. Korten, D. C. (2007). *The great turning: From empire to earth community*. San Francisco: Berrett-Koehler Publishers.
53. KPMG International (2012). Authors: De Boer, Y., & van Bergen, B. *Expect the unexpected: Building business value in a changing world*. Amsterdam, Netherlands: KPMG International.
54. Kuenkel, P. (2015). Navigating change in complex multi-actor settings: A practice approach to better collaboration. *The Journal of Corporate Citizenship*, (58), 119-137.
55. Kuenkel, P. (2016). *The art of leading collectively—How we can co-create a sustainable, socially just future.* White River Junction, VT: Chelsea Green.
56. Kuenkel, P. (2017). A pattern approach to sustainability transformation – How the 17 SDG can become a starting point for systemic change, *Collective Leadership Studies, Vol. 5*. ISSN 2569-1171. The Collective Leadership Institute: Potsdam/ Germany
57. Kuenkel, P. (2019). *Stewarding sustainability transformations: An emerging theory and practice of SDG implementation*. Cham. Switzerland: Springer.
58. Kuenkel, P., Gerlach, S. & Frieg, V. (2011). *Working with stakeholder dialogues: Key concepts and competencies for achieving common goals. A practical guide for change agents from public sector, private sector and civil society*. Potsdam, Germany: The Collective Leadership Institute.
59. Liedtka, J., & Ogilvie, T. (2011). *Designing for growth: A design thinking tool kit for managers*. New York: Columbia University Press.
60. Lipton, B.H. & S. Bhaerman (2009). *Spontaneous evolution: Our positive future and how to get there*. New York: Hay House.
61. Lodge, M. (2007). Comparing non-hierarchical governance in action: The open method of co-ordination in pensions and information society. JCMS: Journal of Common Market Studies, 45(2), 343-365.
62. Lorenz, E. N. (1963). Deterministic nonperiodic flow. *Journal of the Atmospheric Sciences*, *20*(2), 130-141.
63. Lovelock, J.E., & Sahtouris, E. (2000). *Earthdance: Living systems in evolution*. New York: iUniverse.
64. Maturana, H. R. & Varela, F. J. (1991). *Autopoiesis and cognition: The realization of the living* (Vol. 42). New York: Springer.
65. Maturana, H. R., & Varela, F. J. (1987). *The tree of knowledge: The biological roots of human understanding*. New Science Library/Shambhala Publications.
66. McDonough, W., & Braungart, M. (2010). *Cradle to cradle: Remaking the way we make things*. New York: MacMillan.
67. Meadows, D. H., Meadows, D. H., Randers, J., & Behrens III, W. W. (1972). *The Limits to Growth: A Report to The Club of Rome (1972)*. Universe Books, New York.
68. Meadows, Donella (1999). *Leverage points: Places to intervene in a system.* Harland, VT: The Sustainability Institute. Posted at: *http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/*.
69. Mizobuchi, H. (2004). Measuring world better life frontier: A composite indicator for OECD Better Life Index. *Social Indicator Research* 118: 987. *https://doi.org/10.1007/s11205-013-0457-x*.
70. Moldan, B., Janouskova, S. & Hak, T. (2012). How to understand and measure environmental sustainability: Indicators and targets, *Ecological Indicators,* 17, 4–13.
71. Pattberg, P., Biermann, F., Chan, S. & Mert, A. (Eds.) (2012). *Public-private partnerships for sustainable development: Emergence, influence and legitimacy.* Cheltenham, Northampton: Edward Elgar.
72. Prigogine, I. (1996). *The end of certainty: Time chaos and the new laws of nature*, New York: The Free Press, New York
73. Raskin, P. (2016). *Journey to Earthland: The great transition to planetary civilization*. Boston, MA: Tellus Institute.
74. Richards, R. (2001). A new aesthetic for environmental awareness: Chaos theory, the beauty of nature, and our broader humanistic identify. *Journal of Humanistic Psychology*, 41(2), 59-05.
75. Rickels, W., Dovern, J., Hoffmann, J., Quaas, M. F., Schmidt, J. O. & Visbeck, M. (2016). Indicators for monitoring sustainable development goals: An application to oceanic development in the European Union. *Earth's Future, 4*(5), 252-267. *http://dx.doi.org/10.1002/2016EF000353*
76. Ritchie-Dunham, J.L. and B. Pruitt (2014). *Ecosynomics: The science of abundance*. Belchertown, MA: Vibrancy Ins.
77. Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, *4*(2), 155-169.
78. Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E. F., ... & Foley, J. A. (2009). A safe operating space for humanity. *Nature*, *461*(7263), 472-475.
79. Schneidewind, Uwe. (2013). Transformative literacy: Understanding and shaping societal transformations. *GAIA - Ecological Perspectives for Science and Society*, 22 (2), 82-86.

80. Schrödinger, E. (1992). *What is life? With mind and matter and autobiographical sketches*. Cambridge, UK: Cambridge University Press.
81. SDGs (Sustainable Development Goals) (2017). 17 Goals to Transform Our World. Retrieved from: http://www.un.org/sustainabledevelopment/sustainable-development-goals/.
82. Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*, New York: Currency Doubleday.
83. Stamm, B. von (2008) *Managing innovation design and creativity* (2nd ed.) Chichester: Wiley.
84. Stamm, B. von, & Trifilova, A. (2009). *The future of innovation*. Surrey, UK: Cower.
85. Steffen, W., Crutzen, P. J. & McNeill, J. R. (2007). The Anthropocene: Are humans now overwhelming the great forces of nature? *Ambio, 36*(8), 614-621.
86. Steffen, W., Rockström, J., Richardson, K., Lenton, T. M., Folke, C., Liverman, D., ... & Donges, J. F. (2018). Trajectories of the Earth System in the Anthropocene. *Proceedings of the National Academy of Sciences*, *115*(33), 8252-8259, URL: https://www.pnas.org/content/pnas/early/2018/08/07/1810141115.full.pdf.
87. Stern, N. (2008). The economics of climate change. *American Economic Review*, *98*(2), 1-37.
88. Swanson, G.A., and J.G. Miller (2009). Living systems theory. *Systems Science and Cybernetics: Synergetics*, 1 (System Theories), 136-148.
89. Torbert, W.R. and associates. (2004). *Action inquiry: The secret of timely and transforming leadership*. San Francisco: Berrett-Koehler.
90. Vörösmarty, C. J., Green, P., Salisbury, J., & Lammers, R. B. (2000). Global water resources: vulnerability from climate change and population growth. *Science*, *289*(5477), 284-288.
91. Waddell, S. (2010). *Global action networks: Creating our future together*. New York: Palgrave Macmillan.
92. Waddell, S., S. Waddock, S. Cornell, D. Dentoni, M. McLachlan & G. Meszoely (2015). Large system change: An emerging field of transformation and transitions. *Journal of Corporate Citizenship*, June, Issue 58: 5-30.
93. Waddock, S. (2015). Reflections: Intellectual shamans, sensemaking, and memes in large system change. *Journal of Change Management*, *15*(4), 259-273.
94. Waddock, S., & Kuenkel, P. (2019). What gives life to large system change? Organization & Environment. https://doi.org/10.1177/1086026619842482 SAGE Publishing.
95. Waddock, S., D. Dentoni, G. Meszoely & S. Waddell (2015). The complexity of wicked problems in large system change. *Journal of Organizational Change Management*, 28(6), 993-1012.
96. Weber, A. (2013). *Enlivenment. Towards a fundamental shift in the concepts of nature, culture and politics.* Berlin: Heinrich-Böll-Stiftung. Retrieved from: http://www.autor-andreas-weber.de/downloads/Enlivenment_web.pdf.
97. Weber, A. (2016). *Biology of wonder: Aliveness, feeling, and the metamorphosis of science*. Gabriola Island, BC, Canada: New Society Publishers.
98. WellBeingEconomy.org (2017). Meadows Memorandum. https://wellbeingeconomy.org/wp-content/uploads/2019/05/Meadows-Memorandum-with-Cover-V81-copy.pdf.
99. Wheatley, M. (1999). *Leadership and the new science. Discovering order in a chaotic world.* San Francisco: Berrett-Koehler Publishers.
100. Wilber, Ken (1998a). *The eye of spirit: An integral vision for a world gone slightly mad*. Boston: Shambhala Publications.
101. Wilber, Ken (1998b). *The marriage of sense and soul: Integrating science and reason*. New York: Random House.
102. Wilber, Ken (2017). *Trump and a post-truth world: an evolutionary self-correction*. Integral Life.com. Retrieved from: https://integrallife.com/trump-post-truth-world/.
103. Wilber, K., Patten. T., Leonard, A., & Morelli, M (2008). *Integral life practice: A 21st century blueprint for physical health, emotional balance, mental clarity and spiritual awakening.* Integral Books.
104. Wright, C. & Rwabizambuga, A. (2006). Institutional pressures, corporate reputation, and voluntary codes of conduct: An examination of the equator principles. *Business and Society Review*, *111*(1), 89-117.

CADMUS, Volume 4, No.1, October 2019, 39-46

Overcoming the Global Trilemma:
New Monetary Politics in the Anthropocene: Dani Rodrik Revised

Stefan Brunnhuber
Medical Director and Chief Medical Officer, Diakonie Hospital, Germany;
Member, Board of Trustees, World Academy of Art & Science

Abstract

This paper will review the concept of the "open economic trilemma" between national sovereignty, global integration and democratic politics. It will introduce, as a possible solution, the concept of a parallel dual currency system operating through new monetary channels using distributive ledger technology. Although not apparent at first glance, this additional system could provide a Pareto-superior optimum by integrating spillovers and negative externalities and by fostering political efficacy on a national level. Monetary autonomy, national sovereignty and further global integration could thus become possible. In short, the existing global currency system leaves global economic integration in a suboptimal equilibrium. The current hype surrounding cryptocurrencies provides a preliminary rationale for a dual currency system. Designed in the right manner, a dual currency system could provide the necessary change towards greater wealth while leading to a more sustainable planet.

1. Introduction

Global economic integration is considered to be a measure of globalization, where capital, goods and services, as well as labor forces operating outside domestic borders, offer additional wealth, jobs, and increased efficiency and productivity for an even larger population globally. However, the figures below show that the world community is far from being totally integrated. In fact, foreign direct investments (FDI) represent some 2% of global GDP,* migrant workers account for only 150 million of the 3.5 billion global labor force,[1] representing less than 5% (ILO estimates 2017),† and even international trade accounts for less than 30% of GDP.‡ So despite globalization, most capital, most trading of goods and services, and most human labor remain primarily domestic, taking place within national borders.

Despite economic integration's positive effects on alleviating poverty, increasing longevity and boosting economic wealth, there are also negative consequences that affect domestic politics and economics on a global scale. Nations and their citizens are more likely than ever to be affected by asymmetric shocks in the form of financial crises (banking, currency, and

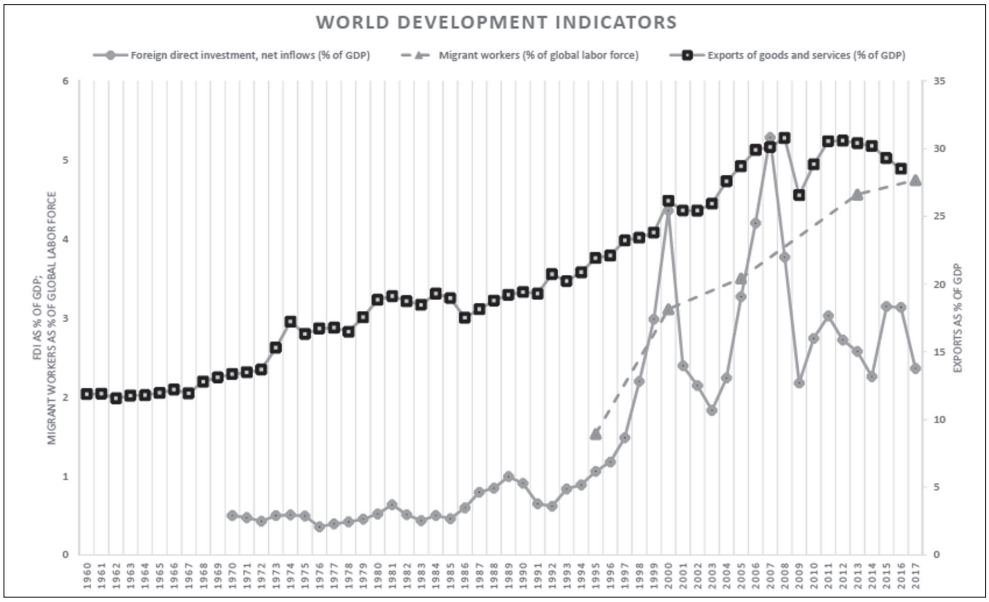
* World Bank 2012, "Foreign direct investment, net inflows (BoP, current US$) | Data | Table". data.worldbank.org.

† UN, 2017, "International Migration report".

‡ WTO, 2015, World trade and the WTO: 1995-2014. World Trade Organization: International Trade Statistics.

sovereign debt crises), armed conflict (failed states, asymmetric wars), demographic changes (birth rate, migration, aging), ecological challenges (global warming, loss of biodiversity, rare earths) or social risks (pandemics, poverty, unemployment). None of these adverse effects can be attributed to one specific national policy. In fact, even if a nation's domestic policy has done everything 'right', it can still be disproportionately affected. These forms of integration, also referred to as global interconnectedness, characterize the Age of the Anthropocene, to use a term popularized by Paul Crutzen.[2] The Anthropocene requires a new form of global governance in the name of humankind. Examples of such endeavors include the UN Declaration of Human Rights, the COP21 treaty to protect the planet, and the World Trade Organization trading treaty, to name a few.

Figure 1: World Development Indicators: Foreign Direct Investment / GDP, Migrant Workers /Global Workforce (left axis); Export / GDP (right axis)



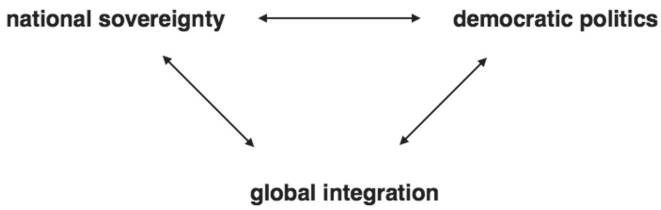
2. The Global Trilemma

The "open economy trilemma" introduced by Oxelheim (1990) and Obstfeld & Taylor (1998)[3] states that countries cannot simultaneously maintain independent monetary policies, fixed exchange rates, and an open capital account. To use extreme cases as an example: if a government chooses free capital flow (with no tariffs and controls) and monetary independence (mainly raising or lowering interest rates as they choose), it will have to abandon fixed exchange rates and will end up with floating ones. If a government instead opts for fixed exchange rates and an autonomous monetary policy, it will end up with a Bretton Woods scenario, with no or reduced capital mobility. And if a government wants fixed exchange rates and free capital flow, it will have to give up monetary autonomy, as experienced in the age

of the gold standard. This trilemma was further built upon in Dani Rodrik's seminal papers, where nation-states, democratic politics and the deepening of global economic integration lead to an inescapable "global paradox" (2000, 2010).[4] In this reading, if the government chooses nation-state sovereignty and democratic politics, it has to renounce further global integration, ending up with some sort of Bretton Woods agreement. If the government embraces deepening global integration and democratic politics, it will end up with increased global federalism and less national sovereignty. And if a government chooses to strengthen global integration and nation-states, it will end up with a golden straitjacket and limited leverage for democratic voting: it is possible to have two—any two—but never all three.

Focusing on further global integration (globalization) would require us to eliminate the differences in transaction costs that sovereign states impose on economic activities (sovereign risks, regulatory discontinuity or costs for the supervision of the domestic financial intermediaries). This would in consequence reduce the impact of democratic voting and national sovereignty. How far should this economic integration, which is far from complete, continue in order to provide the greatest benefit for humankind and the planet? Can we further increase economic integration globally, while simultaneously ensuring sovereign nation-states, sovereign monetary policies and a democratic mandate? What are the necessary monetary tools to provide a realistic exit out of the trilemma described above? In the following, we will attempt to answer these questions and demonstrate one way out of this trilemma, where pegged exchange rates, an independent monetary policy and free capital flow are possible within the context of democracy and deepening global economic integration, while at the same time maintaining the sovereignty of nation-states.

Figure 2: The Global Trilemma: have two, any two, but not three



3. The Unquestioned Assumption

The approaches of Oxelheim (1990),[5] Obstfeld & Taylor (1998) and Rodrik (2000, 2010) describe an inescapable trilemma. Humankind is trapped in this trilemma with no way out. However, the trilemma, irrespective of the form it takes and the components relating to each other, is based on an unquestioned assumption: the globally operating monetary system is taken for granted. It is this global monetary monoculture, through which all capital flows and all goods and services are traded, that places a golden straitjacket around national sovereignty

and monetary policy. In addition, it is this monetary monoculture that limits democratic voting and diminishes the full potential of the future wealth of nations. Despite the fact that over 150 currencies are available globally, they all follow the same design and use the same monetary channels to provide the liquidity required for the economy.

> *"Complementary currencies will make the overall system more stable and resilient, thereby steering our society towards a more sustainable world and providing better tools to solve real problems."*

However, if we had an additional monetary system created in a different way and running in parallel to the existing system using different monetary channels, we would be able to overcome the trilemma described above.[6] There is in fact preliminary evidence for three such parallel currency systems operating already, which can be further distinguished as a top down and a more bottom up approach. The goals are that these complementary currencies will make the overall system more stable and resilient, thereby steering our society towards a more sustainable world and providing better tools to solve real problems. From a top down perspective there are over a dozen central banks currently experimenting with so-called CBDCs (Central Bank Digital currencies).[7] The purpose is to expand the base money and to better provide control and regulation over the overall monetary and fiscal system. CBDCs are running in digital form only, providing an additional lender of last resort. In this setting, money remains a public good.

From a bottom up perspective there are two major trends: On the one hand, so-called community currencies and on the other, cryptocurrencies. Community Currencies[8] do not necessarily replicate the 'general purpose' of conventional money (medium of exchange, store of value etc.), but often emphasize a 'special purpose' like targeting specific social or environmental projects or local business providing additional liquidity to a sector or region, where there is a shortage in supply. Empirically there are over 3400 such local and regional projects in 23 countries across six continents using different forms of such community currencies. Despite their diversity, they can be grouped into four categories, including service credits (Time dollars), mutual exchange schema (LETS), local or regional currency schemas (Bristol Pound, RegioMoney) and Barter (Trueque). The capitalization of community currencies is low, their macroeconomic impact often irrelevant, but over 50% of those activities are growing and some of them have over 75 years of history. They simply demonstrate on a case to case evidence over decades, in thousands of real time field experiments all over the world that parallel currencies are working and needed.[9]

The second bottom up approach is cryptocurrencies, currently about 2300 in use.[10] Ethereum, Bitcoin, Ripple, Cardano, Skycoin, Libra are such examples, which exclusively run in electronic form using blockchain technology, issued by private initiatives (private mining), mainly following an underlying speculative and investment purpose. They are highly capitalized (2019: 350 Bill USD), highly volatile and they consider money as a private good,

favoring denationalizing the money domain. In most cases, they have a so-called built-in smart social contract, a digital algorithm that permits or prevents the additional money to be used for a specific set of transactions. The following table provides a general overview:

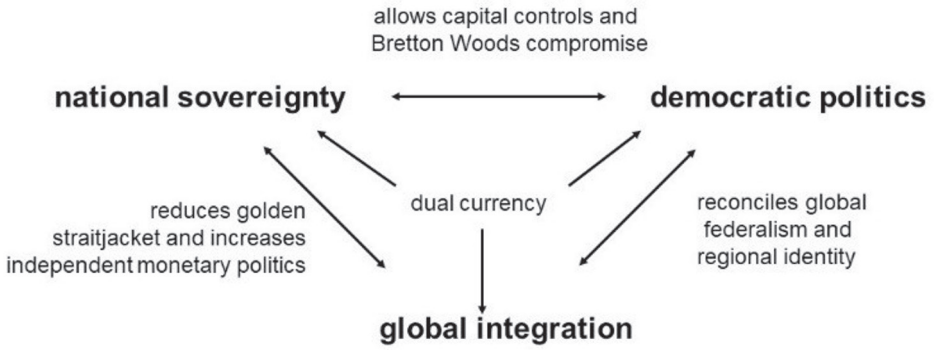
Table 1: Parallel Currencies: Empirical Evidence for Additional Targeted Liquidity to solve Real Time Problems

Parallel Currencies	**Characteristics**	**Purpose**
Central Bank Digital Currencies (>10 experimental)	extended base money non-defaultable loan public interest	Control Regulation Steering
Cryptocurrencies (> 2300):Ripple, Ethereum, Skyledger, Libra.	Denationalization of money High capitalization (2019: 350 Bill USD), smart social contract	Investment Speculation Commercial
Community Currencies (>3400): Time Dollars (50%) LETS (41%), Barter (1,5%) Regio Money (7%)	Low capitalization case to case evidence 50% currently expanding, some with a 70-year history, 2/3rds operating in Europe	Social capital consumptive or local business purposes

Parallel currencies, once they achieve an adequate volume, can operate as a rescue boat. However properly installed, they have the potential to act as a constant optional medium of exchange or storage of value, not only in case of a monetary crunch or a buffer in case of a crisis or transition phase, but as a safety net for the societal transition in general, becoming an accustomed and 'normal' tool for transactions. And all three approaches can be interpreted as a systemic response to the general shortage of liquidity or purchasing power to solve real-time problems.

These trends are part of a response to the trilemma explained in this text. Such digital currencies operate in parallel, follow a different purpose, are generated in a different way, and run through a different technology (distributed ledger technology)[11] than the given money system. Designed and regulated in the right way, this additional liquidity, injected into the market, would have the potential to meet requirements and reduce the golden straitjacket imposed on nation-states that follows from further economic integration. Such a dual currency system has the capacity to reconcile global market rules on the one hand and regional sovereignty and democracy on the other. A parallel monetary system such as this would also allow a partial control of capital in a Bretton Woods compromise, because the electronic money, operating through a smart contract, would be distributed to specific sectors or regions accordingly.

Figure 3: Overcoming the Global Trilemma through a Dual Currency System: Increases National Sovereignty and Global Integration; Enables Global Integration and Democratic Politics; Ensures Democratic Voting and National Sovereignty



This conclusion is not obvious at first glance, but has significant implications for how to conduct politics in the Anthropocene, where geophysical planetary boundaries and ongoing interconnectedness lead to asymmetric shocks, non-linear tipping points, feedback loops and fat tail events—and this even when nation-states have done everything 'right'. To note: the parallel currency system in question employs a pre-distributive mechanism, meaning money would be created to finance specific purposes up front. It could be implemented either top down, through an additional mandate of the monetary regulators and central bankers (called a CBDC, a central bank digital currency), or bottom up through corporations or regional/national public bodies (called regional complementary currencies or cryptocurrencies). In either case or a mix between the three, the required liquidity to finance business, social and ecological projects would not be generated via the redistributive mechanism we currently use, which follows the rationale of economic growth first and redistribution second. In fact, at present all social and ecological projects are primarily financed through taxes, fees or philanthropy. Because these monies stem from the revenue of global goods and services, this system represents an after-the-fact redistributive mechanism ('end of pipe financing'). In contrast, dual currency systems offer additional parallel liquidity and can tailor business to regional requirements. While this conclusion is not immediately obvious, there is a rationale to it, even though some additional intellectual effort is required.

To be more precise: as long as we fail to question the design of the financial and monetary system and do not adjust it to the new requirements of politics in the Anthropocene era, the trilemma will remain unresolved. To focus again on extreme cases for the purpose of illustration: with a dual currency system in place, a nation or a region such as the EU could overcome the limitations of the trilemma. By having the ability to independently issue liquidity at a national, regional or corporate level to finance local, regional or global commons, the current golden straitjacket for sovereign nation-states (or the EU) would be

removed or at least loosened. A dual currency would also affect a Bretton Woods-type compromise by establishing a form of capital control and a fixed or pegged currency regime between the two currency systems. The very nature of the design of the additional electronic 'coins' running through a smart social contract would restrict and therefore limit the flow of free capital towards desired goals. Lastly, such a dual currency system has the potential to enhance global federalism where needed and when politically agreed upon, as in the Sustainable Development Goals (SDGs) endorsed by the world community in 2015.* It would deepen economic integration by providing the additional liquidity and purchasing power required to energize the two thirds of the global population that are currently missing out on participation in globalization. Overall, it would offer governments the required financial leverage and political self-efficacy (including additional 'green' tax revenues) to tackle the numerous environmental, social, and political challenges we face as a world community. If we take this concept one step further, a dual currency system eligible for the payment of taxes and wages and running in parallel to the given conventional currency system would trigger a steering effect impacting business and public affairs. This steering mechanism would stabilize the pro-cyclical tendency of each monetary policy in an anti-cyclical manner and reduce illicit transactions. Additional positive externalities would be generated by direct investments into mitigating the negative externalities in the era of the Anthropocene. For example, each such 'green' dollar spent on the desired goals—whether the eradication of poverty, infrastructure development, improving access to healthcare or educational programs, or addressing global warming and the loss of biodiversity—would reduce short-term and long-term negative externalities and spillovers. In an era where everything is connected to everything else and everywhere, there is no longer any such thing as a 'free lunch'. We need to take this into account.

"As long as we cling to a monetary monoculture, democracy, national sovereignty and further economic integration will remain mutually incompatible."

4. Conclusion: Monetary Politics in the Anthropocene

Living in the Anthropocene means living in an interconnected world within planetary boundaries. This changes not only the way we study economics, but also the way we deal with (global) common goods, engage in politics, and do business—it even changes the way we reason. It is true that under the conventional regime of a monetary monoculture, trying to have fixed exchange rates, free capital and an independent monetary policy leads to financial instability. As long as we cling to a monetary monoculture, democracy, national sovereignty and further economic integration will remain mutually incompatible and we will stay trapped in the global trilemma. But money is not a natural law; rather, it is one of the most powerful human inventions to accomplish human welfare and wealth. It can be changed and adjusted, just like club rules or a marriage contract. The money system operates like a catalyst, enabling infinite transactions, and steering society as a whole towards good or bad. It has a quantitative aspect, measured in the volume of money injected and circulating in the economy, and a

* UN SDG: https://www.un.org/sustainabledevelopment/sustainable-development-goals/

qualitative aspect, measured in what and where money goes and what it does.[12] It will require intellectual courage, scientific clarity and a handful of bold political decisions to confront, change, and adopt this given system for the good of humankind.

'Politics' in its ancient Greek meaning (πολιτικά) referred to the process of making decisions that were relevant for the community as a whole. This definition still holds true in the era of the Anthropocene. It is not the commons or the environment that will determine whether we are able to achieve more wealth and lower negative externalities—a so-called Pareto-superior equilibrium—as human rights and fresh air will stay the same, regardless of the economic regime in place. Rather, the (mis-)alignment of the monetary system is crucial. In other words: it is the monetary system that will predetermine the outcome of the global trilemma—not directly, by rearranging the three components of the trilemma itself, but indirectly, through the introduction of a parallel currency. This will enable global federalism, a Bretton Woods-type compromise and the loosening of the golden straitjacket.

Creating such a monetary ecosystem by introducing an additional parallel currency would provide additional leverage for national sovereignty, democracy and deepening economic integration at the same time. It would then be possible to pick three and have them all. Whether we adapt a more top down approach (CBDC) or a more bottom up approach (cryptocurrencies or community currencies) or a combination of the approaches is then a political decision of its own.

Author Contact Information
Email: brunnhuber.cor@gmxpro.de

Notes

1. Marcelo M. Suarez-Orozco, *Humanitarianism and Mass Migration: Confronting the World Crisis* (Oakland: University of California Press, 2019)
2. P. Crutzen, "Geology of mankind," *Nature* 415 (2002): 23
3. M. Obstfeld, & A M. Taylor, "The Great Depression as a Watershed: International Capital Mobility in the Long Run". In Michael D. Bordo; Claudia Goldin, and Eugene White, (eds.). The Defining Moment: The Great Depression and the American Economy in the Twentieth Century. (Chicago: University of Chicago Press, 1998), 353–402.
4. D. Rodrik, *Has Globalization Gone Too Far?* (Washington, DC Inst. for International Economics 2005); D. Rodrik, *The Globalization Paradox* (Oxford: Oxford University Press, 2011)
5. L. Oxelheim, *International Financial Integration* (Berlin: Springer, 2011)
6. S. Brunnhuber, *The Curse of the Carbon Bubble: How to Really Exit the Fossil Age, New hybrid financial engineering for a low-carbon economy in the 21st century* UN Compact Year book 2019 (in press)
7. T. Mancini-Griffoli et al., *Casting Light on Central Bank Digital Currency* (Washington D. C.: International Monetary Fund, 2018)
8. B. Lietaer, *The Future of Money: Creating New Wealth, Work and a Wiser World* (London: Random House, 2012)
9. Gill Seyfang and Noel Longhurst, "Growing green money? Mapping community currencies for sustainable development," *Ecological Economics* 86 (2013): 65–77
10. Garry Jacobs, "Cryptocurrencies & the Challenge of Global Governance," *Cadmus* 3, no. 4 (2018): 109-123
11. A. Tapscott & D. Tapscott, "How Blockchain is changing Finance," *Harvard Business Review* March 1, 2017
12. S. Brunnhuber, "How to Finance our Sustainable Development Goals (SDGs): Socioecological Quantitative Easing (QE) as a Parallel Currency to Make the World a Better Place," *Cadmus* 2, no. 5(2014): 112-118

CADMUS, Volume 4, No.1, October 2019, 47-64

Sustainable Finance*

Frank Dixon
Sustainability and System Change Consultant, USA;
Associate Fellow, World Academy of Art & Science

Abstract

The following is one of many concluding sections from the whole system book 'Global System Change: A Whole System Approach to Achieving Sustainability and Real Prosperity'. The foundation for the strong positions taken here is established in more detailed and heavily referenced sections earlier in the book. Global and national financial systems strongly contribute to major problems, including concentration of wealth, unemployment and environmental degradation. Excessive speculation and high equity returns degrade society in many ways. This section summarizes important actions needed to implement a sustainable financial system that serves and truly benefits society. Non-judgment is a key system change principle emphasized throughout the book. The criticism in this section and throughout the book is never focused on individual leaders. It always is on the flawed economic and political systems that compel well-intentioned leaders to take actions that harm the environment and society.

1. Sustainable Finance

Establishing a sustainable financial system is essential for implementing a sustainable economy. In a democracy, the economy is meant to serve all of society. The financial system is intended to serve and support the economy. But plutocracy has reversed this situation in the US and some other countries. The financial sector has become the master of the economy and society in many ways. This section broadly discusses how to evolve our current unfair and destructive financial system into a sustainable form. The Finance and Capital Markets section provides more detailed information about implementing a sustainable financial system.

As discussed in the Economic Growth section, growth is limited in the essentially infinitely more sophisticated implied economics of nature. Natural systems focus mainly on maintaining balance and stability, not achieving growth. This also was the case in human society for nearly all of human history. Up to the 1800s, most regions experienced little or no economic growth.[1] Industrialization and population growth have been main drivers of economic growth over the past 200 years.

As discussed in the Population section, one way or another, human population growth, resource consumption and waste generation will be limited. We either will figure out how to voluntarily live within the limits and laws of nature. Or nature will impose limits on human

* This article is an excerpt from Frank Dixon, *Global System Change: A Whole System Approach to Achieving Sustainability and Real Prosperity* published in 2017.

society involuntarily, probably in a highly disruptive and traumatic manner. The Population section discussed strategies for voluntarily limiting population growth and achieving sustainable population levels. Many other sections discussed how we can greatly improve the efficiency of human society, and thereby substantially reduce resource consumption and waste generation.

"Decentralization is the key to establishing sustainable economic and financial systems."

Beyond industrialization and population growth, another driver of economic growth has been investor demand for superior financial returns. High investment returns are a main problem in the financial sector. For many years, wealthy investors have come to expect high, often double-digit, financial returns. It will be difficult or impossible to maintain this in a sustainable economic system. High economic growth facilitates high financial returns. But as we transition to sustainable economic balance, high financial returns often will not be available. When society and the economy are focused on maximizing social well-being, instead of economic growth and shareholder returns, the optimal state will be economic shrinkage in many cases.

For example, as we refocus the economy on providing continuously increasing customer and societal value, prices often will decline while product quality and longevity increase. In developed regions with stable populations, this often means that overall consumption will decline. Refocusing society, advertising and media away from materialism to lifestyles that provide true life satisfaction will drive further reductions in consumption. It often will not be possible to provide high returns on debt and equity investments in zero or negative growth environments.

This begs the question, how will citizens and productive organizations secure necessary financing? Fortunately, there are many ways to address this issue. We know that it is possible to support productive activities without high financial returns because nature has been doing it for billions of years. It also has occurred widely throughout human history.

Decentralization is the key to establishing sustainable economic and financial systems. In nature and human society for nearly all of history, economic activities mainly were decentralized. Largely as a result, high financial returns were not required. The main Founders of the US, including George Washington, Benjamin Franklin, John Adams, Thomas Jefferson and James Madison, believed that the future prosperity of the US depended on the formation of a decentralized economy comprised of free citizens, farmers and small businesses. As discussed in the Political Parties section, Thomas Jefferson and other Founders strongly opposed an economy that was heavily based on financial speculation. But Alexander Hamilton, along with wealthy bankers and merchants, short-circuited this plan by using political parties to divide the people and essentially steal their wealth and power. This facilitated the establishment of a large banking and business class that dominated the economy and concentrated wealth and production.

Centralization is a main driver of high financial returns. Centralized production, as we largely have now, makes society heavily dependent on a relatively small number of large

companies. These companies often require large debt and equity investments to expand. Funds mainly are provided by large financial institutions and a small group of very wealthy citizens.

This situation gives wealthy citizens strong control over the economy and society. They often demand ever-increasing financial returns. Society is held hostage to this irrational, unfair and ultimately suicidal financial requirement. When the primary measured and managed focus of society essentially is ensuring that a small group of wealthy citizens gets continuously wealthier, everything else gets pushed aside. Rising prices, flat wages, and reduced employment and retirement security cause millions of people to suffer and struggle to meet basic needs, while a small group receives vastly more wealth than is needed to live comfortable lives. The centralized, big business economy facilitates the establishment of a leisure class that works little or not at all, while living off of high return investments.

Aside from being unfair, this situation is unsustainable. It will not last. The many public deceptions discussed in this book often mislead citizens into supporting a centralized economy that frequently impoverishes average citizens. As we raise public awareness about vested interest deceptions and economic unfairness, we will replace plutocracy with democracy. We will refocus the economy on doing what is best for all citizens, not just wealthy citizens. We will begin to decentralize the economy and rebuild local economies and communities. As discussed in the Trade, Scale and Competitive Advantage section, full cost, whole system analysis frequently will reveal that local production and economic activities produce the lowest cost, highest benefit outcomes.

Decentralization will reduce the need for 'big' finance (i.e. large transaction, expensive, high return) and loosen the grip of wealthy financiers on society. Some centralization will remain beneficial in several sectors. But we no longer will be held hostage to high financial returns. There are several less costly, fairer and more effective ways to provide debt and equity financing for centralized and decentralized production and other beneficial activities.

One of the most important financial system changes is to convert money creation from plutocracy to democracy. As discussed, banks create about 90 percent of the US money supply through fractional reserve lending. They often have most of the money because We the People allow them to create it. When citizens and companies need loans or financing, they frequently go to banks. Through control of the money supply, banks and other lenders set interest rates, decide who gets money, and determine how money is used in the economy. But banks do not own the money supply. We the People do.

As discussed in the Debt and Interest section, for much of human history, charging interest was considered to be a severe crime, often equivalent to murder. Charging interest was seen as abusing or taking advantage of people who need money to survive. Today, people are misled into thinking that banks have a right to create money and retain the profits from it. Once we reclaim our right to create and control the money supply, we will use the money supply in ways that benefit all citizens and broader society.

As discussed in the Finance and Capital Markets section, prior to 1980, charging high interest rates was illegal nearly everywhere in the US. But business-controlled government

removed these societal protections (i.e. usury laws). This enabled wealthy citizens to abuse and take advantage of average citizens through high interest charges. Benchmark interest rates have been relatively low. Low interest rates enable banks and other financial institutions to pay depositors very little for the use of their money. But banks, credit card companies and other lenders often charge high interest, sometimes as high as 30 percent, on money that they create for free through fractional reserve lending or borrow at very low rates.

"Since the 1980s, stock market growth largely resulted from cannibalizing and degrading society."

Low interest rates benefit the small group of citizens who largely control government, media and society. Low returns on debt investments compel many citizens to place retirement savings in equity markets. Like a Ponzi scheme, as long as money is going into equity markets, share prices often go up. Hedge funds, electronic trading and other sophisticated investment strategies, that usually only are available to wealthy investors, enable these investors to receive most equity market growth. In other words, allowing the private sector to control the money supply and interest rates benefits wealthy citizens, but frequently harms most other citizens, by driving equity market growth and enabling lenders to charge very high interest rates.

As citizens take control of the money supply, we can put an end to interest rate abuse. Under a sustainable, more decentralized economy that is focused on maximizing social well-being, economic growth often will be low, zero or negative. The need to charge interest in this environment will be much lower or nonexistent. When citizens control the money supply, we can provide low or no interest loans to support citizens, businesses and other productive, beneficial activities. When interest is charged, We the People will get a return on our investment. The profits or interest from money creation largely will go to the rightful owners (all citizens), not just bank owners and other wealthy investors.

Providing low or no cost debt financing will be relatively easy once the people reclaim their right to create and control the money supply. However, providing affordable equity finance is a much more complex issue. The financial community puts strong pressure on companies to provide very high equity returns. This can make equity financing extremely expensive.

The situation with high equity returns is similar to that with high interest rates. There are upsides and downsides. With high interest rates, people usually focus on the downside. High interest rates make life more difficult for citizens and organizations because debt financing is more expensive. The upside (lenders making more money) does not receive as much attention. The situation with high equity returns largely is reversed. The upside (investors making more money) usually is emphasized. The downside receives much less attention. But in some ways, the downside of high equity returns is worse than the downside of high interest rates. High equity returns often degrade society more than high interest rates.

As discussed in the Finance and Capital Markets section, stock price is a collective opinion. It is not directly tied to any hard number. But profits and stock price usually are

strongly correlated. Increasing profits is one of the most effective ways to raise stock prices. When the economy is growing and prosperity is broadly shared, as it was in the 1950s, rising stock prices can benefit society. But since the 1980s, inflation-adjusted wages largely have been flat, while prices often have risen rapidly. Corporate profits and value created by high equity returns largely were concentrated at the top of society. Value was not broadly shared. As discussed in the Stock Market Growth section, rising stock prices often benefited wealthy citizens by degrading the lives of the vast majority of citizens. The demand for ever-increasing profits and shareholder returns frequently compels companies to degrade the environment and society. As noted, 75 percent of S&P 500 profit growth from 2000 to 2007 resulted from cutting employee wages and benefits.

Since the 1980s, stock market growth largely resulted from cannibalizing and degrading society. This is the downside of high equity returns. When true, society-enhancing value is not being created, profits usually are increased by taking value from the rest of society. Speaking favorably of high stock market returns in this environment would be like saying that high interest rates benefit society because wealthy lenders make more money. In the same way that we rightly focus on the downside of high interest rates, we also should focus on the downside of high equity returns much more. Both high cost debt and high cost (i.e. high return) equity frequently severely degrade the lives of the vast majority of citizens, while benefiting a small group of wealthy citizens.

From 2009 to 2014, the S&P 500 grew by an average of about 15 percent per year. Over the same period, the economy and CPI rose by an average of about 1.2 percent and 1.6 percent annually in the US, respectively.* During this time, companies often experienced record profit levels, as indicated by high stock market growth. However, this corporate success did not create broad prosperity, as indicated by low economic growth. The benefits of stock market growth were narrowly concentrated among a relatively small group of wealthy investors.

Misleading CPI numbers hide the degradation of society. The CPI largely no longer measures actual inflation. If inflation were calculated as it was before 1980, it would be nearly 10 percent (as indicated by rising corporate profits and shareholder returns). With flat wages and rising prices, citizens often are forced to reduce consumption. This inhibits economic growth. Stock market growth and misleading inflation statistics hide the declining quality of life of the vast majority of US citizens.

As discussed in the Finance and Capital Markets section, the financial sector in the US and several other countries has grown rapidly since 1980. The sector is not focused on benefiting society. It is focused on benefiting the financial sector and a small group of wealthy citizens. Hedge fund and private equity transactions, mergers and acquisitions, and many other financial sector activities frequently reduce employment, raise prices, concentrate wealth and degrade society in other ways.

As We the People convert our country from plutocracy to democracy, we will rein in the financial sector. There is no divine right to earn high, or especially ever-increasing,

* GDP – US, Inflation, www.MeasuringWorth.com

returns on equity investments. Financial transactions and structures that degrade society will be restricted or prohibited. For example, financial activities that concentrate wealth by degrading labor, customers, the environment and other aspects of society frequently would be restricted.

Financial institutions compete to provide high financial returns. Strong financial community pressure to provide very high profits and equity returns is one of the most destructive forces in society. Maximizing the well-being of society demands that this pressure be substantially reduced. Many actions discussed in this book will help to alleviate this pressure. For example, shifting the focus of measurement and management from maximizing economic growth to maximizing social well-being will greatly reduce pressure to grow the economy and provide high financial returns.

Holding companies fully responsible for negative environmental and social impacts also will reduce this pressure. As discussed, internalizing the real costs of the centralized, big-company economy frequently will make local, smaller company production the lowest cost, highest benefit option. Holding companies responsible will reduce the size and/or number of large companies. This, in turn, will lower the need for 'big', high return equity finance.

In addition, holding companies fully responsible will reduce their ability to provide high equity returns. Compelling responsible behavior, for example by internalizing real costs, often will reduce profits. Companies no longer will be able to provide high profits and financial returns by degrading customers, employees, the environment and other aspects of society.

Substantially reducing or eliminating corporate welfare will further reduce the ability to provide high profits and financial returns. As discussed, extensive public wealth is transferred to corporations through many forms of corporate welfare. This public wealth often is used to inflate profits and provide high financial returns.

Beyond corporations, extensive corporate welfare also is given to wealthy citizens, for example through tax breaks and loopholes. Ending these forms of corporate welfare will substantially reduce the demand for high financial returns by lowering the volume of investments seeking high returns. Much of the income of the wealthiest citizens is unfairly extracted from society through corporate welfare. They frequently invest this unfairly acquired wealth back into the economy and demand high financial returns. Ending corporate welfare will greatly reduce the wealth concentrated at the top of society, and thereby reduce funds available for big, high return finance.

Providing greater retirement security, for example by substantially expanding Social Security, is an essential component of reducing high financial returns. As discussed in the Finance and Capital Markets section, vested interests have driven changes that often make the retirement security of average citizens dependent on capital market growth (such as converting defined benefit to defined contribution pension plans). The need to protect retirement security frequently compels government to cover the losses of wealthy capital market investors. From the perspective of very wealthy citizens, making the retirement security of average citizens dependent on capital market growth was a stroke of genius. This

makes average citizens cheerleaders for a system that often impoverishes average citizens. Rather than giving trillions of dollars of public wealth to wealthy citizens every year, we should use the public wealth to guarantee a secure retirement that at least meets the basic needs of all elderly citizens. Providing retirement security will greatly reduce pressure to provide high equity market returns.

Another critical action needed to reduce high, destructive equity returns is to focus stimulus and economic development efforts on the demand-side, instead of the supply-side. Current efforts are heavily focused on the supply-side. We essentially give large amounts of money to wealthy business owners, for example through tax breaks and other incentives, based on the idea that they will invest this public wealth in the economy and create jobs. But this is not rational.

As noted, the foundational driver of the economy and job creation is demand for products and services, not giving money to rich people. Transferring public wealth from average citizens to wealthy business owners largely will not create jobs or stimulate the economy. Instead, it often will suppress demand, weaken the economy and reduce jobs. Wealthy business owners will not build factories and create jobs in the absence of demand for their products and services. Instead, they frequently will squirrel away their taxpayer subsidies in foreign accounts.

Using the public wealth to ensure that citizens can meet basic and other needs is by far the most effective way to stimulate the economy and create jobs. Public wealth used to support average citizens nearly always will flow straight into the economy, increase demand and create new jobs. Wealthy business owners do not need taxpayer handouts when demand for their products and services is strong because they have attractive value propositions for lenders and investors.

Ending tax unfairness also could reduce high equity returns. As discussed, equity returns frequently are taxed at a low capital gains rate, while working citizens pay substantially higher taxes. In other words, wealthy speculators, who have vastly more wealth than they need to live comfortable lives, often work little and pay relatively low taxes. At the same time, hard-working citizens who frequently struggle to feed their families pay high taxes. This tax unfairness impedes the economy and job creation.

As discussed in the Taxes section, low capital gains and top marginal tax rates encourage financial speculation. This increases inequality and inhibits widespread economic prosperity. Rather than promoting financial speculation, the tax code should be used to promote domestic manufacturing, research and development, and other activities that broadly benefit society. Financial speculators should be taxed at relatively high rates, while citizens who work for a living pay low or no taxes on wages. This would stimulate the economy, create jobs and discourage harmful financial speculation.

Taxing equity returns at a high rate could have a mixed effect. In some cases, companies might feel pressure to provide even higher profits to offset higher tax rates and make equity investments attractive. But actions discussed above and below will limit this effect. In

addition, in this case, fairness takes priority over effect. Very wealthy citizens who are sitting at home collecting investment income should be paying higher tax rates than people who are working for wages and struggling to get by.

Vested interests often mislead citizens by arguing that wealthy citizens already pay most of the taxes. But this is highly deceptive. The key issue from a fairness perspective is not absolute taxes paid. It is the tax rate. As discussed, no one gets wealthy on their own. Wealthy citizens have an obligation to pay back more to the society that enabled them to become wealthy. A billionaire should not be paying a five percent tax rate (due to loopholes, government influence and other tax avoidance strategies), while working citizens pay 30 percent or higher.

One of the most important actions needed to reduce high equity returns is to increase competition. Making citizens dependent on large, for-profit companies enables them to provide increasing profits and equity returns by regularly raising prices and reducing quantity/quality/costs. As discussed, companies should be required to compete with all forms of productive enterprises, including NGOs, employee-owned, cooperative and public. The numerous competitive advantages of these types of organizations often will enable them to provide lower prices and higher quality. This competition frequently will greatly reduce the ability of for-profit companies to provide unfairly high profits and financial returns.

Holding companies responsible, increasing competition, and ending corporate welfare, fractional reserve lending and unfair taxation are critical macro-level strategies for reining in the financial community and reducing high, destructive financial returns. But decentralization probably is the most important aspect of sustainable economic and financial systems. Therefore, government and other programs that encourage it can strongly support and accelerate the transition to a sustainable economy and society.

As discussed in the Trade, Scale and Competitive Advantage section, centralization concentrates wealth and power, inhibits democracy, causes economic instability and often increases poverty and unemployment. As discussed in the Population section, the global trend toward urbanization is unsustainable. It is the opposite of what occurs in nature. It produces ghettos and areas of economic stagnation. It also causes unsustainable transportation as citizens commute long distances to work and goods are transported many miles.

We know from observations of reality and nature that decentralized production generates vastly greater economic stability, true prosperity and democracy. Citizens control their destiny. They are not controlled by distant large companies that degrade their environments and communities. Decentralization is far more likely to produce full employment, eliminate poverty, meet basic needs, help citizens to reach their fullest potential and protect local environments (because people living on the land control it).

Decentralization reduces the power of the financial community over society. Debt and equity financing frequently can be provided locally. Locally-owned or cooperative banks can be established that provide low or no interest loans to residents and local businesses, and channel surpluses back to citizens. Decentralization greatly increases opportunities for local

equity investing, for example, through local ownership and investment in the local economy. Local debt and equity investing keeps wealth in communities and thereby strengthens local economies.

"Seeking high financial returns is a main driver of environmental and social degradation."

Beyond efforts to specifically decentralize finance, activities that broadly promote decentralization can indirectly support the transition to sustainable finance. These activities include government programs, measurement of success, resource efficiency and cultural awareness. Government can facilitate decentralization by implementing programs that strengthen local economies, support small and medium-size businesses, and promote redesign of communities and society in ways that minimize transportation requirements.

Public and private entities can be established that provide advice, expertise and other services and resources to small businesses, cooperatives, employee-owned enterprises and other organizations. Providing expertise and services that frequently only are available to larger companies will level the playing field and facilitate economic decentralization. Smaller organizations also could be networked together in ways that provide economies of scale and facilitate competition with larger organizations. Small businesses and other groups might pay minimal fees for advisory services. Advisory organizations generally would not receive equity interests because the goal is to promote decentralized, not concentrated, ownership.

Refocusing the measurement and management of government and society on social well-being instead of economic growth will accelerate decentralization and greatly enhance local communities and quality of life. As society refocuses on maximizing the well-being of all citizens, technology and know-how will be used to reduce work hours and make it easier and less expensive to meet basic needs. Far more satisfying and family-friendly jobs will be created.

Improving efficiency is an essential component of reducing the costs of living, and thereby enabling citizens to spend more time doing what they love. Society's use of packaging and many other materials is overwhelmingly wasteful, unnecessary and environmentally destructive. We do not need packaging for many food and other items. We myopically treat the environment as if it can endlessly supply resources and accept our wastes. As discussed in the Waste section, nature produces no waste. But our unsustainable society generates massive amounts of waste that are rapidly degrading our life support systems. We must end this suicidal ignorance. Decentralization and promoting local economies facilitate reduced transportation, packaging and costs of living.

Changing culture is a critical element of decentralization. Our current society essentially is focused on making rich people richer. To achieve this, advertising and media compel citizens to compete on possessions, wealth and appearance. As discussed in the Advertising, Media and Culture section, this produces widespread senses of inadequacy, emptiness and unhappiness in society. People who do not compete well enough, for example by failing to have enough or the right type of possessions, frequently are implicitly or explicitly castigated.

In a sustainable society, we would change the definition of success, and use advertising and media to promote this new definition. As a democratic, wise and compassionate nation, we would use our great ingenuity to meet the basic needs of all citizens. Those with less would not be implicitly seen as less valuable. People would not seek success and happiness by wallowing in material goods. Success largely would result from giving, not receiving. The most admired people would be those who do the most to help others and society in general. The most successful and happy lives would not result from having full bank accounts, but rather from having lives filled with love and appreciation from those one has loved and helped.

Promoting decentralization and ending the pursuit of ever-increasing economic growth and shareholder returns are essential for achieving a sustainable and truly prosperous society. Seeking high financial returns is a main driver of environmental and social degradation. Our myopic focus on growth is killing us. Therefore, we must change our focus, limit our growth and stop pursuing high financial returns.

But limiting financial returns cuts to the heart of our flawed economic and political systems. These systems mandate a primary focus on growth. To protect growth, flawed systems frequently will compel wealthy citizens and large corporations to oppose necessary system changes. For example, vested interests often will strongly oppose ending fractional reserve lending, not only because they potentially could lose up to $500 billion per year in revenue. But perhaps more importantly because it would substantially reduce their ability to control the economy and financial system.

To further protect growth, corporations frequently will use government influence and public deception to oppose being forced to compete with the public sector, NGOs and other types of productive organizations. Competition will severely inhibit their ability to achieve ever-increasing profits and shareholder returns. As a result, they frequently will be compelled to suppress competition.

One deception that probably will be used to oppose competition is to argue that the profit motive is necessary to promote creativity and high productivity. Vested interests might claim that the public and nonprofit sectors are inherently less competitive because they lack this incentive. But this is incorrect. Several other factors can provide equal or stronger motivation than the profit motive. For example, the desire to pioneer, explore and discover and wanting to help others can be more powerful motivators than money.

Culture largely determines the focus of society. In many indigenous societies and US communities prior to omnipresent advertising and media, those who helped others received the greatest honor and respect. The desire to help others and do good in the world compelled people to be creative and productive. In our materialistic culture, people are socialized to believe that they will receive the greatest honor, respect and happiness by making lots of money. As a result, they frequently seek it. But their real underlying goal is life satisfaction, not wealth accumulation. Making lots of money often does not provide true life satisfaction.

As discussed in the Education section, money and other rewards often are good motivators when tasks are boring. But rewards and competition frequently inhibit creativity when tasks

are interesting. Humans have a natural desire to be productive and reach our fullest potential. As we shift the focus of society away from making rich people richer to enhancing the lives of all citizens, we will make jobs far more interesting and empowering. The desire to be of service, advance science and technology, and reach one's fullest potential can be more powerful motivators than money. This is especially true when public wealth is used to benefit all citizens, for example, by implementing a strong social safety net that greatly reduces the fear that basic needs will not be met. The public and nonprofit sectors can take advantage of powerful nonfinancial motivators, and thereby achieve equal or better creativity and productivity than the for-profit private sector.

To protect ever-increasing financial returns, wealthy citizens and corporations often will strongly oppose greater government involvement in the financial sector. The structurally mandated focus of private sector finance is on narrowly benefitting lenders and investors. This often degrades other stakeholders and broader society. However, the focus of public sector finance in a democratic government is on broadly benefiting all stakeholders and society.

As we abide by our Constitution, end business control of government and establish true democracy, We the People will direct our servant government to use the public wealth in ways that benefit all citizens. This often will include providing public financing when it is the lowest cost, highest benefit option. As We the People reclaim our right to create and control the money supply, our servant government can provide low or no-cost loans to support productive, beneficial activities. We also might use the public wealth to provide equity financing when it is objectively less expensive and more beneficial to society than private sector financing.

Public funding can strongly benefit society. We the People can require that publicly funded activities do not degrade the environment or society in any way, and that benefits are fairly shared with all stakeholders, not just shareholders. Publicly-funded investments often will provide lower financial returns than private sector investing. As a result, vested interests frequently will strongly oppose greater public funding. It substantially lowers their ability to control the economy and earn high financial returns.

As discussed, our flawed systems are not focused on maximizing the well-being of society. They are focused on maximizing the financial wealth of a small group of already wealthy citizens and corporations. These systems often will compel vested interests to oppose greater government involvement in debt and equity financing. They frequently will attempt to retain control of debt financing by maintaining fractional reserve lending. Vested interests also frequently will attempt to retain control of equity financing by protecting trillions of dollars per year of corporate welfare. This ensures that they have the funds available to make high return equity investments. When wealthy citizens and corporations control debt and equity financing, they can ensure that investments are primarily focused on providing ever-increasing shareholder returns, as our suicidal systems require.

Establishing sustainable economic and financial systems requires a whole system approach. This illuminates essential solutions that lie outside the financial area, such as those related to

democracy. For example, government probably cannot effectively provide debt and equity financing until it is converted from plutocracy to democracy. The US government largely is controlled by a small group of wealthy citizens and corporations. The puppet US government will continue to do whatever its wealthy masters tell it to do, including maintaining fractional reserve lending, corporate welfare and the primary focus on maximizing shareholder returns.

A whole system focus reveals that converting plutocracy to democracy requires raising public awareness about how vested interests mislead, divide and disempower citizens. We the People have all ultimate power. But we cannot exercise this power when we are divided. We must end the vested interest manufactured war between conservatives and liberals. We must work together on our massive areas of common interest, such as ending corporate welfare, protecting the environment and society, and using the public wealth to equally and fairly benefit all citizens.

A whole system perspective further reveals that we cannot effectively change the financial system by focusing first on the financial system. The financial system is the servant of the economy, which is the servant of society. Establishing a sustainable financial system first requires defining a sustainable society. This sets the parameters for a sustainable economy, which in turn sets the requirements for a sustainable financial system.

A sustainable financial system will seek balance and stability, not suicidal growth. The basis of competition in the financial community will be switched from maximizing shareholder returns to maximizing social well-being. Return on investment expectations will be lower. High ROIs generally will be seen as destructive and unfair, in the same way that high interest rates currently are. High investment returns might occur at times, for example, as new technologies are developed that experience rapid market penetration. But technology development should be managed with a primary focus on maximizing social well-being.

As corporate welfare is ended, more public wealth will be available for science, research and development. Publicly funded technology and research can be placed in the public domain. Then various types of organizations can compete to efficiently provide products and services based on it. As discussed in the Property Rights section, the great US Founder and inventor Benjamin Franklin did not seek a patent on one of his most profitable inventions—the Franklin stove. He put it in the public domain so that many citizens could afford this then leading-edge technology. In other words, one of the greatest US citizens put the well-being of society ahead of his own financial well-being. Thomas Jefferson also invented many useful devices, but never sought patents on them.[2]

We should strive to do the same thing. The primary purpose of human ingenuity and technology should not be to maximize the wealth of a few individuals. It should be to broadly benefit society. By wisely using the public wealth, we can expand publicly funded technology development, and thereby maximize the sustainability and well-being of society.

Dolphins have a larger brain-to-body size ratio than humans. They spend much of their time playing and hanging out with family and friends. We humans can do the same things. Many citizens are forced to work long, boring jobs to survive. When we refocus society

on maximizing social well-being, we will use technology and know-how to reduce work requirements and vastly improve quality of life.

2. US Founders and Finance

Today's unjust, destructive domination of society by the financial community mirrors similar problems in the Founding era. In 1790, Alexander Hamilton, Founder of the Federalist Party and first Secretary of the Treasury, proposed a system for managing the nation's debt and money supply that was very similar to the system functioning today. Alexander Hamilton proposed, and Congress approved, the establishment of a national bank, the Bank of the United States, that would help to manage the national debt and issue money for the United States.[3] Like the Federal Reserve today, the Bank of the United States was largely owned and controlled by wealthy bankers and investors. The national bank acted on behalf of the federal government. But as Alexander Hamilton said, it was established "under the guidance of individual interest, not of public policy."[4]

The Federalist Party was established by wealthy bankers and merchants. In addition to supporting a privately-owned national bank, the Federalists supported the expansion of large companies and a more centralized economy. This facilitated trading and speculation in business ownership shares (equities).

Thomas Jefferson and James Madison strongly condemned and opposed Alexander Hamilton's financial plan for several reasons. The plan allowed a privately-owned bank to create money, a power reserved to Congress in the Constitution. It gave a small group of wealthy citizens great control over the economy and society by allowing them to strongly influence the nation's finances. The plan created the ridiculous and grossly unfair situation where government pays interest to use its own money. As discussed, the right to create money belongs tothe people. The Constitution assigns this right to the people's agent—Congress. When government creates money to pay off debt or fund a deficit, government and taxpayers pay no interest. However, when private banks create the money supply, government and taxpayers pay interest to use their own money. This causes huge, grossly unfair transfers of public wealth to wealthy bankers and investors (i.e. corporate welfare).

The Federalist financial plan enabled wealthy speculators to profit at the expense of the rest of society. Alexander Hamilton's plan was intended to pay off federal and state Revolutionary War debts by issuing new federal debt. But the plan wound up increasing the national debt. Maintaining high government debt benefits speculators who receive interest on it. When Thomas Jefferson was elected President in 1800, the Federalists were concerned that he would pay off the national debt and thereby reduce interest income to bankers and investors.[5]

During the Revolutionary War, lack of funds compelled the government to issue promissory notes to soldiers and farmers. In anticipation of Alexander Hamilton's plan to pay off existing debt by issuing new federal debt, wealthy speculators were buying up these notes at deep discounts.[6] Soldiers who had risked their lives defending their country and families of soldiers who lost their lives received a fraction of what they were owed, while speculators received full value.

Thomas Jefferson was concerned that the speculation promoted by Alexander Hamilton's plan was severely degrading society. He said, "Ships are lying idle at the wharves, buildings are stopped, capitals withdrawn from commerce, manufactures, arts, and agriculture to be employed in gambling; and the tide of public prosperity almost unparalleled in any country is arrested in its course, and suppressed by the rage of getting rich in a day. No mortal can tell where this will stop, for the spirit of gaming, when once it has seized a subject, is incurable. The tailor who has made thousands in one day, though he has lost them the next, can never again be content with the slow and moderate earnings of his needle."[7]

"We the People must take back control of the monetary system."

Thomas Jefferson also criticized the complex and confusing nature of Alexander Hamilton's plan. Complexity made citizens unable to understand how bank-created money and high financial speculation essentially stole the public wealth and degraded society. Thomas Jefferson said that Alexander Hamilton's financial system was designed "as a puzzle, to exclude popular understanding and inquiry." He argued that Alexander Hamilton intentionally made the system complicated so that "neither the President nor Congress should be able to understand it, or… control him."[8]

Referring to Alexander Hamilton, Thomas Jefferson said, "He gave to the debt in the first instance, in funding it, the most artificial and mysterious form he could devise… until the whole system was involved in an impenetrable fog; and while he was giving himself the airs of providing for the payment of the debt, he left himself free to add to it continually, as he did in fact, instead of paying for it."[9]

Following President Jefferson's election in 1800, the Federalist Party declined and then disappeared in the 1820s. The large majority of citizens understood that the Federalists primarily were focused on benefiting the wealthy, not all of society. The Republican and Democratic parties still are in place, largely because they have been much more effective at misleading citizens into believing that they are striving to benefit all of society, instead of just the wealthy citizens who control both parties.

While the business-focused Federalist Party ceased to exist, the financial system that they put in place largely has continued throughout US history. As Alexander Hamilton originally proposed, the private sector continues to create and control the US money supply. The financial community demand for ever-increasing shareholder returns dominates companies and the economy. Nearly everyone in society implicitly is expected to sacrifice so that wealthy speculators can get continuously wealthier.

Allowing a small group of wealthy citizens to largely control debt and equity finance severely degrades society and unjustly concentrates wealth. This grossly unfair financial system is perpetuated by confusion, complexity and public deception. We must pull back the curtain of deception and clearly expose the corrupt, unjust nature of the system.

It is time to finally do what Thomas Jefferson and James Madison, two of the most brilliant men to ever serve this country, strongly advised. We the People must take back

control of the monetary system. Profits and other benefits of money creation should be shared equally with all citizens, not given almost completely to a small group of wealthy bankers and investors. We must end the absurd, suicidal financial community demand for ever-increasing shareholder returns. It is ridiculous that we allow financial returns to wealthy people to take priority over everything else, including the lives of our children.

Ending private sector control of the money supply and providing lower-cost, debt financing would be fairly easy. As discussed in the Money Creation section, this could be done by making the Federal Reserve part of the US Treasury and ending fractional reserve lending. This would produce a far simpler, more stable, easier to understand, lower cost and more equitable means of creating money, managing government finances and providing debt finance for productive, beneficial activities.

Increasing the availability of low-cost debt financing will benefit society by reducing the need for equity finance. The current equity finance system degrades society by unfairly concentrating wealth and making financial returns to wealthy citizens more important than anything else.

Decentralization could be promoted and high-cost equity finance reduced by delegating some of the federal government's debt issuing authority to states and local communities. Local communities could provide zero or low interest funding to local businesses and other productive organizations in exchange for long-term commitments to communities and guarantees to treat all stakeholders fairly. This approach would provide long-term economic stability and ensure that business success was shared fairly with employees, customers, communities and business owners. It also would enhance democracy by giving local citizens greater control over the types of businesses operating in their communities.

Substantially reducing the size, role and influence of private sector debt and equity finance would greatly lower the destructive speculation that was so strongly opposed by Presidents Jefferson and Madison. But the wealthy citizens controlling the current financial system often would fight to keep it in place. Many deceptions would be used to confuse the public and maintain the status quo.

For example, vested interests almost certainly would argue that robust debt and equity markets are needed to provide liquidity, facilitate commerce and maximize economic well-being. This liquidity facilitates buying, selling and merging companies. Businesses frequently are churned and turned over in ways that generate huge financial sector fees and concentrate wealth, but degrade society in many ways. 'Robust' capital markets facilitate churning, speculation and concentration of wealth. But these should not be the goals or results of the financial system.

The system should be focused on maximizing the long-term well-being of society. It should promote economic stability by incentivizing long-term, responsible business ownership. Business owners largely would be compensated through reasonable profits, not frequent buying and selling of companies and their stocks. Owners still would be able to sell their companies. Competition would put inefficient companies out of business and

promote the development of more efficient ones. But strong financial incentives to churn ownership would be removed. Instead, the financial system would strongly promote long-term, responsible, decentralized business ownership and management. Under this system, robust (i.e. churning, speculative) capital markets would not be needed, or allowed.

"Excessive economic speculation that concentrates on wealth, degrades life support systems and makes millions of citizens unable to meet basic needs is not capitalism. It is an insult to the word capitalism to suggest or imply this."

As discussed above, nearly all of our main Founders, except Alexander Hamilton, believed that a decentralized, stable, non-speculative economy and financial system would strongly benefit society. They were correct. This is how the essentially infinitely more sophisticated implied economics of nature operate.

The main Founders, again except for Alexander Hamilton, opposed the formation of a large banking and merchant class that would strongly dominate the economy and society. They believed that this was a root cause of the corruption, decadence and tyranny that had destroyed ancient republics and much of Europe.[10] They opposed an economy based on speculation and stock trading. Thomas Jefferson said "wealth acquired by speculation is fugacious [fleeting, tending to disappear]… and fills society with the spirit of gambling".[11]

In a free society, people are free to try to make money by gambling, as long as non-gamblers are not harmed. For example, gambling in a casino is fine because people who choose not to gamble are not hurt. However, gambling or speculating in the economy and capital markets is different than gambling in a casino. Citizens' survival and prosperity are strongly dependent on the economy. Focusing the economy and financial system primarily on earning high investment returns produces excessive churning and speculation in business ownership. It also forces companies to focus mainly on profit maximization. Unlike gambling in a casino where non-gamblers are not hurt, gambling or speculating in the broader economy often harms average citizens. It drives layoffs and extensive environmental and social degradation.

In a democracy, businesses have no right to earn high financial returns by degrading society, for example, by paying wages that do not enable employees to at least meet basic needs. Investors have no right to earn financial returns in ways that degrade the environment and society.

Our economy should be based on activities that produce real value, such as providing useful products and services. It should not be focused primarily on speculation that concentrates wealth and degrades society. Citizens' retirement security should not be based on how well they speculated in the capital markets. Our heroes should not be wealthy speculators who provide little real value and do little real work. As Thomas Jefferson said, the most honored people in society should be those who work hard, produce real value and help other people.

Those who profit from speculation often will attempt to mislead citizens into believing that economic speculation is capitalism and opposing it is socialism or communism. This ignorant position only can be believed through the complete absence of rational thought. Capitalism uses the private sector in ways that produce widespread true value and prosperity. Excessive economic speculation that concentrates on wealth, degrades life support systems and makes millions of citizens unable to meet basic needs is not capitalism. It is an insult to the word capitalism to suggest or imply this. Excessive speculation produces the plutocracy and business totalitarianism seen in the US. It definitely is not what the Founders intended.

Control of debt and equity finance by Wall Street and private banks has existed for nearly all of US history. Many people probably see the system as inevitable and unchangeable. Business-controlled advertising and media portray wealthy business owners and investors as our heroes. Many young people aspire to be like them and earn their own fortunes through speculation. Large, familiar systems can seem unchangeable. But they are not.

Our financial system violates the laws of nature and reality. It unfairly concentrates wealth and degrades the lives of the vast majority of citizens. The only thing inevitable about our financial system is that it will change. No amount of public deception or inappropriate government influence will keep this unfair, destructive system in place over the long-term. It is bound to fail.

Given the great injustice and suffering it causes, our financial system probably will change soon. We the People have the natural right to control our destiny, society, economy and financial system. We can demand the implementation of a financial system that ends destructive speculation and concentration of wealth, and instead serves all citizens equally and fairly.

Simplicity and clarity are critical aspects of sustainable finance. Maintaining an extremely complex financial system that largely is incomprehensible to average citizens blocks change and perpetuates concentration of wealth. As Thomas Jefferson implied, debt and equity finance can be far simpler and easier to understand than they are now.

Probably the large majority of citizens do not understand how money is created in the US and many other countries. If they did, they would demand an immediate end to this gross injustice. Non-expert citizens could understand the current complex system if it were clearly explained. To illustrate, citizens should be informed that money can be created by the private or public sector. When wealthy bankers create money through fractional reserve lending, they essentially own the money supply. This enables them to charge interest and keep the profits from money creation. When citizens create money through government, the people own the money supply, as they rightfully should. Under this vastly fairer and more beneficial system, the profits from money creation are retained by citizens and used to reduce taxes and benefit society in other ways. The gross injustice of private sector money creation is perpetuated by lack of public understanding.

Millions of people should not be suffering in this wealthy, intelligent, advanced, supposed democracy. We have the ability to greatly improve the quality of life of nearly all citizens.

But instead millions of people struggle to survive so that a small group of wealthy citizens can get continuously wealthier. It is time to end this insanity. Implementing a sustainable financial system is a critical aspect of ending this injustice and maximizing the well-being of all citizens and society.

Author Contact Information
Email: fdixon@globalsystemchange.com

Notes

1. Marcin Gerwin et al, "Do We Really Need Economic Growth?," www.Resilience.org, December 9, 2013.
2. Andrew M. Allison et al, *The Real Thomas Jefferson* (Washington D.C: National Center for Constitutional Studies, 2008), 197.
3. Allison et al, *The Real Thomas Jefferson*, op cit.Page 163.
4. Allison et al, *The Real Thomas Jefferson*, op cit.Page 163.
5. Allison et al, *The Real Thomas Jefferson*, op cit Page 207.
6. Allison et al, *The Real Thomas Jefferson*, op cit, Page 162.
7. Allison et al, *The Real Thomas Jefferson*, op cit, Page 167.
8. Allison et al, *The Real Thomas Jefferson*, op cit, Page 167
9. Allison et al, *The Real Thomas Jefferson*, op cit, Page 168.
10. Andrea Wulf, *Founding Gardeners* (New York: Vintage Books, 2011), 61.
11. Andrea Wulf, *Founding Gardeners*, op cit. Page 85.

CADMUS, Volume 4, No.1, October 2019, 65-73

The Relationship between Sustainability and Creativity

Hans d'Orville
Former Assistant Director-General of UNESCO for Strategic Planning;
Fellow, World Academy of Art & Science

Abstract

To achieve long-term sustainability, it is necessary to strive for a green economy and come up with solutions to address limitations to resource footprints. This will require innovations across the board and creativity in all fields. Creativity and sustainability are closely linked. The UN's Agenda 2030 with its 17 SDGs sets out the economic, social and environmental dimensions of a sustainable world. This requires concerted efforts towards building an inclusive and resilient future for the planet. Innovation, the business of ideas, is increasingly seen as the key to future societal prosperity and business success. Innovation includes not only ingenuity and imagination, but even more so new processes, new technologies, and new ways of using existing technology. Innovations need to overcome the hurdles of affordability, adaptability, scalability, replicability and sustainability. Any new technology or process that does not create a positive change in the lives of people does not really qualify as innovation. The Industrial Revolution 4.0 will open up new avenues for science-driven creativity and innovation. The world must resort to the ultimate renewable resource: human ingenuity and creativity. Creativity is at the heart of sustainability, rooted in sustainable social, economic, environmental and cultural practices. It is a special kind of renewable resource and human talent. Creativity and sustainability can be approached from different disciplinary and thematic perspectives as well as from trans-disciplinary and intercultural perspectives. The soft power elements of creativity, ingenuity, innovation and imagination are playing an important role in the development process at all levels. Creative intelligence has become a new form of cultural literacy which harnesses the power to create, connect and inspire. Creativity and artistic expressions provide energy and inspiration as well as empowerment. Design is a key dimension of creativity and a major component of culture. Increasingly, design has become a channel to achieve transformation and integration of scientific and technological achievements, including infrastructure development and digitised manufacturing and production. Cities have become platforms and architects for positive change. The creative industries have become one of the world economy's most dynamic growth poles. The creative economy is the most modern phase of economic development. Cultural and creative industries have produced and distributed cultural goods, services or activities with cultural content that convey ideas, symbols and ways of life. Increasingly, knowledge, culture and creativity have become new keywords in understanding the speedy urban transformations, coinciding also with the emergence of knowledge societies. Rising inequality and migration make cities the focal points for new social cleavages, exclusion and discrimination. Cities have the capacity to magnify creativity and accelerate innovations. The UNESCO Creative Cities Network (UCCN) is seeking to leverage the ability of cities to bring creative people together,

to spark economic growth, to foster a sense of community and to preserve urban identities and heritage. UCCN cities have chosen creativity as a strategic factor for their sustainable development. They also subscribe to the recognition that culture is both an enabler and a driver of development. Network cities exchange experiences and knowledge, draw on best practices and inspiration from other urban centers, and promote cross-fertilization. The International Center for Creativity and Sustainable Development (ICCSD) in Beijing is a new international think tank for creativity development. It has launched CREATIVITY 2030 (C2030), a new global initiative which seeks to stimulate, mobilise and exchange creative solutions, tools and approaches in all walks of life. Today, the pace of technological change continues to accelerate. Creativity and sustainable development will henceforth be influenced by the dominant drivers and enablers of our age—globalization, urbanization and megacities, the internet and the internet of things (IoT), digitization, artificial intelligence, robotics and big data.

> *"Agenda 2030 is based on systems-thinking and emphasizes that the SDGs are indivisible. A major challenge for governments today is to ensure that goals are not addressed in isolation and effects are not measured against single indicators alone."*

1. From Sustainability…

Today, our world is on an unsustainable track. The global population is currently consuming over 2.5 times the amount of resources required for just one single planet Earth. This puts in question the **sustainability** of our living conditions and livelihoods under stress from climate change, water scarcity, pollution, and waste accumulation. To ensure the survival of the present and future generations, we must reduce our ecological and carbon footprints significantly.

We must act *now* to eliminate poverty and bring about more social inclusion, to enhance educational and health levels, to mitigate the pace and effects of climate change and environmental as well as ecological degradation, and to prevent the loss of biodiversity. All pose threats for every country and every person in developed and developing countries alike. To achieve **long-term sustainability,** we must strive for a green economy, and come up with solutions to address limitations to resource footprints.

All this will require coherent policies, structural changes, new solutions, **innovations across the board and creativity in all fields.** For the paradigm of sustainability, the role of creativity is of growing significance. **Creativity and sustainability are two important features for mankind**, with creativity considered as a self-actualizing process, fulfilling human basic needs.

Sustainability refers to the maintainability of development itself; or to the ways in which certain practices or policies may be conducive to a better and stable quality of life; or to

the viability of a project or institution, in particular, its financial soundness. There is also environmental sustainability and the trope of cultural sustainability, inspired by traditional cultures and their practices. But there is no fixed path to achieve sustainability.

> *"Given the limits to planetary resources, we should resort to the ultimate renewable resource: human ingenuity and creativity."*

For a sustainable world, the transition from a linear to a circular economy is a necessary precondition. A circular economy aims at decoupling economic growth from the use of natural resources and ecosystems by using those resources more effectively and efficiently and through the introduction of recycling infrastructure. The circular economy is a driver of innovation in the areas of material-, component- and product reuse, as well as new business models.

2. …To Sustainable Development…

The international community has increasingly highlighted the **social, economic, and environmental dimensions of sustainability**. To that end, in 2015, world leaders adopted at the United Nations General Assembly the Agenda 2030 with 17 **Sustainable Development Goals (SDGs) and a broad-based set of 169 quantified and measurable targets** aimed at transforming the world. This new agenda set out the core elements of sustainable lifestyles for all. However, thus far no country has yet achieved patterns of consumption and production that could sustain global prosperity. **Sustainable development*** **calls for concerted efforts towards building an inclusive, sustainable and resilient future for people and the planet.** Since then, a new academic discipline known as "**sustainability science**" has emerged, which is focused on examining the interactions between humanity and the environment in an eco-civilizational approach.

Agenda 2030 is based on systems-thinking and emphasizes that the **SDGs are indivisible**. A major challenge for governments today is to ensure that goals are not addressed in isolation and effects are not measured against single indicators alone.

3. … To Innovation, Ingenuity and Imagination …

All countries must foster new technologies and make progress in reducing unsustainable consumption. Many of the world's private sector companies are engaged in green innovation—driven by research and development of new generations of green products, technologies and jobs—and followed by the inclusion of green elements in the supply chains and the social dimensions of products. **Only when we mobilize social, economic and environmental action together, there is a prospect of eradicating poverty and meeting the aspirations of a world population of eight billion people** by 2030.

* The term 'sustainable development' was initially put forward by the World Commission on Environment and Development (WCED) in its 1987 report *Our Common Future*. It stands for "the development that meets the needs of the present without compromising the ability of future generations to meet their own needs." – *Report of the World Commission*, page 41

Doing things better, faster, higher, cheaper and more effectively has for long constituted the model of success for economies worldwide. In recent years, another mantra has been on the rise: **Doing new things in new ways is tantamount to the quest for innovation and creativity**. **Innovation, the business of ideas, is increasingly seen as the key to future societal prosperity and business success.**

Can **innovation** help attain the new global development agenda and address humanitarian needs worldwide? Innovation includes not only ingenuity and imagination, but even more so new processes, new technologies, and new ways of using existing technology. Innovations need to overcome the hurdles of affordability, adaptability, scalability, replicability and sustainability. No matter what the innovation is, it must add value for the end user. Any new technology or process that does not create a positive change in the lives of people does not really qualify as innovation.

High expectations are related to digital and nature-based innovation, science-policy interfaces, institutionalized mechanisms for sharing and exchanging information, knowledge, best practices and expertise. The arrival of industrial revolution 4.0 with its internet of things, virtual reality, big data, robotics, blockchain and artificial intelligence will open up new avenues for science-driven creativity and innovation.

4. … To Creativity …

Given the limits to planetary resources, we should resort to the ultimate renewable resource: **human ingenuity and creativity**. Agenda 2030 must make the most of education, health, the sciences, culture, communication and information in order to attain the SDGs. This necessitates the **promotion of creativity, the brokering and sharing of knowledge and the crafting of innovative policies and procedures as well as the mobilisation of digital tools.**

Creativity is at the heart of sustainability. Creativity is rooted in sustainable social, economic, environmental and cultural practices. It can mean anything from humanity's ability to transform itself to tackling specific problems.

Creativity is a special kind of renewable resource and human talent. It involves transforming ideas, imagination and dreams into reality, often blending tradition and innovation. The creative ability depends on creative thinking, that is the ability to generate or recognize ideas, alternatives, or new possibilities that may be useful in solving problems, communicating with others, and also entertaining ourselves and others. If measurable and quantifiable, one could assess creativity's contribution toward a sustainable future.

Creativity drives society toward sustainability through its capacity for imagining and visioning. Vice versa, efforts to promote the sustainable development pillars are a trigger for unleashing creativity. Creativity and sustainability can, therefore, be approached from different disciplinary and thematic perspectives as well as from trans-disciplinary and intercultural perspectives. Creativity is an ability that exists not just in the arts and culture. There is technological creativity, scientific creativity, social creativity, political creativity, and not least business creativity.

The soft power elements of creativity, ingenuity, innovation and imagination are playing an important role in the development process at all levels and in the quest for equitable prosperity. **Creativity has also become a major driver in the present era of the knowledge and learning economy.**

"Holistic and integrated development will only be achieved when the values of culture, creativity, heritage, knowledge and diversity are considered as the key factors in all approaches to sustainable development."

Culture is pervasive in all our lives. We are shaped by culture. It conditions our thoughts and behaviour, eating and dressing habits, our musical and artistic preferences. Culture, creativity and artistic innovation are drivers and enablers of development. Over time, **creative intelligence has become a new form of cultural literacy.** It harnesses the power to create, connect and inspire.

Creativity and artistic expressions are important because of the way in which they bring about something universally human, defining our identity and sense of belonging. While cultural expression has an intrinsic value, it also provides energy and inspiration as well as empowerment. It builds better ways of living together in a world of increasingly diverse societies. Intercultural dialogue can lead, both within and among societies, to the development of greater comity rather than exclusion or conflict.

Design is a key dimension of creativity and a major component of culture. Design is not only beauty and functionality. It is also innovation—and it is driven by and depends on innovation. The demand for creative design, design services and products is increasing. Innovation has opened up not only new perspectives for design, but also for sharing, exchange and cooperation that help consolidate science, aesthetics, other technologies and art—all of which reflect cultural diversity. Increasingly, design has become a channel to achieve transformation and integration of scientific and technological achievements, including infrastructure development and digitised manufacturing and production.

Creativity plays a distinct role in strengthening communities. Cities have become *platforms* and architects for positive change. They are serving as incubators for designing creative solutions, for widening options and for renewing civic aspirations.

5. …To the Creative Economy …

Cultural industries form the core of a city. A city without culture is a city without soul. Driven by technology and innovation, the creative industries in virtually all countries have become one of the world economy's most dynamic growth poles. Progressively, the global economy is ever more influenced by the power of creativity. Indeed, we have begun to speak of the **creative economy**—which is the most modern phase of economic development.

After the agricultural, industrial and service economy, we are right now in the middle of the ascendancy of the creative economy—in individual countries and worldwide.

> *"Without a strategic approach to integrate, coordinate and organize solutions, smart cities may never reach their full potential."*

Technology has powered much of the convergence in the world's economies. It has provided access to global markets for those moving from feudal and agricultural economies to the more valuable industrial, service and intellectual property economies.

The **rise of the cultural and creative industries** has produced and distributed cultural goods, services or activities with cultural content that convey ideas, symbols and ways of life, irrespective of the commercial value they may have.

Over the past two decades, the cultural and creative industries have evolved dramatically—moving from a situation of scarcity to an age of mass online access to cultural goods. In 2018, the cultural and creative industries generated annual global revenues of USD 2,350 billion. These sectors currently provide nearly 30 million jobs worldwide and employ more people aged 15-29 than any other sector. The internet has expanded to reach 2.1 billion people today and is expected to reach five billion people across the planet by 2020.

Governments at all levels are called to devise policy strategies and initiatives responding to the artistic, cultural, social and physical fabric so as to bolster the development of local, urban and national creative economies. This process must uphold the diversity of individual and community culture and identities—all of which are key to the quality of life. Cultural innovations and creative expressions equally drive development processes that contribute to the promotion of the universal values of peace, democracy, human rights, fundamental freedoms, gender equality and the rule of law—which are also part of the SDGs.

The 2013 **UN/UNESCO Creative Economy Report** demonstrated for the first time the promise of cultural and creative industries to enable and drive sustainable development. The development of cultural and creative industries facilitates the close integration of economies with technologies and culture. They play a significant role in promoting social cohesion, economic growth, trade, and employment, especially for women and youth. Unfortunately, Agenda 2030 **falls short of a full understanding and affirmation of the importance of culture as a driver and enabler of sustainable development.** Holistic and integrated development will only be achieved when the values of culture, creativity, heritage, knowledge and diversity are considered as the key factors in all approaches to sustainable development.

6. …And to Creative Cities…

Cities have historically advanced human development, serving as melting pots for people of diverse backgrounds. A city is a crossroad where the local interacts with the global, it is

an intersection where tradition dialogues with modernity. **The rapid expansion of cities in the age of globalization is not only a process of economic and social development that is called to respect cultural diversity, but also a challenge and opportunity for sustainable development.** Increasingly, knowledge, culture and creativity have become new keywords in understanding the speedy urban transformations, coinciding also with the emergence of knowledge societies. Cities have been of great significance for the promotion of trade and employment, especially the employment of women and young people.

Cities are at the heart of development and innovation. Yet the **cities of today and tomorrow are facing new, unprecedented challenges**. **Home to half the world's population today, cities are expected to shelter two-thirds of it by 2050.**

Although occupying only two per cent of the world's landmass, cities consume sixty per cent of global energy, release seventy-five per cent of greenhouse gas emissions and produce seventy per cent of global waste. As cities expand, they threaten biodiversity, and place urban infrastructure and resources—from water to transport to electricity—under enormous strain. Unchecked development and mass tourism place cultural heritage sites and living heritage practices at particular risk. Rising inequality and migration make cities the focal points for new social cleavages, exclusion and discrimination.

Cities have the capacity to magnify creativity and accelerate innovations. As centres of creativity, cities have combined technology and culture while promoting economic growth through creative and cultural industries. Urban areas are also transforming themselves into eco-cities.

Digital platforms and Artificial Intelligence (AI) have opened up many new opportunities which are hyperlinked, multimedia-based and interactive. New technologies give us access to digital content, reducing production costs and increasing exposure. By harnessing a range of **digital solutions**, city authorities and stakeholders can build resilience and address a panoply of structural challenges, such as congestion, pollution, waste and emissions.

Among the manifold challenges will be the **transition of urban economies progressively to higher productivity** through high-value-added sectors, diversification, scientific and technological upgrading, research, and innovation, including the creation of quality, decent and productive jobs.

The concept of **smart cities** sought to provide answers to these challenges by combining new technologies with humanist ideals, leaving no one behind. Without a strategic approach to integrate, coordinate and organize solutions, smart cities may never reach their full potential. **Planning and managing cities, making them resilient and equipping them to provide resources for residents are key to a city's success.** Digital services and solutions are the latest innovations that benefit citizens, businesses and civil society. Accordingly, **cities across the globe have embraced the necessity of new ways of thinking, citizen engagement and city-to-city cooperation**.

Exploring the linkages between creativity and sustainable development from an urban perspective has been a major focus in promoting international cooperation among cities. Numerous city alliances and networks have been created. Since 2004, the ever expanding **UNESCO Creative Cities Network (UCCN)**, now counting 180 from 72 countries, is working to leverage the ability of cities to bring creative people together, to spark economic growth, to foster a sense of community and to preserve urban identities and heritage.

These cities have chosen **creativity as a strategic factor for their sustainable development**. They also subscribe to the recognition that **culture is both an enabler and a driver of development**. UCCN aims at enhancing the dynamism, power and innovation that have shaped a particular city's development. Under the seven established categories—Literature, Film, Music, Crafts and Folk Art, Design, Media Arts and Gastronomy—any UNESCO creative city can engage with other designated cities, exchanging experiences and knowledge, drawing on best practices and inspiration from other world centers, and promoting cross-fertilization.

Part of creativity is, of course, design. Some of the world's leading cities **have been named by UNESCO as creative cities of design—among them Beijing, Berlin, Brasilia, Budapest, Buenos Aires, Detroit, Istanbul, Mexico City, Seoul, Shanghai, Shenzhen and Torino.** This designation recognizes the dynamism, drive and innovation that have inspired and put their stamp on such cities. As such, these cities are well-placed to engage with each other and other world cities—thereby promoting cross-fertilisation of the best and brightest minds.

7. …To Creativity 2030 (C2030)…

The **International Center for Creativity and Sustainable Development (ICCSD)** in Beijing is a new international think tank for creativity development, and advancement of the 17 SDGs. To this end, ICCSD has launched **CREATIVITY 2030 (C2030),** a new global initiative which seeks to stimulate, mobilise and exchange creative solutions, tools and approaches in all walks of life. 2030 is reference to the target date for the UN's Agenda 2030. In this context, ICCSD can also focus on creative cities as new and dynamic actors on the international scene. A new quarterly journal, *Creativity 2030*, accompanies the work of this new Center.

As an integral part of C2030, ICCSD will seek to build new international platforms embracing science and technology as well as culture, both of which are lacking in the SDG framework. A new global **science cities network** could arise can focus on the role of science and scientific development in urban sustainable development.

Through its diverse activities, **ICCSD is poised to present itself as a leader in sustainable urban developmen**t that catalyses economic transformation, technology, science, job creation and enriches the lives of the communities.

ICCSD is committed to working with a **wide range of partners** that can enhance the diversity of cultural expressions, contribute to developing and disseminating knowledge and capacities as well as foster creativity and sustainable development.

These partners include the private sector, public institutions, government and city entities, media, academia and educational institutions, national and municipal governments, non-governmental organizations, scientific organizations, regional and international organizations, and the arts.

Today, the **pace of technological change continues to accelerate**. Creativity and sustainable development will henceforth be influenced by the **dominant drivers and enablers of our age**—globalization, urbanization and megacities, the internet and the internet of things (IoT), digitization, artificial intelligence, robotics and big data.

Advances in areas such as nanotechnology and materials science, smart factories, additive manufacturing, autonomous cars, gene-editing techniques, connectivity, battery technology stand to impact development on Earth for all its inhabitants. All countries will experience the radical transformation that disruptive technologies bring. But technological development and diffusion do not happen at random; geopolitical factors play a determining role in the process.

Author Contact Information
Email: hansdorville@yahoo.com

CADMUS, Volume 4, No.1, October 2019, 74-81

Income Distribution and Social Policy:
Relevance for the Social Dimension of Sustainability

Estelle Herlyn
Professor & Head, Competence Centre for Sustainable Development,
FOM University of Applied Science, Germany

Franz Josef Radermacher
Head, Research institute of Applied Knowledge Processing /n (FAW/n), Germany;
Fellow, World Academy of Art & Science

Abstract

This publication provides clues to the phenomenon of increasing social division within rich societies. At the same time, it refers to more recent insights of a partly empirical, partly mathematical type, which make it possible to describe the income situation of mature states/ market economies solely by means of the so-called Gini coefficient. The Gini coefficient is the most important parameter for describing inequalities. The fact that it can fully describe the situation in the case of income distribution is both surprising and practically helpful. The present paper also refers to some consequences of the analysis of income distributions for the interpretation of political processes. It also provides information on the so-called "efficient inequality range". This describes the spectrum in which balance or inequality has a positive effect on societies. A variety of further details on the issues addressed can be found in the references given, in particular [4, 6, 9].

"If there is too much inequality, the potentials (intellectual, motivational, entrepreneurial) of people cannot be fully achieved and, on the other hand, if there is too much equality, the incentive structures for contributions of all kind are too weak."

---

1. The Increasing Social Divide

In recent years, an increasing social divide or a widening gap within states has been observed worldwide, increasingly in Europe. This is problematic. On the one hand, there is the danger of a high level of dissatisfaction among more and more citizens, which can "go beyond" democracy—Brexit and the new policy of the USA are mentioned here as examples. There is also a second aspect: the efficiency of states decreases when their income distribution falls outside the so-called "efficient inequality range" (Gini values between 0.25 and 0.35). One of the reasons for this is that if there is too much inequality, the potentials (intellectual,

motivational, entrepreneurial) of people cannot be fully achieved and, on the other hand, if there is too much equality, the incentive structures for contributions of all kind are too weak.

Too much inequality (Gini values above 0.35) as well as too much "egalitarianism" (Gini values below 0.25) therefore tend to harm society [1]; When the gap rises, there is a steady increase in inequality (increase in the Gini value), which is the acute problem today, following the end of Communism. This process threatens sustainability from the social side [1, 2]. The protests of the "gilets jaunes" (yellow vests) in France make the problems clear. They also show that a solution to the environmental problems at the expense of the socially weaker sections of the population will meet with massive resistance if the solutions are perceived as unfair. In this context it is interesting and remarkable that at meetings of the World Economic Forum in Davos in 2017 and 2018, increasing division in the social sphere was identified as one of the greatest risks for open societies and our economic system.

2. Causes

How does increasing inequality come about? After the Second World War, the situation in today's OECD countries was different. There was strong economic growth, almost everyone was able to participate. One of the main reasons for the change in the situation since then is the increasing concentration of wealth. If wealth gains too much weight in relation to value added per year, and if wealth is also distributed very unevenly, this inevitably results in increasing inequality of income, because the high income from capital income, which is concentrated with the few, increases the "imbalance" of income distribution. Such a development is exacerbated by a positive correlation between asset size and (percentage) achievable returns. With growing wealth, therefore, ever greater returns tend to be achieved, not only in proportionally large amounts but even in disproportionately large ones. This is then exacerbated by the comparatively low taxation of capital gains. In addition, there are numerous possibilities for the owners of such assets to almost completely evade the taxation of high capital gains in the context of globalisation. These topics are impressively presented in Thomas Piketty's book "*Capital in the 21st Century*" [8]. A further problem is added today, namely the partial undermining of democracy by globalisation and thus the undermining of its ability to correct such imbalances, which results in a starting position that is unfavourable for more equalisation and makes it difficult to correct conditions (the so-called "trilemma of globalisation" [11]).

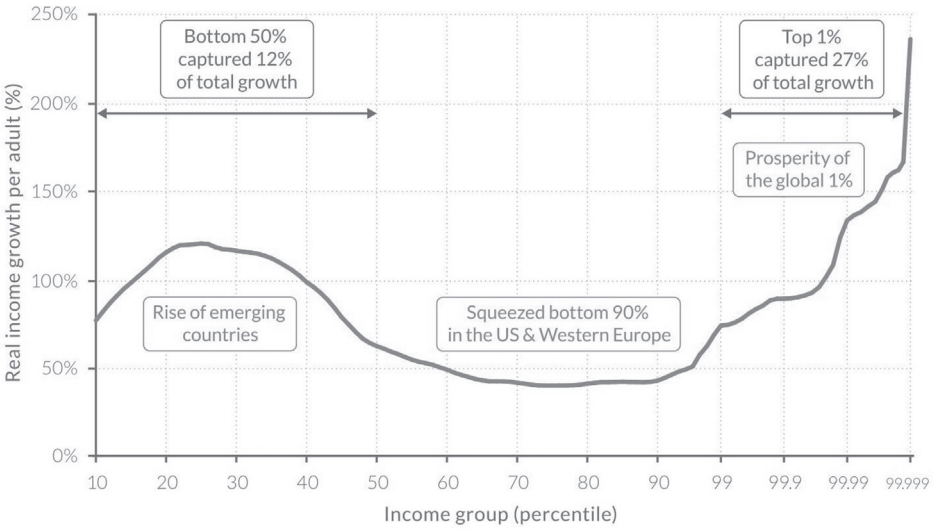
3. Position of the OECD on the Topic

The OECD, the Organization of the Rich Countries, has systematically and regularly addressed the problem of the widening gap since the global financial crisis, and has several times sent reports on this issue, e.g., to the German government. The IMF and the World Bank now argue similarly [5, 12]. This aspect is also addressed in a new publication by the Club of Rome, with a view to the possible achievement of the Sustainable Development Goals (SDGs) by the international community [10].

One of the reasons for the increasing difficulties in these areas is the presence of supranational treaties (e.g. the WTO treaties), with the help of which the possibilities

of democracy to intervene effectively in factual issues are reduced. Today, for example, the provisions of the WTO treaty make it impossible for states to promote sustainability-compliant corporate behaviour along international value chains. Such a situation is also called an "emptying of democracy". In the current public discussion, it is finally also made clear that this does not necessarily contradict the fact that, in the sense of the Ricardo theorem, an expansion of open trade increases the total "cake" available. The following has happened: Many have fallen behind, while the GDP has increased, whereby others have profited doubly: they have allocated for themselves entire growth and additionally the reduction volume of the others. The phenomenon is plastically evident in the so-called "elephant curve" (Figure 1), which shows that in relative terms the income of many former poor people has risen significantly over the past few decades (prototypically the Chinese industrial worker), while in the middle class of the rich world many (prototypically simple industrial workers and/or the lower middle class in the USA) have suffered losses in prosperity.

Figure 1 from [1]: The Elephant Curve of Global Inequality and Growth, 1980-2016.



Source: WID.world (2017). See wir2018.wid.world for more details.

On the horizontal axis, the world population is divided into a hundred groups of equal population size and sorted in ascending order from left to right, according to each group's income level. The Top 1% group is divided into ten groups, the richest of these groups is also divided into ten groups, and the very top group is again divided into ten groups of equal population size. The vertical axis shows the total income growth of an average individual in each group between 1980 and 2016. For percentile group p99p99.1 (the poorest 10% among the world's richest 1%), growth was 74% between 1980 and 2016. The Top 1% captured 27% of total growth over this period. Income estimates account for differences in the cost of living between countries. Values are net of inflation.

4. Effects on Democracy

All this also has repercussions on the functioning of a democracy, or more precisely, on potential majority formations. With increasing inequality in income distribution, the income shares of the middle class shift towards the top. So, at some point there will be a redistribution of income from the middle to the rich, since starting from an income distribution, as is *given*

currently to be found in many OECD countries, there is little to be "fetched" from the poor for the rich. Volumes in the upper income segments are thus growing due to the deterioration of the situation in the middle. This is an adjustment of the income distribution "upwards".

> *"New political alliances and new elements of regulation are needed if the emerging problems are to be solved."*

Politically, such a situation results in problems in creating democratic majorities in favor of the top against the interests of the middle class and ultimately of society as a whole. In this situation, the upper layer can seek populist alliances with the poorer segment of society. In a distant analogy this is reminiscent of "bread and games". Recent developments in the USA point in this direction. Analyses show increased movements in this direction as soon as societies move out of the Efficient Inequality Range in the direction of too much inequality [2, 6]. Such movements are now beginning to emerge in some OECD countries.

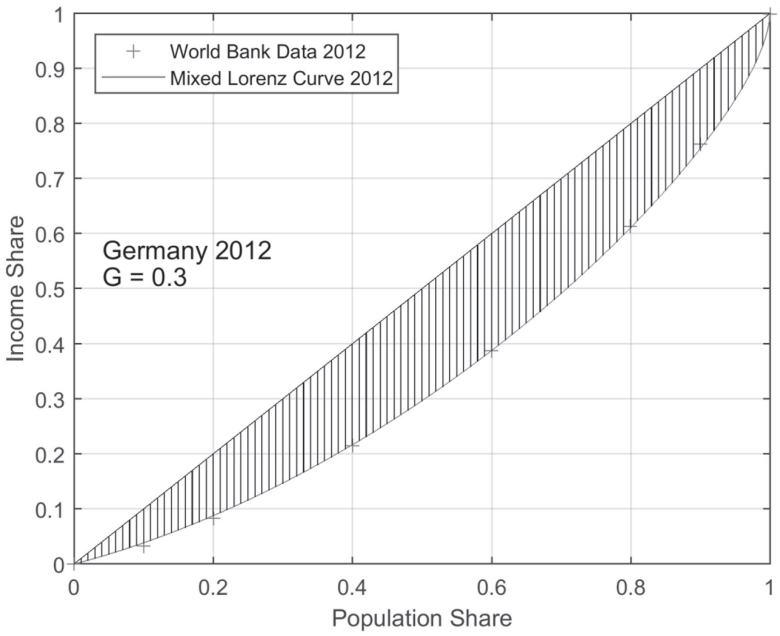
5. Foreseeable further aggravations in the context of Digitisation and Artificial Intelligence

Current developments in the fields of digitisation, artificial intelligence, analytics and big data, which "threaten" millions of jobs of well-educated and well-paid people, can further accelerate this trend and thus result in the "bleeding out" of the centre and potentially threaten the stability of our social systems [3]. The unconditional basic income often mentioned in this context does not provide any real remedy at this point. Rather, it cements the way to a two-tier society. In its place, high transfer payments would have to be provided in the event of massive job losses if highly qualified people make important contributions to society, even if these services are not provided in the area of economic processes. New political alliances and elements of regulation are needed if the emerging problems are to be solved.

6. Mathematical Tools for analysing the situation [4]

In recent years, the authors have achieved profound mathematical insights and developed powerful tools that provide new insights into the topics under discussion, resulting from projects financed by the Vector Foundation, Stuttgart. These insights provide interested economists and social scientists with new opportunities for conducting their own scientific work on the topic, which is why we refer to them here [4, 9]. The insights refer to the so-called Lorenz curve of income distribution and its associated Gini value. The Lorenz curve accumulates the incomes arranged according to increasing size. The total income is standardized to 1. The Lorenz curve for Germany 2012 can be found in Figure 2. Such a Lorenz curve leads to the so-called Gini coefficient, which twice represents the area between the Lorenz curve and the main diagonal (hatched area in Figure 2). In the case of equal income distribution, the Lorenz curve coincides with the main diagonal and the Gini value is then 0. In the case of the greatest possible inequality, the Lorenz curve essentially coincides with the x-axis (except for the value 1 in point 1). The Gini value is then 1.

Figure 2: Lorenz curve for Germany according to the income data of the World Bank for 2012. The data of the World Bank include the marked 10%, 20%, 40%, 60%, 80% and 90% quantiles, as well as the Gini index of the respective income distribution. The Lorenz curve given is the standard Lorenz curve described in the text [4, 9] with the corresponding Gini index of the World Bank, which clearly defines the standard Lorenz curve.



The new contribution to the topic described is the following insight, which has partly an empirical, partly a mathematical character: It is possible to deduce from a given Gini value G, as published for example by the World Bank or the EU, the actual distribution of income with normalized total income 1 (so-called standard income Lorenz curve L_G). This is highly noteworthy because in general applications (e.g. when describing the distribution of sales volumes to corporate customers via a Lorenz curve) one cannot usually deduce the distribution from the Gini.

In the case of income distributions of "mature" states or economies, this is different. Here, there is a highly accurate 1-1-1 match between the income distribution, the quantiles of the World Bank data set and the respective Gini. The standard form L found by the authors is of the type $L = 0{,}6 \bullet Pareto(\varepsilon) + 0{,}4 \bullet Polynomial(\varepsilon)$, where $Pareto(\varepsilon)$ or $Polynomial(\varepsilon)$ are the Pareto or Polynomial Lorenz curves known in the literature for a parameter ε to which $\varepsilon = (1 - G)/(1 + G)$ and $G = (1 - \varepsilon)/(1 + \varepsilon)$ applies. Details and descriptions of the mentioned results can be found in [4, 9]. This includes an insight referring to a property called self-similarity of the Pareto and Polynomial Lorenz curves that characterizes these two types

of distributions exclusively, adding considerably to our understanding why the given 1-1-1 relationship exists.

The following table shows for a number of examples (countries and years) the high agreement between the values given by the World Bank data (10%, 20%, 40%, 60%, 80% and 90% quantiles) and the corresponding values of the standard approximation and the Gini. This is done in the sense of the root of the mean square deviation (RMSE/6) weighted by data points, which is extremely small (see [7]).

Table 1: Approximation of World Bank Income Data using the standard Lorenz curve for different countries and years. Regarding the approximation quality refer to [4]

Country	**Year**	**RMSE Standard LC**
Argentina	2015	0,0119
Brazil	2015	0,0067
Mexico	2015	0,0131
Poland	2015	0,0031
Ukraine	2015	0,0018
Indonesia	2014	0,0091
Iran	2014	0,0019
Russia	2014	0,0036
Turkey	2014	0,0042
United States	2014	0,0099
China	2013	0,0067
France	2013	0,0034
United Kingdom	2013	0,0076
Italy	2013	0,0106
Norway	2013	0,0069
Austria	2013	0,0083
Sweden	2013	0,0083
Spain	2013	0,0146
Germany	2012	0,0046
India	2012	0,0116
South Africa	2012	0,0084
Australia	2011	0,0059
Canada	2011	0,0066
Nigeria	2010	0,0037
Japan	2009	0,0073

If the total income level is known, the distribution of absolute incomes can be derived from the $_G$ Lorenz curve. If we also know the number of people, we also know the distribution of absolute incomes within the population. As derivative L' from L_G one obtains the distribution of the relative individual income level, as a difference function $L_{G1} - L_{G2}$ the so-called loss function, which indicates the change in the relative individual income level, if the level of income compensation in a country changes from a Gini value $G_1 = (1 - \varepsilon_1)/(1 + \varepsilon_1)$ to a Gini value $G_2 = (1 - \varepsilon_2)/(1 + \varepsilon_2)$. The study of the course of loss functions as a function of G_1 and G_2 (or the corresponding values ε_1 and ε_2) provides deep insights into groups of winners and losers concerning changes in the income distribution of a society and leads to resulting phenomena in the area of political coalition formation and restrictions in the enforcement of majority decisions. More on these important topics can be found in [2, 4, 6]. The concluding example in Figure 3 shows the phenomena that can be analysed here, because the standard Lorenz curve is a mathematical instrument whose sharpness of detail goes far beyond the potential of World Bank data or even (only) the Gini.

Table 2: Top 10% and 20% of income shares for different Gini indices calculated from the standard Lorenz curve.

Gini	**Respective ε**	**Top 20% income share**	**Top 10% income share**
0,25	0,60	35,3%	21,5%
0,30	0,54	38,7%	24,4%
0,35	0,48	42,6%	27,8%

Figure 3: Income loss due to changes in the (standard) income distribution by one percent of the Gini index towards higher inequality.

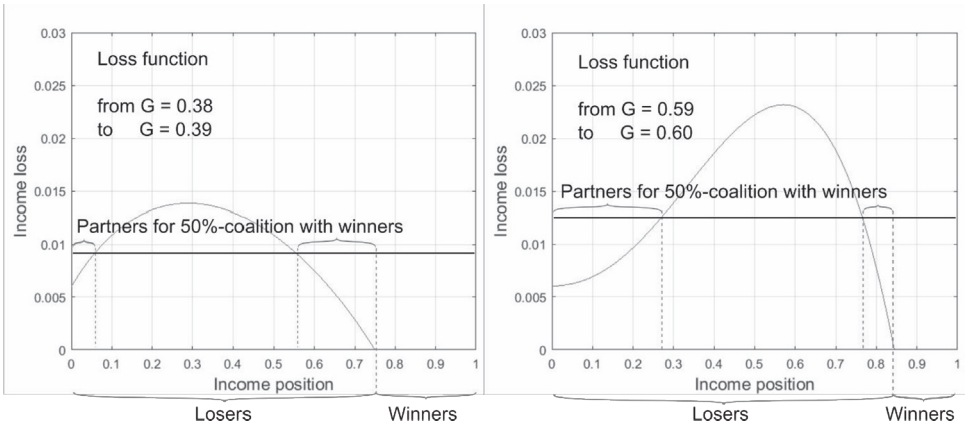


Figure 3 shows the following: If the income inequality given by a Gini index of G = 0.38 is increased by the 0.01 higher value G = 0.39, then the income winners are the group

with the 24% highest income. The 50% strong group with the highest income losses lies in the segment of 6% to 56% high incomes. Losers with lower income losses are the poorest 6% and the neighbouring group of the winners between the income positions 56% and 76%. If a 50% majority is sought for increasing inequality from $G = 0.38$ to $G = 0.39$, the latter two groups are the most favourable allies of the "winning segment" in terms of cheap compensation options (for the resulting loss of income due to this measure). The opposite side, the opposition to such a measure, is then the 50% in the 6% to 56% income range. The graph on the right can be read analogously to this, whereby the profiting segment is smaller here and the income losses overall are higher. The potential allies of the winning segment for such an increase in inequality are increasingly in the low-income bracket. This situation corresponds to the above-mentioned scenario of populist alliances in the sense of the analogy "bread and games".

Authors Contact Information
Estelle Herlyn – *Email: estelle.herlyn@fom.de*
Franz Josef-Radermacher – *Email: radermacher@faw-neu-ulm.de*

References

1. Alvaredo, F., Chancel, L., Piketty, T., Saez, E., Zucman, G.: World Inequality Report 2018. Belknap Press of Harvard University Press, 2018
2. Herlyn, E.: Einkommensverteilungsbasierte Präferenz- und Koalitionsanalysen auf der Basis selbstähnlicher Equity-Lorenzkurven – Ein Beitrag zu Quantifizierung sozialer Nachhaltigkeit. Springer Gabler Publishers, 2012
3. Herlyn, E., Kämpke, Th., Radermacher, F. J., Solte, D.: BIG DATA and Analytics – What are the perspectives? Reflections on the OECD-Project "The Role of Data in Promoting Growth and Well-Being", 2015
4. Herlyn, E., Radermacher, F. J.: Lorenzkurven und Gini-Index im Bereich der Einkommensverteilung – Neue inhaltliche Einsichten. Report to the Vector Foundation, 2017
5. International Monetary Fund: How to operationalize inequality issues in country work. International Monetary Fund, Washington, D.C., 2018
6. Kämpke, T., Radermacher, F. J.: Income Modeling and Balancing – A Rigorous Treatment of Distribution Patterns. Springer Publishers, 2015
7. Orthen, T.: The Mixed Lorenz Curve: Parameter Studies to Model World Bank Income Data. FAW/n Working Paper, September 2018
8. Piketty, Th.: Capital in the Twenty-First Century. Harvard University Press, Cambridge, MA, 2014
9. Radermacher, F. J., Estelle H. (2018). A 1-1-1 relationship for World Bank Income Data and the Gini. Working Papers 473. ECINEQ, Society for the Study of Economic Inequality. URL: https://ideas.repec.org/p/inq/inqwps/ecineq2018-473.html.
10. Randers, J., Rockström, J., Stoknes, P. E., Golüke, U., Collste, D., Cornell, S. (2018): Transformation is feasible - How to achieve the Sustainable Development Goals within Planetary Boundaries (a report to the Club of Rome, for its 50 years anniversary). Stockholm Resilience Centre, 2018
11. Rodrik, D.: The Globalization Paradox: Democracy and the Future of the World Economy. W.W. Norton, New York and London, 2011
12. World Bank: Poverty and Shared Prosperity 2016: Taking on Inequality. World Bank, Washington, D.C., 2016

CADMUS, Volume 4, No.1, October 2019, 82-89

All the Education We Need

Janani Ramanathan
Senior Research Analyst, The Mother's Service Society, India;
Fellow, World Academy of Art & Science

Abstract

Moving from scarcity of knowledge and lack of access to information to an overabundance of data comes with a downside. It is difficult to establish the veracity and impartiality of information today. With increasing freedom for everyone to make themselves heard, personal opinions, prejudices, even falsehood come to be alongside facts. In such a scenario, it is crucial to educate youth to understand the mind, its faculties, limitations and untapped potentials. This will equip them to navigate the ocean of data while thinking for themselves and forming their own impartial decisions. Imparting knowledge is increasingly becoming a less significant part of education. What is critical today is to teach our youth to think for themselves, recognize and account for their own as well as others' blind spots, and become values-based, independent individuals who can lead society towards greater global human wellbeing.

"Can we allow our collective future to be determined by our ability and inclination to exercise our mental faculties to process a few words?"

In his book *A Memoir of Jane Austen* James Austen-Leigh talks of an English squire, a man of many acres, who asked Jane Austen's father, Reverend George Austen, '*You know all about these sort of things. Do tell us. Is Paris in France, or France in Paris? for my wife has been disputing with me about it*.' This was the state of general knowledge about a neighbouring region among the gentry of a developed country in the 18th century. Two hundred and fifty years later, how are we better?

Or are we better? We know about Paris and France, but a closer look at the knowledge and understanding we possess in this age of information overload and hyper-connectivity reveals astonishing gaps. In the same country, in the Brexit referendum three years ago, Britons voted to *Leave* by a slim margin. But the analysis of the campaign, results and the events that have happened since raise fundamental questions about how we as individuals and societies understand, think and act.

Michael Dougan, Professor of European Law and Jean Monnet Chair in EU Law at the University of Liverpool, described the *Leave* campaign as '*degenerat[ing] into dishonesty*

on an industrial scale.'* The campaign played on the anti-immigrant sentiments that had been surfacing in many parts of the world, and claimed among other things that Brexit would result in redirecting the £350 million that the UK sends to the EU every week to the country's National Health Service instead. UK's contribution to the EU, which is less than half the claimed sum, is information that is publicly available. A little research and thought will also show that much of it comes back to the country or results in savings in different domains. But the emotional impact of *Leave* was more powerful than logic and objective facts. The scepticism about remaining with Europe expressed by leading newspapers shaped public opinion. Effective use of social media by *Leave* activists influenced the vote. As if these factors that have nothing to do with objective facts were not enough unwanted influences on society, behavioural practitioner Warren Hatter feels that as a word "Leave" places less cognitive load on a person than the words "Remain a member of." The simpler word was acted on as it required less mental effort to process! Can we allow our collective future to be determined by our ability and inclination to exercise our mental faculties to process a few words?

If such was the condition before the referendum, Brexit regret afterwards shows greater confusion and inability to make up one's mind. The more details people have learnt about the exit and its consequences, the less they like it. The number of those who believe the referendum should be honoured is declining. In the beginning of 2019, there was a nine-point majority that believed that choosing to leave the EU was wrong. A second referendum may vote to *Remain*†. More than half the voting-age Britons think the first referendum itself should not have been held!‡

People being led by rhetoric, believing in something because everyone else does so, being unable to think for themselves, or tell truth from wishful thinking or even outright falsehood are restricted not to any region or socio-economic class in the world. The use and misuse of social media in the last American elections is an issue of international dimensions that is still being debated with just one year left for the next election. India is divided as to whether it is really at the onset of an economic recession or just a restructuration that will prove to be beneficial in the long term. False rumours of child kidnappings have led to mob violence and lynching of innocent strangers in the country. Pakistan had to suspend its anti-polio vaccination drive after rumours were spread about ulterior motives behind the drive. Climate change deniers continue to exist. We have more schools and colleges, teachers and textbooks, more students enrolled in education. Has it made us more knowledgeable?

We have all the data that we could possibly need and a lot more, but not the mental clarity needed to understand an issue and make decisions. The complexity and criticality of the challenges we face today are enough to convince anyone that rather than give more information to our students, we need to train them to think independently. We need to make original and independent research, problem solving, collaboration and group discussion a significant part of our educational pedagogy. The share that lectures and memorization have

* https://news.liverpool.ac.uk/2016/06/22/transcript-professor-michael-dougan-eu-referendum/

† Jim Edwards, *Business Insider* Feb 24, 2019, https://www.businessinsider.in/Polls-show-Brexit-regret-so-is-so-strong-that-Remain-would-win-a-second-referendum-by-9-points/articleshow/68140435.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

‡ Sam Hall, *The Guardian* Apr 27, 2019, https://www.theguardian.com/politics/2019/apr/27/public-thinks-eu-referendum-was-a-bad-idea-says-poll

in our classrooms must be reduced to the minimum. 'Studying a lesson to pass the exam—passing the exam to get a certificate—getting a certificate to get a job' is the route that has led us here. Let us show the next generation a better path. If we can create independent thinkers, we have given our future generations all the education they need.

"Intellectual humility makes for lifelong learners."

How can independent thinking be taught? Independent thinking can be taught just as creativity or values can be, not through lectures but by fostering the right environment that leads to the development of the faculty in each individual. We need to have more conversations and fewer lectures in the classrooms. Give students open-ended questions, not answers. Without judgement, accept their 'I don't know' for an answer. Let it not be equated with ignorance or foolishness. Intellectual humility makes for lifelong learners.

We learn most when we teach others, so let students teach and learn from each other. This makes them more involved in classes and very often they learn better from their peers. Every positive initiative must be rewarded. When students are encouraged to take initiative and experiment, they become active learners rather than passive listeners. Even if they do not produce results or are not successful in their experimentation, teachers need to appreciate the attempt. It is antithetical to real education to punish mistakes and failures. If students are taught to analyze their mistakes and learn from them, we equip them to make progress all their lives.

One of the most important lessons Lee Iacocca said he learnt in business is that if all you are getting from your team is a single point of view—usually your point of view—then there is need to worry. He always kept some contrarians around, people who challenged and criticized him, those he could count on to be devil's advocates. He found that they kept him on his toes, and induced him to improve himself, his products and his company.[1]

When the teacher encourages dissenting views, and encourages students to make up their own minds on issues that have no one right answer, we raise a generation of independent thinkers. Warren Buffet's advice for investing applies to thinking as well: "*Be fearful when others are greedy and greedy when others are fearful*." Let us encourage exploration. When everyone is a conformist, society makes zero progress.

We need to teach students to ask questions. Let them question the authenticity of a news item and its source, before they accept, process, and spread it. 59% of links shared on social media have never been clicked.* Nearly 6 in 10 links get re-tweeted without users reading anything else besides someone else's supposed summary or opinion of what the link contains. A 2018 study by MIT scholars proves the saying '*A lie travels around the globe while the truth is putting on its shoes.'* It found that false news stories are 70% more likely to be re-tweeted than true stories are. It takes true stories about six times as long to reach 1,500 people as it does for false stories.† Apparently, sensationalism supplies the speed. A 2016 Pew poll found

* Maksym Gabielkov, Arthi Ramachandran, Augustin Chaintreau, Arnaud Legout. *Social Clicks: What and Who Gets Read on Twitter?* ACM SIGMETRICS / IFIP Performance 2016, Jun 2016, Antibes Juan-les-Pins, France. {hal-01281190}

† http://news.mit.edu/2018/study-twitter-false-news-travels-faster-true-stories-0308

that nearly a quarter of Americans said they had shared a made-up news story. We have fake political news, health scams, financial fraud, censorship and selective leaking of news. When we have headlines screaming something, a hundred television and radio channels repeating them with multimedia proof, thousands of websites picking them up, and social media adding personal angles to them, how do we tell the truth from the untruth, post-truth and lies? MIT cognitive scientist David Rand has found that, on average, people are inclined to believe false news at least 20% of the time.* Digital media complicates matters. It is not possible even for highly educated and tech-savvy users to easily make out a fake website from a real one. Whereas newspapers separate news from opinions, social media gives news from the personal viewpoint, often with the writer's prejudices and partialities thrown in. A book is usually vetted by a publisher, a list of citations provides a basis for what it claims. Websites can create virtually anything they want—official looking content, respectable but fictitious footnotes and endnotes, and any number of testimonials created by software code. Readers give weightage to the number of followers, likes, comments and shares on a page, but likes and reviews can be bought, followers may be bots. This makes it more important to be wary of online content. We need to tell our students not to accept anything at its face value, and that while judging the veracity of the content or its source, one's own prejudice and partiality must not colour their judgement. But as we teach students to question, we also need to teach them to do so without becoming cynical about everything.

Our thoughts are like the Mexican wave in a sports stadium. We think, feel or do something when we see many others do it. George Orwell's idea of Groupthink was not as strong in 1949 when he wrote the book, or in 1984 when the story was set, as it is in 2019. Theoretical physicist Lee Smolin describes the subtle pressure even among the scientific community involved in advanced research to conform to accepted theories instead of challenging them.[2] We need to teach our youngsters to stand bravely alone, not seek safety in numbers and security in what is already familiar.

Every century and every generation has faced changes and new challenges, only the acceleration of the change is more today than it has ever been. We find ourselves more and more in situations no one else has been in before. There will be times when nothing we have studied, experienced or known can serve us. Some ninety years ago, Franklin D. Roosevelt was in one such situation. His handling of the situation is a classic example of independent thinking. Since the Great Crash of 1929, more than six thousand American banks had failed. The panic led millions of Americans to line up at the remaining banks to withdraw their savings before those too declared bankruptcy. When Roosevelt became President of the USA in 1933, the country was in the midst of its most severe banking crisis. Every economic policy initiative applied in the previous three years had failed to stem the collapse. Roosevelt saw that money and economy are not the objective reality that they are considered to be. The collapse of the system was the result of subjective factors that could not be addressed by the government at the institutional or policy level. Without a precedent or proven strategy to rely on, Roosevelt went on public radio and addressed the people. He explained to his people that America still had all the resources that had made it prosperous—industrial infrastructure,

* Katy Steinmetz, *How Your Brain Tricks You Into Believing Fake News, Time* Aug 9, 2018, https://time.com/5362183/the-real-fake-news-crisis/

world market, abundant natural resources and hardworking people. The problem was their loss of confidence in themselves and faith in the country. He inspired them with the immortal words that there is nothing to fear but fear itself. He asked people to redeposit their money in the banks, and passed legislation instituting insurance of bank deposits and other safeguards. People responded to his inspiring call, and the panic ceased. Roosevelt was able to stem the crisis and he went on to turn the economy around.

"If we continue to go by the logic that if it could be done, it would have been done before, then nothing will have ever got done."

Roosevelt saw the role of subjective reality in what appeared to be a purely objective issue. He realized the inadequacy of the principles of economics he had studied at Harvard to solve the crisis, and addressed people's emotions. This is not to discount the value of Harvard or any university, but there are situations that compel one to transcend everything that is known in order to uncork the future. An open and unbiased mind can find solutions and workarounds to anything. We need to be able to show our youngsters the need to continually de-condition the mind, to question every assumption and theory. We must show them how to see the conceptual framework they are in, and how to step out of it when it no longer serves the purpose.

When Steve Jobs was CEO of Apple, he approached the glass works and technology company Corning Inc. to make Gorilla glass for the iPhone. The 160 year old company had developed the glass in the 1960s, but CEO Wendell Weeks believed that they did not have the capacity to produce the quantity required in the six months stipulated by Apple. Jobs assured Weeks that it could be done. Weeks, not Jobs, was the CEO of Corning Inc. Jobs knew little about Corning, the glass industry, or the requirements of manufacturing Gorilla glass. Still, he assured Weeks that there was no need to be afraid, if they got their mind around it, they could do it! Weeks took up the challenge. Almost overnight he converted a Corning facility into a Gorilla glass manufacturing unit, put the best people he had on the job, and met Jobs' requirement.[3] The interaction between one man who believed intuitively that something could be done, and another who decided to attempt what he did not think was possible led to the development of a globally iconic product and raised the standard for the entire industry. Imagine the possibilities when every one of our youth dares to think beyond what is known and proven.

Every instrument comes with a manual that describes what the instrument is used for, and what its margin of error is. We have used the mind for millennia without fully understanding its characteristics and limitations. An understanding of the tool we use to think and understand is as essential as all the academic knowledge we give our students. Our education must help them realize and account for the following:

- We are often unable to see what is imminent. It may be right in front of our eyes, but we see what we want to see. Mathematical economist and professor of Economics at

Yale University Irving Fisher was called "*the greatest economist the United States has ever produced*" by many including Nobel laureate Milton Friedman. His Fisher equation, Fisher hypothesis and Fisher separation theorem are still cited by economists. Fisher confidently predicted in 1929 that "*stock prices have reached what looks like a permanently high plateau.*"* Three days later, the American stock market plunged leading to the Great Depression and ten years of gloom. For months, Fisher continued to assure investors and insist that a recovery was just round the corner.

"We need to nurture boys and girls who can say the emperor is naked."

- Expertise in the field may still not prevent one from interpreting the signals wrong. "*It will be years–not in my time–before a woman will become Prime Minister,*"† Margaret Thatcher of all the people said this in 1969. She became Prime Minister of England in 1979.
- We refuse to accept what we cannot understand. President of the Royal Society in 1883 Lord Kelvin was sure that "*x-rays will prove to be a hoax.*"‡
- Wishful thinking clouds our mental faculties. Hiram Maxim, inventor of the first portable fully automatic machine gun, was asked by English scientist Havelock Ellis in 1893 whether the gun will not make war more terrible. Maxim replied, "*No, it will make war impossible.*"[4]
- We are unable to visualize a future that is at variance with the past or different from the present. In 1878, the Chief Engineer of the British Post Office, Sir William Preece, thought the descriptions of the use of the telephone in America were a little exaggerated. He did not think Britain needed telephones because the country had "*a superabundance of messengers, errand boys, and things of that kind.*"
- Even in visualizing the future, we think based on the past. "*That the automobile has practically reached the limit of its development is suggested by the fact that during the past year no improvements of a radical nature have been introduced,*" wrote the *Scientific American* in January 1909.[5]
- We believe that the unrealized is unrealizable. "*What, sir, would you make a ship sail against the wind and currents by lighting a bonfire under her deck? I pray you, excuse me, I have not the time to listen to such nonsense,*" Napoleon Bonaparte declared when he was told of Robert Fulton's steamboat in the 1800s.[6] If we continue to go by the logic that if it could be done, it would have been done before, then nothing will have ever got done. It is because there are people who reject this belief that we have almost everything that we use today.

* Jennifer Latson, *The Worst Stock Tip in History*, *Time* September 3, 2014 https://time.com/3207128/stock-market-high-1929/

† *Margaret Thatcher: A life in words, The Telegraph* April 8, 2013 https://www.telegraph.co.uk/news/politics/margaret-thatcher/9979399/Margaret-Thatcher-A-life-in-words.html

‡ *Six tech predictions gone wrong, The Economic Times*, September 04, 2015 https://economictimes.indiatimes.com/six-tech-predictions-gone-rong/articleshow/48787590.cms?from=mdr

- Change is almost always difficult to adjust to, even if it does not affect us personally. The President of the Michigan Savings Bank advised Henry Ford's lawyer, Horace Rackham, not to invest in the Ford Motor Company in 1903 saying "*The horse is here to stay but the automobile is only a novelty—a fad.*"

- When a thought seems familiar, and the words and expressions used are easy to process, we tend to ignore the details. In a study, only 12% of the students correctly answered the question "How many animals did Moses take on to the Ark?"* The answer is none, it was Noah's Ark and not Moses'.

- We take the easy option, for want of time or sincerity. When an image is used alongside a news story, the image catches our attention first, and we go on to read the story in the context of the image. So if the image is misleading intentionally or by chance, we misconstrue the text. We do not have the time or do not take the effort to read the entire article, so we construct the whole story from the image and headlines alone. Headlines are meant to capture our attention, not convey the whole truth.

- An article with an image of the human brain next to it is assumed to be accurate, even if the article is not related to the brain and provides no evidence for whatever it claims. Our mind keeps forming superstitions. A crowded shop must be selling good products. A product with more reviews and stars has to be good. A familiar brand must be trustworthy. We believe what we are exposed to in the past, or what someone we trust says. It requires a lot of mental courage to examine a concept that is at variance with one's personal convictions and established societal beliefs. We need to nurture boys and girls who can say the emperor is naked.

- We go by objective facts, and leave out the subjective aspect of reality. Going by the numbers on the balance sheets, experts have given such verdicts about the tech giant Apple's future that turned out to be incorrect. *The Economist* wrote on Feb 23, 1995 that Apple has two options, "*The first is to break itself up, selling the hardware side. The second is to sell the company outright.*" Michael Dell, CEO of Dell, was clearer in 1997 when he declared, "*What would I do? I'd shut it down and give the money back to the shareholders.*"† Without learning from the recent past, we often repeat the same errors. In 2006, David Pogue wrote in *The New York Times*, "*Everyone's always asking me when Apple will come out with a cell phone. My answer is, 'Probably never.'*" Even after Apple launched one, Steve Ballmer said in 2007 in *USA Today*, "*There's no chance that the iPhone is going to get any significant market share.*" But Steve Jobs was able to understand that a company's future is not determined by its hardware, balance sheet figures or the existing market conditions. People need user friendly gadgets that will serve them. Once they overcome their fear and doubts about the machine, he knew he

* Hyunjin Song, Norbert Schwarz, *Fluency and the detection of misleading questions: Low processing fluency attenuates the Moses illusion, Social Cognition*, Vol. 26, No. 6, 2008 https://dornsife.usc.edu/assets/sites/780/docs/08_sc_song___schwarz_moses.pdf

† John Markoff, *Michael Dell Should Eat His Words, Apple Chief Suggests, The New York Times* Jan 16, 2006 https://www.nytimes.com/2006/01/16/technology/michael-dell-should-eat-his-words-apple-chief-suggests.html?mtrref=undefined&gwh=B147C0964B917F1C12BAF5C30E9498E8&gwt=pay&assetType=REGIWALL

could create new markets where none existed. He positioned his company so as to ride the wave of societal aspiration.

- Our ego blinds us to our defects and weaknesses. Similarly, we are ignorant of our unrealized potentials. The fall of every dictator verifies the former. The sudden rise of great leaders during times of national and global crises proves the latter. To know thyself is ultimate wisdom.

Understanding the workings of the human mind is not just of intellectual value, it is critically essential to see our way out of the many blind spots that trap us. Society has always been led by individuals with strong, value-based independent thinking. We need an education that releases such individuality in everyone.

Author Contact Information
Email: harish.janani@gmail.com

Notes

1. Lee Iacocca and Catherine Whitney, *Where Have All the Leaders Gone?* (New York: Scribner, 2006)
2. Lee Smolin, *The Trouble with Physics: The Rise of String Theory, the Fall of a Science, and What Comes Next* (London: Penguin Books, 2008)
3. Walter Isaacson, *Steve Jobs* (London: Abacus, 2015)
4. Kevin Kelly, *What Technology Wants* (New York: Penguin Books, 2014)
5. William G. Howard, Jr., Brude R. Guile, Eds, *Profiting from Innovation: The Report of the Three-Year Study from the National Academy of Engineering* (New York: The Free Press, 1992)
6. Angela Royston, *Robert Fulton and the Steamboat* (ebook; The Rosen Publishing Group, 2016)

CADMUS, Volume 4, No.1, October 2019, 90-100

Beyond the Nation-State:
Failed Strategies and Future Possibilities for Global Governance and Human Wellbeing*

Garry Jacobs
Chief Executive Officer, World Academy of Art & Science and
World University Consortium; Vice President, The Mother's Service Society, India

Abstract

Over the past 200 years, the evolution of human society has moved inexorably toward greater interaction and interdependence between peoples and nations around the world. More recently the movements advancing free trade, globalization, liberal democracy, multilateral institutions and international cooperation have lost momentum and are in retreat. This unexpected development raises profound questions regarding the future evolution of global society. This paper examines the sources of the uncertainty and anxiety which characterize the prevailing view of the future. It explores the inherent limitations in our mental capacity to extrapolate, project and anticipate the future based on past experience and present appearances. It draws insights from history to identify the underlying social forces that have guided global evolution over the past two centuries, which continue to play a determinative role in guiding the future. It challenges the view that the resistance of established social forces will necessarily prevent progress in these conditions of uncertainty and complexity. It illustrates the untapped power of inspired individuals, ideas, values and new organizations to provide the vision and leadership needed to mobilize global society for rapid transition to a better future.

1. Introduction: Contemporary Uncertainty

Present uncertainty and anxiety regarding the outlook and outcome for humanity's future are prominent characteristics of the human condition. Uncertainty prevailed during the 1st Industrial Revolution when the mechanization of farming resulted in rising levels of unemployment in 1890s America, which was aggravated by the onset of machine-driven mass production during the following decade. Uncertainty prevailed after World War I when hyperinflation in Weimar Germany contributed to severe economic depression and soaring unemployment over large parts of Europe. The Great Crash in 1929 was followed by a decade of severe uncertainty resulting from the banking panic that closed 10,000 American banks, unemployment that reached 25-30%, economic depression, impoverishment, rising social unrest and popular disenchantment with capitalism. The uncertainty resulting from Germany's overwhelming military dominance during the first years of World War II led

*Paper presented at the International Conference on Approaching Year 20?? held at The Montenegrin Academy of Sciences and Arts (MASA), Podgorica, Montenegro on May 16-18, 2019.

many to envision a coming age of darkness threatening to wipe out centuries-long advances of Western civilization. Following the construction of the Berlin Wall and the Cuban Missile Crisis in the early 1960s, the rapid acceleration of the nuclear arms race generated high levels of uncertainty and anxiety over a large part of the world, leading many to anticipate nuclear Armageddon as a realistic and very probable, if not inevitable, outcome. Similar periods have occurred at critical moments of transition in many other times and places. In every case, the future has appeared bleak, impenetrable and on a course to disaster.

But the uncertainty sweeping the world today is historically unprecedented for several reasons. First, the speed of social and technological change is far more rapid than ever before and still accelerating, while the pace of cultural adaptation and evolution lags farther and farther behind and seems increasingly unable or unwilling to respond effectively. Second, the impact of factors influencing humanity is no longer concentrated in single countries or regions of the world. Society has become so interconnected and globalized that the US Subprime Mortgage Crisis morphed into the 2008 Financial Crisis and had powerful economic ramifications for the whole world economy. In Europe it resulted in the Great Recession and rising levels of unemployment, undermined the stability of the Eurozone financial system, spawned Brexit, and generated other threats to the integrity and future development of the European Union. Similarly, the impact of rapid technological dissemination and the rapid economic gains of China and India are reshaping the future of the entire global economy and radically altering the distribution of national power in what appears increasingly as the Asian 21st century. A third reason why uncertainty is higher today than in the past is the result of the rising complexity and interdependence of global society. Not only are the effects increasingly global but so also are the effective remedies, which can only be applied by achieving unprecedented levels of cooperation, coordination and global governance. Fourth, the magnitude of the challenges themselves is also unprecedented. For they threaten to impact global society with both a speed and intensity unlike anything known until now. The economic and socially disruptive impact of rapid technological innovations, the political ramifications of rising inequality and the degeneration of democracy, and the existential threat of climate change appear so enormous, compelling and inevitable to our imagination that it is difficult to see the means by which humanity can surmount them.

2. Historical Uncertainty

However different and greater the sources of uncertainty appear today, they still reflect a basic human condition that has prevailed since the birth of civilization. Although the speed, spatial reach, complexity and magnitude are far greater, there are still important insights that can be derived from history. A careful reading of history depicts the course of human events as a zigzag path between contending ideologies moving back and forth from one extreme or another and then rebounding on a course which cannot be accurately described or predicted by previous events. Viewed in retrospect, the visible uncertainties of the past also reveal unseen opportunities unleashed by unseen forces which were long overlooked due to humanity's preoccupation with visibly looming threats.

"The inability to envision great transitions until after the fact is a predominant characteristic of history."

The Concert of Europe forged in 1815 after the defeat of Napoleon was intended to end centuries of incessant warfare between the nations of Europe by establishment of a perpetual balance of power and continental peace. It did seem to largely achieve this aim through the rest of the 19th century before giving rise to the First World War. But in retrospect that peace was deceptive and at best a temporary solution. For it was achieved by redirecting national competitiveness between European powers from the continent to the rest of the world. The urge for national dominance was not controlled, but only redirected. The peoples beyond Europe were subjected to a century of European imperialism that founded the largest colonial empires in the history of the world. The logic and achievements of European colonialism appeared so impressive that the youngest of the European nations, Germany and Italy as well as the rapidly industrializing Japan, naturally sought to pursue a similar course. Situated in the heart of Europe, landlocked on three sides and cut off from the rich trade routes through the Mediterranean, the recently unified Germany sought to make up for lost time by extending its borders to encompass the German-speaking populations of neighboring countries and later expanding its aspirations to encompass all of Western and Central Europe. Similarly, Italy reached out to conquests in Africa and Japan to Manchuria, the rest of China and eventually to all of East Asia. The rapid expansion of empires after 1880 seemed to signify a new world order that might well last for centuries. In retrospect we see that the Age of Empires reached its peak around 1910 and then began a slow decline, which went largely unperceived for several decades.

World War I marked the beginning of the end. The founding of the League of Nations in 1920 was intended to prevent the repetition of world war and secure the dominant European empires by establishing the first worldwide intergovernmental organization. The peace lasted a mere 20 years before it brought on a second and far more horrendous global conflagration. The League gave way to the founding of the United Nations in 1945 with the initial participation of 51 signatory nations, but the essential objective remained the establishment of peace and the preservation of the autonomy of existing states and empires. Very few saw what was coming. The wording of the UN Charter was careful not to promise too much to other peoples. Rule of law and respect for the current boundaries of nation-states were of paramount importance, not freedom, democracy or human rights. None of its founders, with the exception of the USA, envisioned any major alteration in the overseas empires of the great European powers. While uncertainty after the war focused on the threat and consequences of Soviet communist expansionism, the most dramatic transformations occurred elsewhere. Within two years, India, the crown jewel of the British Empire, gained its independence and within fifteen years the reigning colonial empires that spanned the entire world had all but disappeared, with the exception of the USSR, which founded a new and perhaps the last political-military empire in modern history.

The power of the aspiration for national self-determination had been seriously underestimated. The real intentions of the UN's founders are apparent from the structure

of the organization. The General Assembly was designed to give a nominal voice to other nations, but no real powers. None of the founders of the UN envisioned at the time the radical transformation of global society that would soon take place. From a mere 55 member states in 1946, the General Assembly grew to 60 by 1950, then multiplied to include 99 by 1960, 127 by 1970, 154 by 1980, 189 by 2000 and 193 today. The General Assembly which during the initial years was a forum for rubber-stamping the decisions of the great powers in the Security Council soon became a marketplace for the diverse voices and rising aspirations of humanity-at-large. The P5 soon found their own views drowned out by the overwhelming majority of young nations which gradually coalesced in the Non-Aligned Nations. While the constitutional power resided firmly with the Security Council, the General Assembly became a platform for developing nations to broadcast their views to the world right from the heart of the Western World. The altered structure eventually led to the assertion of the petroleum-exporting nations by the nationalization of major oil production facilities as the first serious challenge to the economic domination of the great powers. Decades later, it has awakened and energized nations around the world to actively pursue their rightful claim to freedom, self-determination, security, prosperity and wellbeing.

Nor was the proliferation of nation-states the only significant surprise in store. Deeper psychological forces were at work in the world which went largely unperceived at the time. The spirit of freedom had awakened the aspiration of oppressed and marginalized minorities as well as suppressed nationalities. At the founding of the UN, few envisioned a radical change in the relative balance between the sovereignty of the nation-states and the rights of their citizens. Pressurized by the newly independent states to acknowledge the aspirations and rights of all human beings on earth, the Universal Declaration of Human Rights was adopted in 1948. Once again, the great powers were careful not to accord the power or legitimacy of law to the idealistic statement of principles. This toothless idealistic statement at first seemed to provide no more succor for the downtrodden than the promise of liberty and equality in America's Declaration of Independence had provided to black slaves on Southern plantations. It would take three quarters of a century before slavery was abolished in the USA and another 100 years before a modicum of social equality was extended to them through large sections of the country. It would be decades before the ideals set forth in the UDHR would acquire the authority of the public conscience of the world to compel nation-states to respect them.

The inability to envision great transitions until after the fact is a predominant characteristic of history. In July 1989 Soviet President Gorbachev and Chancellor Kohl met to discuss the future of Germany and Europe. They both agreed that the reunification of Germany was inevitable, but neither expected it to happen until well into the 21st century, perhaps 30-40 years later. Yet, it became a reality within two years. Within a few months the whole edifice began to collapse. The fall of the Berlin Wall, the breakup of USSR, the collapse of communist regimes throughout Eastern Europe and Central Asia, and the reunification of Germany were a line of dominos waiting to be toppled. They were followed in quick succession by the founding of the European Union and eastward expansion of NATO, the establishment of WTO and the birth of the World Wide Web.

3. Patterns of History

But all that has occurred or is likely to occur is not unprecedented or unexpected. Among the most visible and apparent patterns revealed by history are the remarkable economic and social advances that have characterized global change over the past two centuries, multiplying world population more than seven-fold while multiplying real per capita income 12-fold. These were accompanied and made possible by the technological advances of three industrial revolutions marked by the development of steam power, electricity and computers. They were also supported by the rapid spread of education, improvements in healthcare, increasing capacities for organization, and the gradual spread of democratic institutions of governance that encouraged the greater development and expression of the capacities of individual citizens.

Over the past 200 years, the evolution of human society has moved inexorably toward greater interaction and interdependence between peoples and nations around the world. This evolution has been spurred by advances in communication, transportation, economy, technology and social organization. Development of international commerce and global markets, wars of conquest, colonial imperialism, immigration, religion, communism, free trade, nationalism, democratic revolutions, international peace movements, international scientific exchanges, development of international law and rules of warfare, international standards, anti-colonial and anti-slavery movements, Industrial Revolution, development of international financial markets, Olympics, professional associations, science academies, military and trading alliances led to the emergence of the first international governmental organizations in the 20th century. Following the end of the Cold War and the collapse of communism, the movement has been spurred by the spread of democracy, nuclear arms control, expansion of the European Union, expansion of global trade under WTO, rising influence of MNCs, globalization of financial markets, growth of global civil society and development of the World Wide Web.

Along the way there have always been periods of rapid advancement followed by periods of stagnation and temporary reversal. Recently the march to free trade, globalization, liberal democracy, multilateral institutions and international cooperation have once again lost momentum and appear to be in retreat. During these times it is not uncommon for society to lose confidence and faith in the future and question whether the very idea of continuous progress is illusory. It is not certain that any of these trends will continue indefinitely or that some will not be suddenly halted and reversed at least for some time, but both human aspirations and expectations indicate that they cannot and will not be permanently suppressed. The intractable and apparently unsurmountable problems of the day will compel society to seek for new solutions and strive ever harder to overcome the resistances to change. In the past, this has often been accomplished by the force of violent revolution. In these more peaceful, enlightened times, it is to be hoped that the needed transitions be made by peaceful evolution.

However serious the obstacles and intractable the resistance, history testifies to the ultimate power of human aspiration to overcome obstacles that stand in the way of its continued

progress. As it has swept aside monarchies, feudalism, empires and tyrannical totalitarianism in the past, that aspiration has the power to sweep aside the economic and social barriers to its further advancement. Based on the experience of the past two centuries, it seems likely that the broad patterns of the advancement will continue. The benefits of economic development will continue to spread to a greater portion of humanity than ever before in history. The concentration of wealth and financial power centered for centuries in Western Europe and North America will shift increasingly toward Asia. The pace of technological innovation and application will continue to accelerate and it will provide unprecedented benefits to ever-increasing proportion of the world's population in ways to improve human welfare and wellbeing through advances in communication, transportation, access to higher quality of products and services at lower prices, education, healthcare and entertainment.

The economic power of nations will become a more important source of national security and global influence in the future than mere military might. The institutions for global governance and rule of law, however inadequate they may be, will be more important and essential in the coming decades. Public concern and the need for environmental regulation will become ever more pressing and urgent until humanity musters the leadership and collective will to squarely address global ecological challenges.

4. Insights from History

Viewing historical events in retrospect, we can readily construct reasonable explanations connecting the dots, but that does not qualify as real knowledge. It is well that we keep in mind these experiences when we hazard to look toward the future and anticipate its direction, course and likely outcomes. Several important insights emerge from these reflections.

First, at the time these events were taking place, almost no one could imagine let alone foresee the eventual course of history unfolding. Mind is like a rear-view mirror. It sees clearly only that which has most recently passed by. Looking backward it can draw clear lines of causality between events that have already occurred. Looking forward it struggles to anticipate what is coming even a short time in the future. Therefore, in thinking about the future, it is wise to maintain a strong measure of mental humility, mindful of the fact that we are employing an instrument of knowledge with a questionable capacity for reliable future vision.

Second, the anxiety generated by uncertainty often masks concealed opportunities hitherto unimaginable. Humanity, in general, is far more powerfully influenced by the threat of losing present gains than the lure of obtaining some hitherto unrealized future potential. Our minds are so strongly biased by the sensible perception of what is and the memory of what has been as to underestimate or overlap entirely the potential upside waiting around the corner. Uncertainty is the flip-side of opportunity.

Third, we tend to overlook the fact that uncertainty about the future is only the counterpart and complement to certainty. And for all our doubts and fears about the future, still we know with reasonable certainty from past experience and present conditions about a great deal of what is to most likely to come with the potential for greater knowledge, insight and foresight

than humanity has ever possessed in the past. Whatever the level of uncertainty, there are some patterns which can help us discern the likely course of things to come.

> *"The SDGs are not simply another in a long line of pious wishes. They represent an unprecedented effort of the world community to translate into action and realize in practice the universal values enshrined in the Universal Declaration of Human Rights."*

Fourth, we tend to overlook the fact that periods of high uncertainty are often followed by new openings that lead to periods of rapid social progress. Indeed, it appears that maximum uncertainty is often followed by maximum social advancement, as if the compulsions of emergency compel society to give up outmoded ideas and institutions and respond creatively. The Great Crash and the Great Depression led to the launching of the New Deal in the USA to humanize capitalism, regulation of the banking system, and establishment of socio-democratic economies in Western Europe, combining the virtues of both communism and market economies, for half a century until the rise of global neoliberalism undermined many of its achievements. So too, centuries of conflict culminating in two horrendous world wars initiated and centered in Europe led to the emergence of the United Nations, the European Community and EU, and an unprecedented unification of 29 nations in an alliance for collective defense to safeguard the freedom and security of all its members.

This transformation of high levels of uncertainty into openings for rapid progress may be led by outstanding individual leaders, as it was by Lincoln during the American Civil War, FDR during the Great Depression and Churchill during WWII. It may also be guided by powerful new ideas as in FDR's New Deal and his conception of the four freedoms. *Glasnost* and *perestroika* were new ideas that transformed the entire Soviet bloc. It can be energized by high values such as self-determination, freedom and social equality as in the Indian Independence Movement, the American Civil Rights Movement and the Anti-Apartheid Movement in South Africa. It can be empowered by the founding of a new institution such as the UN, EU and the World Wide Web. Regardless of the type of leaders that guide the movement, the pressure generated by external events can be a powerful spur to sudden, unanticipated change.

5. Perspectives from Psychological History

These visible, measurable indicators of the future are not all that we can discern from history. They are the surface expressions and results of deeper social and psychological forces that have been shaping the evolution of human civilization over centuries. They are based on secondary perceptions rather than root-knowledge. They trace the only processes of change rather than their essence.

Beyond and beneath these surface processes, we can draw insights from deeper currents of social evolution which stand out clearly in retrospect. The course of history has been marked

by progressive shifts in the social and psychological characteristics of global civilization and culture and these characteristics are likely to persist in future, regardless of temporary reversals and the zig-zag movement of events.

Table 1: The Shifting Lines of Social Evolution

From	To
Isolated, smaller, autonomous, culturally homogeneous communities	Larger, heterogeneous, multicultural nation-states giving rise to an increasingly interconnected and interdependent global community
Settlement of disputes by use of violent physical force	Negotiated peace and global rule of law
Governance by arbitrary authority	Freedom, self-governance and self-determination
Power based on military might	Power based on economy, science and technology
Development of natural resources	Development of social capital and the capabilities of each human being
Value of financial capital	Value and centrality of human capital
Physical security and wealth generation	Wellbeing, equality and individuality
Rights and power accorded exclusively or disproportionately to the elite	Universal human rights and more equitable distribution of all forms of social power
Cultural homogeneity	Multiculturalism
Development of the social collective	Development of capacities of each individual

Our view of the future will appear less uncertain in the measure we keep in mind these likely lines of future social evolution.

6. Envisioning a Better Future

It is ironic that with all humanity's anxious preoccupation with the future and all the information, sophisticated forecasting and modelling tools at its disposal, we know much more about the prospective dangers of continuing on our present course than we do about humanity's potential for enhancing wellbeing.

The adoption of the 17 Sustainable Development Goals by 193 nations in 2015 is a case in point. The SDGs are not simply another in a long line of pious wishes. They represent an unprecedented effort of the world community to translate into action and realize in practice the universal values enshrined in the Universal Declaration of Human Rights 70 years ago. The actual achievement of many or most of these goals by 2030 may be unlikely, but it is no longer beyond imagination, and the potential benefits to humanity of achieving Agenda 2030

by that year or even a decade or two later would be of momentous significance to the future of humanity. Considering how great would be and will be the benefits, it is surprising how little effort has been made to envision how radically and dramatically their achievement will transform the world we live in.

"Organization of global civil society represents an enormous resource waiting to be tapped."

The 17 goals and 169 targets intended to achieve them address virtually every major problem confronting humanity today from peace, food and poverty to employment, social equality and ecological security. Unlike most of their predecessors, the SDGs are not focused exclusively on the poorest of the poor. They apply inclusively to people of all nations and would benefit all sections of humanity in innumerable ways. Peace and economic opportunity in Africa and Latin America would stem the tide of refugees streaming north. Their growing prosperity would generate economic opportunity for more developed countries. Rising levels of education and public health would have many other beneficial effects. A full appreciation of their potential contribution to the welfare and wellbeing of all humanity could be a powerful catalyst for political action.

7. Conclusion: Viable Pathways to a Better Future

Neither the anxiety of looming uncertainties nor the compelling force of social evolution is predictive of future events in the short run. History is replete with setbacks, reversals, reversions to failed patterns of the past, and new types of blunders never seen before. But an understanding of the limitations imposed by the physicality of our mental perceptions and expectations and an appreciation of the deeper forces driving social evolution can help us avoid useless anxiety and reactionary pessimism, while opening our minds to unseen opportunities to drive forward even in situations that appear helpless and hopeless.

The problems confronting humanity today will not simply vanish because viable solutions exist with the potential to eradicate them. There are entrenched vested interests and powers that benefit from the present dispensation and are either ignorant or skeptical of the greater opportunities for all that would arise from concerted global action. But obstinate resistance to progress has always plagued and retarded human advancement. With the greater knowledge, higher levels of education and more powerful means for communication now available, humanity is better poised than ever before to overcome the obstacles.

Already there are initiatives underway with the potential to break through the inertia and unleash a social movement with the potential to multiply and spread rapidly from place to place, field to field as a reverse domino effect of constructive initiatives. A few significant ones are mentioned here to illustrate the potential.

1. *The Promise of Youth*: Ever since Malala Yousafzai won the Nobel Prize for her courageous efforts to promote the education of the girl child, examples of activist youth leaders keep multiplying in different fields and parts of the world. Emma González, the 19 year old American advocate of gun control; Timoci Naulusala, the 12 year old Fijian whose opening speech at COP23 in Bonn captivated world leaders at the UN's high

level annual conference on climate change; 11 year old Ridhima Pandey from India; and Greta Thunberg, the 16 year old Swedish climate activist are examples of a new breed which is breeding lots of young offspring quickly. These combined with social movements such as Protect our Planet (POP), founded by former IPCC Chairman and WAAS Trustee Rajendra Pachauri, represent a potentially powerful new social force which both political and business leaders can ignore only at great risk. So far, these movements tend to be fragmented geographically and by the causes they espouse, but if organized and their activities coordinated, they could become a powerful force for change, as the college campus protestors in USA, Europe and other nations became during the 1960s.

2. *Reviving the Silk Road:* China's Belt and Road initiative, the latest successor to earlier efforts to revive the Silk Route between Europe and the Far East, has immense potential to accelerate the economic development of nations along the track. Its current version has been politicized by Western nations suspicious of China's motives and jealous of its impressive capacity to envision and launch an initiative that has already been endorsed by sixty nations. Developed to its ultimate potential, it would involve massive infrastructure development and investments in 152 countries in Europe, Asia, Middle East, Latin America and Africa. Whatever the grounds for suspecting China's motives, projects of this type could radically transform the world's development prospects. Beyond the immediate benefit in terms of investment and job creation, the longer-term benefits to these regions and the world would be many times greater.

3. *Conscious Capital:* For half a century, banking regulations insulated the commercial banking industry from financial markets until the protective barriers were dismantled in the 1990s. If resurrected, these barriers would restore stability to financial markets and channel more funds into the real economy. The movement to promote sustainable and ethical investments is already attracting large numbers of wealthy investors managing hundreds of billions of dollars. WAAS is collaborating with the United Nations Office for Partnerships in New York to attract serious players to this movement and educate the public regarding its immense potential for reorienting global financial markets from speculation to job-creating investments in the real economy. Redirecting investments from speculative to productive investments on a global scale will be difficult. A first viable and powerful step to mobilize the support of those who are already convinced of the need for radical change to lend the full social power they possess for change. Alongside these, there are initiatives such as the one proposed by WAAS Trustee Stefan Brunnhuber to create a special cryptocurrency specifically designed for investments in the SDGs.

4. *Network of Networks:* There are hundreds of thousands of NGOs in the world and more than 4000 international NGOs registered with the UN. With few exceptions, the activities of NGOs are fragmented geographically and by specialized issue. But there are many issues on which large numbers of NGOs share common views and objectives, such as ICAN (International Campaign to Abolish Nuclear Weapons) founded in 2007, which presently has over 400 partner organizations from more than 100 countries. The potential

exists to create much larger international networks bringing together organizations working in different fields but sharing common interests and policy recommendations, such as an urgent shift from fossil fuels to renewable energy sources. Organization of global civil society represents an enormous resource waiting to be tapped.

5. *New Paradigm in Education:* WAAS has confirmed the need for rapid expansion and radical reorientation of the global educational system in order to prepare the next generation for the drastic changes in political, economic, technological and social conditions. Even if it were possible, adequate expansion, reorientation and revamp of existing institutions globally to meet the demand will be an extremely slow, very costly and inadequate response to the need for rapid global change. But this effort can be complemented and accelerated by parallel development of a global educational system by a pooling of institutional and national resources to develop relevant world-class educational content and programs representing a new paradigm in education.

Author Contact Information
Email: garryj29@gmail.com

CADMUS, Volume 4, No.1, October 2019, 101-114

Global Leadership in the 21st Century*

David Harries
Former Chair, Canadian Pugwash Group;
Fellow, World Academy of Art & Science

Abstract

On 17 March 2019, immediately following the four-day VII Global Baku Forum, members and friends of five international organizations gathered to explore the present state and future effectiveness of governance and leadership, in the context of a world focused on the 17 SDGs and the role of education in their achievement. The short report of the day's proceedings in the June 2019 WAAS newsletter deserved a more thorough follow-up on their several distinct parts, and the many important connections among their themes: The progress of the Black Sea Universities Network, Jeffrey Sachs' provocative description of the challenges to accomplishing the 17 SDGs by 2030, and the five sessions addressing leadership and its related needs are addressed in this essay of personal and professional reflections. All are offered with the objective of providing both participants and the interested a more detailed report of the proceedings and a broader perspective on several of their major themes.

Officials of five international organizations† concerned about the present state and future effectiveness of governance and leadership in the world participated in a full day of presentations and dialogue to share opinion and analysis. Given the knowledge and experience of those at‡ the meeting and their obvious acknowledgement of the value of 'hearing' the biases, assumptions and interests of others, notwithstanding sometimes significant differences of opinion, it was no surprise the 12 hours together were well-spent.

The 17 March meeting immediately followed the very rich four days of the VII Global Baku Forum§. My comments here—a mix of personal and professional reflections—were influenced by some of the Forum's proceedings, but more substantively by three, connected, pre-Baku factors. First, it has been necessary throughout my working life to be a 'leader' in a variety of military¶ and civilian settings. Second, I admit to an eternal concern, driven

* This article is a report on the VII Global Baku Forum on "A New World Order" held on March 17, 2019, which had a special WAAS session on "Global Leadership in the 21st Century".

† World Academy of Art and Science (WAAS), World University Consortium (WUC), Nizami Ganjavi International Centre (NGIC), Black Sea Universities Network (BSUN), Sustainable Development Solutions Network (SDSN).

‡ 26 nationalities were represented; none African

§ VII GLOBAL BAKU FORUM "A New Foreign Policy". More than 70 current and former Presidents, Prime Ministers, Foreign Ministers and heads of major national and international organizations participated. Keynote speakers included Azerbaijani President Ilham Aliyev, Ashraf Ghani (Afghanistan), Kerry Kennedy (USA), Fareed Zakaria (USA), Jeffrey Sachs (USA), Helen Clark (New Zealand), Vaira Vike-Freiberga (Latvia), Aleksander Kwasniewski (Poland), Tarja Halonen (Finland), Ilir Meta (Albania) and Wu Hailong (China).

¶ In peacekeeping, national development in Canada and abroad and three wars. As Director of Curriculum Planning and Coordination at Canada's National Defence College responsible for the research, design and execution of an annual 44-week course for up to 44 senior Canadian and allied civilian and military individuals that included between 16 and 20 weeks of national and international travel.

by experience at work and at play,* about whether existing 'governance'—in all senses of that term—is as appropriate and effective as is reasonably possible, and if not, why not. Third, since being a UN peacekeeper during the 1974 Turkish invasion of Cyprus, I have been committed to promoting strategic foresight; to more wisely thinking ahead to better see and understand threats and opportunities that may be coming, and in time to appropriately prepare for them.

> *"Many gains made since the fall of the Berlin Wall were possible only because of the foundation for progress built between 1945 and 1989."*

Two caveats. First, I did not attend the Dubrovnik meeting immediately following on the Baku activities in March. Therefore, even with kind input about it from three colleagues,† I am not an 'expert' on the details of the recently established WAAS-UN project on governance and leadership. Second, what follows is not an 'academic' essay, but the writer's personal take on what was, and what was not, talked about during the meeting in Baku.

1. Introduction

The agenda for 17 March was headlined by the following statement.

> *"Global leadership is urgently needed at this critical juncture in human affairs to prevent reversal of humanity's most important gains since the end of the Cold War. This meeting will seek ways to revive and develop different types of leadership to address global challenges. It will explore strategies to enhance the role of universities in development of leadership, generate awareness of unutilized global potentials, mobilize and direct global social energies and resources for practical application, strengthen the effectiveness and functioning of existing institutions, and release a broad-based social movement to transform the compelling challenges confronting humanity today into catalysts for rapid global social evolution."*

On reflection, this 'keynote' statement can be considered a very detailed call to action. But, as 'words' matter, and ever more so in the cyber-age, four comments are offered:

1. First and foremost, what is 'global' leadership? Assuming the goal is always improvement, does it mean better centralized direction of the globe's ways and means to deal with the planet's wicked problems? Or, is it a granular concept, one of improving; issue by issue, country by country, community by community, organization by organization, the design of policy that will provoke more effective action on the

* As the assistant coach since 2005 for a rugby team that competes in the most competitive university rugby league in Canada, against schools the smallest of which has ~15 times the player pool we do, I have learned that in the absence of sufficient and appropriate governing and leading, our season is a 'loss' before the first game is played.

† Garry Jacobs, Frank Dixon and Thomas Reuter. In addition, Michael Marien has been extremely generous with editing time.

issue(s) of interest to those most affected? Organizations such as the World Federalists* favour the former. Autocratic and nationalistic leaders† the latter. Can the two paradigms co-exist in reasonable harmony? Does it matter?

"Universities are unlikely to offer the most enlightened opportunities."

2. 'Gains' is another ambiguous, non-universal term. Gains that need not be reversed are not only those since the end of the Cold War. Indeed, many gains made since the fall of the Berlin Wall were possible only because of the foundation for progress built between 1945 and 1989. Giving credit where and when it is deserved is always a powerful incentive to attracting supporters and sustaining progress.
3. Focusing only, or even primarily, on 'universities' is increasingly unwise for a number of reasons. The most important is that universities are far from being the only 'community' or setting for learning, reflected in the occasionally heard opinion: You get a degree, then you get educated. Another reason is that the massive rise in the number of NGOs offers young and old an ever-growing spectrum of learning opportunities without the need for or outcome of a formal qualification. Third, every human being begins life-long learning well-before‡ achieving the age and eligibility for university and goes on to accomplish great things without ever setting foot in an 'ivory tower'. For all their downsides, the Internet of Things and its social media elements represent a non-stop 'education' resource to anyone with a connection. On a more critical note regarding learning governance and leadership that will be needed for one's future, it can be argued that universities—institutions whose major changes since the 19th century include ever more focus on being a for-profit business offering specializations more than general knowledge—are unlikely to offer the most enlightened opportunities.
4. "Rapid global social evolution" is either a contradiction or an oxymoron. As well, given the accelerating pace of change that is part and parcel of virtually every one of the planet's interconnected wicked problems, it is suggested that the term could more usefully be; *appropriate social transformation, globally.*

2. The Structure of the Day

Notwithstanding the 'draft agenda' published beforehand for 17 March, I experienced three distinct parts to the day. The first two occupied a varied group or professionals numbering near 50 in the morning. The third part, with less than 30 WAAS and WUC members gathered in the afternoon and evening, focused primarily on aspects of the new UN-WAAS project on governance and leadership.§ The parts, subjectively expressed, were:

* World Federalist Movement https://en.wikipedia.org/wiki/World_Federalist_Movement The World Federalist Movement (WFM) is a global citizens movement that advocates the establishment of a global federal system of strengthened and democratic global institutions subjected to the principles of subsidiarity, solidarity and democracy.

† Presidents Trump, Xi and Erdogan are examples.

‡ Much evidence exists that early childhood experience may be the most influential learning setting of all. Dr. Fraser Mustard gained much renown and respect for his research into learning by young children. https://www.thestar.com/news/gta/2011/11/17/dr_fraser_mustard_world_renowned_for_work_in_early_childhood_development.html

§ A brief report on 17 March in Baku can be found in the June 2019 WAAS newsletter at http://worldacademy.org/newsletter/june-2019

- a story and explanation of a regional academic and social initiative.
- a provocative overview of the state of progress* and challenges to accomplishment of the 17 SDGs,† with a focus on improving governance and reforming education for what the 21st century already signals as needed.
- a set of five co-moderated sessions to address specific sets of themes dealing primarily with leadership.

2.1. Part 1: One – Of Many – University Networks

A warm welcome and introductory comments were provided by Garry Jacobs, the CEO of WAAS. He referred to the many challenges outlined in the Agenda's opening statement (above), and then announced the days-earlier establishment of a UN-WAAS collaboration on governance and leadership, a major element of which will be a conference in Geneva in (probably, early) 2020. Many aspects of the initiative would be addressed in Part 3 of the day.

The main theme of this first Part of 17 March was the Black Sea Universities Network (BSUN). Initiated in 1998 with 20 university partners in 12 countries,‡ membership now numbers 120. Its creation responded to the consequences of geopolitical troubles, and their negative impact on many areas of life in all the region's countries. An example: brain drain in Romania saw 17% of university students leave every year for foreign institutions.

The goal of the Network is to keep scholars 'at home' by developing the capacity for the region's universities to work successfully, individually and collectively, on elements of the 17 SDGs. The BSUN, although an ad hoc, non-binding organization, is collaboratively developing SDG action plans for specific 'centres of excellence',§ in effect a structure for building and strengthening regional capacity to deal with issues of importance to all. The leadership of the Network is an imaginative troika that includes the past, the present and the next President, thereby promoting operational and intellectual continuity.

A question that occurred to me is: With an institutional membership of 120, might it now be useful to make the BSUN less ad hoc, by developing by-laws and operating principles? They need not be binding on all members, but would offer examples and targets that all could consider for adoption in whole or in part. In addition, in time and after review, the existence of by-laws and operating principles could offer a foundation for considering and designing mutually beneficial relationships not only among Network institutions, but also with academic and vocational colleges, primary and secondary schools, and private sector leaders and employers in and outside its region, and with one or more of the many other 'networks' of learning actors and organizations around the world.¶

---

* See the latest Report of progress for the 17 SDGs at: Sustainable Development Reports 2019: Transformations to Achieve the Sustainable Development Goals. Includes the SDG Index and Dashboard (Bertelsmann Stiftung and Sustainable Development Solutions Network, June 2019, 465p; 2 p Executive Summary)

† The 17 SDG themes contain 169 separate calls to action.

‡ Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Serbia, Turkey, Ukraine.

§ Understood to be individual universities and groups of universities.

¶ https://en.wikipedia.org/wiki/List_of_university_networks Notably AASHE Association for Advancement of Sustainability in Higher Education

As noted, a major goal of the BSUN is to arrest and reverse the brain drain. This is a clear reflection of the fact that 'migration' is not only provoked or driven by physical fear and want. 'Desperation' exists in many forms. One form is *knowing* that being all one wants to and can be; intellectually, psychologically and economically, is impossible at home.

2.2. Part 2: In the SDG-Era

Jeffrey Sachs* eloquently and provocatively described many of the challenges that obstruct the accomplishment of the 17 SDGs by 2030, and made some suggestions that, if not overcoming/solving them, showed promise for promoting progress. Noted is the fact that neither he nor anyone else in attendance mentioned that the 17 SDGs are neither prioritized† nor intellectually connected in any documentation, both steps that will have to be taken before action on any one of the SDGs is likely to be durably effective.

His presentation and the discussion following it was contextualized in the Agenda with the following list of 'tasks'.

1. Break down the artificial disciplinary boundaries
2. Bridge the gap between academic research and policy-making
3. Challenge the limitations of prevailing concepts and theory
4. Engage the multiple stakeholders needed for effective social impact
5. Awaken and foster social awareness and preparedness for change

I agree 100% with the first, second and fourth tasks. The first is decades overdue. The second involves working to close a *number* of gaps, many of the greatest of which are between research/policy-making and *action.* The fourth task will require a campaign of creative destruction of long-in-the-tooth academic and policy hierarchies whose current actors will have to be retired, repositioned or repurposed, probably having to be accompanied with adjustment to the tenure system.

As for the third task, even as the Baku meeting came to a close the meaning of the task and the implications of its achievement remained unclear, and still are. On the fifth task, the source and form of an 'awakener' must be such that 'wokeness' and awareness of what one is awake to must be so compelling and powerful as to be sustainably durable in the face of the continuing and accelerating changes that are compressing and complicating context. Otherwise the intellectual space and the operational conditions for action on "preparedness" will not exist for long enough.

There were four messages‡ during Part 2 that most provoked me and that I continue to reflect upon and research.

---

* Jeffrey Sachs is an American economist, public policy analyst and former director of The Earth Institute at Columbia University, where he holds the title of University Professor, the highest rank Columbia bestows on its faculty. He is known as one of the world's leading experts on economic development and the fight against poverty. He heads the Sustainable Development Solutions Network (SDSN) and authored Age of Sustainable Development

† Prioritization criteria include: need, urgency, doability, affordability, public and political support

‡ Throughout the remainder of this thinkpiece, terms or statements in parentheses are quotes from Jeffrey Sachs, if not otherwise specifically attributed.

- Although admitting to a "positive vision of humanity's potential", after 13 years as Head of the Earth Institute,[*] he is extremely concerned that the 'insidious' combination of existing and emerging wicked problems[†]—a "crisis"—will not, indeed maybe cannot, be substantively addressed any time soon.[‡] There are many reasons, several related to leadership issues. "No one is in charge",[§] and no person or organization is willing to lead.[¶] 'Leadership' is so dispersed and diverse that gaps in knowledge and abilities cannot be closed, even with all the data that exists, is openly available, and continues to increase, manifested in the rising mountain of hard copy and online documentation containing it.[**]
- "Donald Trump is the change agent the world has been awaiting for 27 years."[††] His service? (to humanity is) The provocation of "necessary disillusionment" with the status quo, everywhere. Whatever one thinks of Trump, it is clear that the wicked problems crisis will not be appropriately addressed in time unless humanity starts operating very differently, very soon, a fact that would not have become as widely obvious, and acknowledged, in the absence of Trump's continuing destruction of POTUS[‡‡] 'convention'.
- The SDGs "are worthwhile", in the sense that they can be considered a set of common goals for 7.5 billion people and which more than 100 of their governments have 'in mind', even if , often, only intermittently and superficially and, unsurprisingly, each with a uniquely national perspective.[§§] But many act—or more often do not act—on the 17 SDGs, seeing them as just a new and longer version of the eight Millennium Development Goals (MDGs) whose term ended in 2015 with a resounding silence. Many of the SDG laggards never chose or needed to pay much national attention to more than one or a few of the MDG themes. Not surprisingly, therefore, their default assessment of the very different, globally consequential SDGs is so little concern they are comfortable ignoring the fact that, for the SDGs to be addressed appropriately, virtually everyone everywhere needs to engage in their achievement or, at least, not obstruct progress . This engagement will be needed well into the future, almost certainly beyond the nominal, overly-ambitious, achievement date of 2030.
- It is well past time for systemic action to be taken on the multi-part crisis facing the planet and all living things. A massive reset of the twentieth century way of doing

* Approximately 1000 professional and administrative staff

† Including Climate Change, Conflict, Poverty, Nuclear Weapons

‡ Private communication. Jeffrey Sachs is fully committed to solving the problems he is addressing, notwithstanding the obstacles to doing so.

§ The comment reminded me of Harlan Cleveland's book 'Nobody in Charge. Essays of the Future of Leadership' https://www.getabstract.com/en/summary/nobody-in-charge/2347

¶ It is important to acknowledge that 'being in charge' and leading are not necessarily synonymous. History has many examples of people who were formally 'in charge' who were terrible leaders, if they led at all.

** Manifested in and by the Security and Sustainability Guide – www.securesustain.org

†† Since the 1992 Earth Summit in Rio de Janeiro

‡‡ President of The United States

§§ The differences in 'seeing' between and within governments is a real obstacle to progress on issues that represent an inescapable contradiction: Their causes and effects ignore national borders but simultaneously strongly affect individual politicians' most cherished objectives. Nevertheless, there is some history indicating that progress is possible if goals and targets are concisely expressed and contextualized. 'Well-below 2 degrees C" is not so expressed or contextualized. If this statement means 1.5 degrees C, then the planet must be out of the carbon economy by about 2050. Who will be responsible to design and create and pay for the pathways to achieve this outcome? And how will the rising number of pathways that are being developed (See www.securesustain.org) be harmonized and coordinated?

business, in every sense of that term, is needed. The 'silos' that specialists have occupied and defended for decades in splendid self-serving isolation must, at least, be opened up enough to allow substantial trans-disciplinarity and unobstructed sharing of all the actors' biases, assumptions and interests, and skills and knowledge. If there is to be any chance of 'engineering' a fair and sustainable future, the truly valuable 'specialists' going forward are (already) 'generalists'. These are brave, thoughtful, honest and open-minded individuals who 'see' and 'do' in ways and with means that are not narrowly and restrictively labeled in an effort to preserve the fast fading present against the inescapable attacks of change.

"There is a shortage of leaders who are both able and willing to take action."

The reality is that action so far on almost all of the 169 elements of the 17 SDGs ranges from the slow to the impossible, for several reasons. At least one is glaringly counterintuitive: Most governments are not in the business of solving problems; they have no "Departments of Problem Solving". Governments are capable, at best, only of establishing programs and producing supporting policies and legislation underpinning them. They do not design or create. Only a tiny minority of politicians and diplomats* for developed and democratic countries† are 'science-friendly', and not only because so few of them have any training, education or experience in the hard sciences. As well, 'politics' has seen to it that battles between proponents of policy-based evidence and evidence-based policy are virtually continuous, which, at best, delays tangible action to substantively address even the problems both sides acknowledge.

During this Part of the day, other challenges to the design, development and deployment of broadly agreed and funded action on wicked problems were noted and discussed.

- Notwithstanding the existence of numerous‡ organizations with a reputation for intelligent thinking, few of them have the 'power'§ to take action, and almost all operate on their own, giving no indication of cooperation or collaboration with others engaged on the same issues. As noted earlier, the outcomes of meetings, fora, conferences and the like are almost exclusively written reports that suggest and 'call' for change, and announce the time and place of the follow-on event….the outcome of which will have no more clout and produce no more action than that of the previous event.
- Scaling a global problem to the local level, where much of the action will be all taken, is proving overwhelmingly difficult. In the case of climate change's many challenges, their demands clearly collide with existing geopolitical structures and methods. If democracy continues to fade, and if nationalism and populism continue to strengthen, the best that can be hoped for in the decade to 2030 will be no worsening of climate

* And their bureaucrats

† When preparing strategic foresight exercises in Asia in the 1990s, I learned that every one of the then-ten members of the most powerful element of the Chinese government was science-knowledgeable and or educated.

‡ See www.securesustain.org for evidence of the growing numbers of national and international organizations working on security and sustainability

§ Funding, authority, responsibility, reputation

change consequences. And the least? That too little is achieved on the SDGs to make much difference.

- The 'gap' between the efforts of scientists, who can only alert, and developers and engineers, who design and build, continues to grow. As well, research, globally, on ways and means to deal with wicked problems threatening the well-being of humanity is a "fraction of the needs".
- There is a shortage of leaders who are both able* and willing† to take action. According to up and coming (young) personalities,‡ current leaders and experts are failing them for not doing enough to leave the world in good shape when their terms end.
- The UN, insofar as global well-being is concerned, is a "frustrating talk shop" of diplomats, "wordsmiths", lawyers and economists, too few of whom are capable of contributing to facilitating action on wicked problems.
- No one who is importantly influential is doing rigorous Foresight. Even though the target date for the 17 SDGs is little more than a decade in the future, I have been unable to find even one example of an assessment of what the world will be like, and need, in 2031,§ regardless of how many SDGs are achieved by then. Is 'everyone' assuming the best? Or is 'everyone' assuming the worst cannot happen? Both are impossible, and therefore a dangerous foundation on which to 'spend' the 2020s.
- The massive contradictions manifested by current Arms Control and Disarmament are not likely to be an effective incentive for global security more broadly. Notwithstanding the well-publicized statements of a variety of global notables on the dangers of not eliminating nuclear weapons,¶ and regular reminders of long-established** and new treaties†† at international conferences, actions underway in most of the nuclear nations signal that trillions of dollars will possibly be spent on more new weapons, both nuclear and conventional, and their infrastructure. In the same breath, those same actors are telling the likes of Iran and the DPRK (North Korea) to stop producing weapons and their delivery systems, or else.

Politics and diplomacy are not where progress will be made on wicked problems. Very few‡‡ of either community's members know or understand what the planet is up against scientifically or technologically. Of all the many, regular meetings of politicians, diplomats, lawyers and economists with their armies of aides, not one 'leads' the campaign for addressing

* Knowledge, skills, authority, responsibility, funds

†'willing' to focus most on long term prospective benefits at the expense of short term specific gains

‡ The members of the youth panel at the VII Global Baku Forum made very clear the level of dissatisfaction with the efforts and intentions of current 'leaders'.

§ Noted, however, is that in 2012 Jorgen Randers published "2052: A Global Forecast for the Next 40 Years". But foresight is far more than forecasts (and predictions).

¶ The Return of Doomsday The New Nuclear Arms Race—and How Washington and Moscow Can Stop It By Ernest J. Moniz and Sam Nunn https://www.foreignaffairs.com/articles/russian-federation/2019-08-06/return-doomsday

** The 1970 Non-Proliferation Treaty

†† The 2017 Nuclear Ban Treaty

‡‡ Such as Al Gore and Michael Bloomberg

any one of the globe's wicked problem. Therefore, the combination of the outcomes of all of their many gatherings is inevitably weak and vague, with often contradictory calls for action none of the participants are willing to provide or enforce. The result? Most of these calls are immediately and universally ignored, in no small part because they have been heard before, so many times.

On climate change, Jeffrey Sachs compared the situation to a conductor-less orchestra; all players looking over the shoulders of everyone else to try to confirm they are 'in tune'. Among the suggestions he made to improve the probability of progress on SDGs were: Introduce curricula on the SDGs into every course in every university,* establish a global consortium of SDG champions who have real influence,† and do everything possible to work on the SDGs as a systems engineering project.

2.3. Part 3 – Five Sessions on Leadership

The five co-moderated sessions addressing pre-set lists of themes regarding leadership primarily and governance were reported on briefly in the June 2019 WAAS newsletter. Discussion within and between sessions was broad and spirited, with much more detail and nuance than can be described effectively in this personal recounting. Therefore it was decided to present, for each session, the thematic list for each contained in the Agenda plus only two or three comments about the proceedings. The final comment (Comment 5.2); a brief case for 'leadingship' is more detailed than are the other nine Comments for two reasons. First, participants generally supported the author's call on 17 March for its consideration as *one* option for a 'new' paradigm for leading, and, second, the June 2019 WAAS newsletter omitted all reference to that call and the support it received.

Session 1: Global Leadership: Past Achievements and Future Challenges

1. Historical perspective on important leadership achievements & failures
2. Critical leadership challenges and initiatives in the world today
3. Compelling ideas,‡ values and goals driving global social evolution, and
4. Aligning leadership and social power.

Comment 1.1. Which history? The record of the past is being written or rewritten or disowned every day. This has been the case since, arguably, the Cold War ended and the internet opened to all. Since the 'old' history is neither erased nor fully compatible with new history, and is still supported by most in the generations who wrote it and knew it first, leaders today face the unavoidable challenge of choosing which 'historical perspective'; old, new, a combination, or none—to accept and guide their planning and actions.

* SDSN Networks in Action. This report showcases the array of innovative solutions and initiatives being undertaken by the SDSN national and regional networks. It presents each network and includes an introductory essay on the role of universities in achieving the SDGs. Universities, with their broad remit around the creation and dissemination of knowledge and their unique position within society, have a critical role to play in the achievement of the SDGs. https://networks.unsdsn.org/news

† AASHE has partnered with 13 Centers for Sustainability Across the Curriculum on a pilot basis to offer workshops and other professional development opportunities on sustainability in the curriculum in an effort to increase the accessibility and diversity of sustainability-oriented training for faculty. AASHE empowers higher education faculty, administrators, staff and students to be effective change agents and drivers of sustainability innovation. AASHE enables members to translate information into action by offering essential resources and professional development to a diverse, engaged community of sustainability leaders. https://www.aashe.org/

‡ See, for an example: Ten Essential Ideas for Sustainability Leaders. M Marien and D Harries. CADMUS Vol 3 Issue 6 May 2019

Comment 1.2. Globally, 'social evolution' is underway in many different forms and contexts. Given the world's demographic variety, there are probably hundreds more forms and contexts than there are UN-member states. In some cases, not surprisingly, the evolution is a revolution, either top-down or bottom-up, driven, respectively by regime leaders or oppressed and aggrieved citizenry. In all cases the most compelling goal is survival.

Session 2: Changing Leadership in a Changing World Challenges

1. Qualities of leadership needed to effectively address global challenges
2. Impact of the chaotic transition to multipolarity on global leadership, and
3. Strategies to fill the global leadership gap

Comment 2.1. The quality of leadership most needed now, and certainly for the foreseeable future, is forthright self-awareness and broad-based knowledge of all relevant knowledge. Each actor needs to acknowledge that their unique suite of biases, assumptions and interests (BAI) that inform their perspectives and govern their actions is but no more deserving of being heard and shared than that of many others.

Comment 2.2. The 'global' leadership gap is a shifting geography of many 'gaps', many the outcome of the more significant differences* in BAI. The emerging and contested multipolarity† will only increase the depth and width of the most consequential ones. One possible way to close some gaps is to establish more multi-generational leadership regimes. But, which gaps deserve to be closed first? Who decides? Who pays?

Session 3: Multi-stakeholder Approach to Global Leadership

1. Role of international organizations, national governments, business‡ and NGOs§
2. Coordinating leadership horizontally between parallel initiatives, and
3. Integrating leadership vertically at the local, national and global levels.

Comment 3.1. The biggest employer in the world is 'security'. It is truly multi-stakeholder. Its members include international organizations, national governments, businesses large and small, and, *increasingly,* civil society.¶ The role of 'security' in leadership going forward is of fundamental consequence.

---

* For example, between the deniers and believers in the existence of anthropogenic climate change

† A multipolarity which increasingly is focused on and by the 'great power competition' among the US, China and Russia, notwithstanding it is an incomplete list of countries (e.g. Brazil) and regions (e.g., the EU) with 'power' to cause major disruption far beyond their borders, physically and digitally.

‡ Some big businesses, especially those directly connected to national governments have more 'power' than most individual national governments.

§ GONGO: Government organized NGO. GANGO: Government authorized NGO. China and Singapore are the writer's best examples of each, respectively.

¶ As 'Security Foresight' has recognized since the century began, the nature of security continues to change. Relationships among technology, geo-politics, geo-economics and cultural imperatives blur distinctions and remove boundaries between the traditional 'military' and 'civilian' communities, 'public' and 'private' sectors and 'combatant' and 'non-combatant' individuals, as well as between 'war' and 'peace'. Everyone is now, for better or worse, a security stakeholder, and from time to time a security participant, by design or default. Security has become everyone's business, whether dealing with one or more of its five domains*, active in one or more of Human Security's seven sectors**, or engaged in a conflict that simultaneously manifests, in a single theatre of operations, one or more or possibly all of the five so-called "generations of war"***.

* National Defence, Homeland Security, Public Safety, Response to Nature's Extremes, Preparation for Existential Catastrophe

** (Freedom from) Disease, Hunger, Unemployment, Crime, Social conflict, Political repression, Environmental hazards

*** GW1 – Massed Manpower, GW2 – Massed Firepower, GW3 – Manoeuvre, GW4 – Insurgency using any of political, economic, social and military means , GW5 – Cyber-war

Comment 3.2. Integration geopolitically or geo-economically at any level does not make sense. Integration wastes resources, gives a free ride to the laziest and least able, and limits or dumbs down the most committed and able. The need is for Interoperable leadership municipally, nationally, regionally, and internationally, recognizing the message in Comment 2.1 above. Given geopolitics, interoperability is probably impossible globally, and if the EU is a worthy example probably also regionally. The most promising paradigm for interoperability may be within the security sector, give the durability of NATO and Interpol.

Session 4: Practical Steps for Strengthening Global Leadership

1. Framing compelling ideas that lead to action
2. Requirements for effective implementation of shared goals and values
3. Building awareness, energy and commitment, and
4. Developing more effective organizations for global leadership.

Comment 4.1. Foresight is one key resource. The future is coming, but there are no experts on the future. It is therefore sensible to try to gain insights into what the future might hold; good and bad, and do so in time to be proactive; to make informed preparations for exploiting potential opportunities and deflecting or defeating plausible threats. Good strategic foresight has been proven to provide useful insights into options that may be actionable, and build organization-wide awareness, energy and shared commitment.

Comment 4.2. The development of 'more effective organizations' calls into question the status of existing ones. No organization wants to close shop. There are, unfortunately, many, many organizations that are wasteful and no longer effective, other than as obstacles to progress. Difficult decisions abound: Who decides which 'old' organizations survive? How is their continued existence harmonized* with the new, more effective ones?

Session 5: Realizing the Vision: Pathways to the Future

1. Developing leaders and nurturing leadership
2. Converting ideas into actions
3. Mobilizing global public opinion
4. Generating social movements for public participation and support

Comment 5.1. What is required to identify new leaders and empower them—as individuals and in groups? First, many more will have to be more willing than most current/existing leaders to try to do what is necessary; whether by incentives, with new economics, or by setting aside the status quo, to 'convert' their ideas into actions that tangibly and constructively address wicked problems. The public opinion that needs to mobilize in support of these new leaders is less "global public opinion" than public opinion that is locally appropriate† to their leader's

* This question is both amplified and complicated by the non-stop additions and changes to history. See Comment 1.1

† What is 'appropriate' in a mid-sized city in Central Canada will not be the same as what is appropriate in a major coastal city in Nigeria.

sphere of responsibility and influence. World-wide, there will have to be many appropriate public opinions.

> *"The people at the top of organizations with more than two levels of hierarchy who do not acknowledge the fact that everyone in their organization has some leadership ability are not good leaders."*

Comment 5.2. Leading must become much more multi-generationally shared. As Harlan Cleveland stated decades ago, things had become so complex that no one person could know all that needed to be known to design, prepare and take appropriate action. That situation is far more intense/dense today. And no one I have found is claiming that the future will be any less so—context compressions will only increase.

Comment 5.3. The Case for 'leadingship', a crucial 'social movement' concept* for the future.

Already noted are the numerous and growing gaps between what the world needs to defeat current and emerging threats and exploit the inevitable opportunities that will accompany change. One of the primary reasons for many of the gaps between the needs and the state of leadership (and management) are practises of leading that are between unrealistic and/or obsolete. Until the existing, usually Western, and predominantly American, practices are more than only adjusted or refined, the gaps between what is needed to deal with wicked problems and the attention and resources deployed will continue to grow.

Wiser, more effective leading (and managing) is a long-standing, arguably universal, objective driving a non-stop global business focused on leading. Progress will be speedier when organizations practise *leadingship* as 'business as normal'.

The key feature of the conventional concept of leadership (management), has the head of the organization leading with almost everyone else following. It has long passed its 'use by' date, in large part for reasons presented in previous Comments. But, today and going forward, the people at the top of organizations with more than two levels of hierarchy who do not acknowledge the fact that everyone in their organization has *some* leadership ability are not good leaders. Today, when only the head leads, mistakes will be made—maybe fatal ones, resources already deployed and paid for are being wasted, and vulnerabilities are being courted, which, at least, weaken the organization's collective resilience in the face of the inevitable unexpected, unplanned-for, and unhappy events and circumstances.

Leadingship does not mean the titular head no longer leads, or hands over formal responsibility, accountability and authority to others of lesser stature. It means, first and

* There are more and more examples of self-identifying leaders, who could not care less about their 'boss' if (s)he is not leading. Perhaps the most famous current example is the Swedish youth-climate activist Greta Thunberg. https://news.yahoo.com/want-panic-swedish-teen-raises-climate-alarm-davos-161413009.html

foremost, accepting that, in today's complex, shock and awe world, (s)he cannot know all the time everything about leading, or everything that needs to be led.

"Sustained organizational success going forward will most likely be in ones where everyone is able and willing to think and work together through the inevitable challenges of change."

Leadingship recognizes that each of an organization's members has a unique set of physical, intellectual, moral and spiritual strengths and weaknesses, governed by their equally unique suite of biases, assumptions and interests that, inconveniently, change as their personal and professional context does. Every individual should be eligible and enabled, within reason, to offer input to the organization's ideas, planning and activities. Achieving that environment, especially in multi-level hierarchical organizations, calls for adjustment in both formal and informal roles and tasks of everyone from the most junior new member to the top official.*

The most junior member should do some leading? Absolutely. First and foremost, today's junior member of the staff could one day be the formal leader of the organization. Second, obviously the earlier learning† begins about aspects of leading, the more likely one is to be prepared to do it for real. Thirdly, I recall Ralph Nader's view,‡ which I wish many of my previous 'superiors' had accepted:

"I start with the premise that the function of leadership is to produce more leaders, not more followers."

Everyone in an organization should focus *these days* on resilience; personal, professional and organizational resilience. The future for each individual and the organization as a whole will be an unpredictable mix of the good and the bad; of what is hoped for and planned for, of what is wanted and expected, and what is unwanted and unexpected; i.e., disruptive, destructive and even shocking. Sustained organizational success going forward will most likely be in ones where everyone is able and willing to think and work together through the inevitable challenges of change.

A leadingship organization is one in which it goes without saying that an important, if implicit, part of everyone's job description is to 'lead' themselves to ever more knowledge of, value to and confidence in their organization, and to pitch in not only on the good days but on the 'bad' ones when plans and programs collide with the reality expressed by Vernon Sanders Law:§

"Experience is a hard teacher because she gives the test first, the lesson afterwards."

---

* This may be happening. Business Council

† They probably spend a lot of time 'learning' on the internet and from social media. (s)he could know things the top officials do not.

‡ https://www.azquotes.com/author/10644-Ralph_Nader

§ www.quotationspage.com/quotes/Vernon_Sanders_Law/

In even the tiniest organization, the establishment of a durable leadingship environment will take some time and some effort and some money, but most of all lots of courage on the part of the company brass. But, come the day when each and every member from the most junior to the most senior, knows they have the 'right' to be all they can and want to be for the good of the organization and their colleagues; i.e., to make a difference if and when the opportunity arises and be recognized for it, the wisdom of the investment will be obvious. The motivation to do good and well also helps develop an understanding that there are times when leading is best done by colleagues, junior and senior, and following makes the most sense.

3. Concluding Remarks

There is no *global* 'silver bullet' for improving leadership and governance. There may, however, be recipes for better leading and governing, everywhere. These recipes recognize that both activities will improve, or not, depending on the trajectory of the planet's well-being and citizenry's perception of it. Each human being lives a unique, changing context. Harmonious and adaptive interoperability of the recipes may be the most important responsibility of all levels of governance, meaning the challenges for leaders will continue to mount.

Author Contact Information
Email: jdsharries@bell.ne

CADMUS, Volume 4, No.1, October 2019, 115-121

Turning Points:
In Search of a Post-Cold War Global Security Order

Giuli Alasania
President, University of Georgia, Georgia;
Fellow, World Academy of Art & Science

Abstract

The present paper will briefly review several turning points in the evolution of the Post-Cold War global order. During the Cold War, the bipolar international order was defined by an opposition between two superpowers whose positions were carefully balanced across the world. By contrast, due to the fact that the global security architecture was, and continues to be, in flux, the past three decades have witnessed a gradual transition from a unipolar world characterized by weak and inconsistent American leadership, to unmitigated efforts on the part of Russia and China to establish a multipolar equilibrium of power. At the same time, the New World Order was breaking with the long-held tradition of placing the military component at the center of the global security system and proclaimed the so-called "Comprehensive Security Doctrine" in which supremacy of law, democratic values, global economic prosperity, social justice, human rights, environmental protection, education and other elements played an equally important role. The idea of undiminished and equal security for all states, big or small, although very attractive in theory, turned out difficult to attain in practice. An emphasis is placed on different models of democracy determined by cultural and traditional peculiarities of states, using the rules of democracy and elections to maintain power.

1. Introduction

Although we will take some major events into consideration in this paper—from 9/11 and the war on terror to the financial crisis and the revolutionary wave of the Arab Spring, and the extent to which these occurrences have led to an ongoing crisis in global security—an emphasis will be placed on the latest advances in the theory and practice of democracy in general and the institution of free elections in particular. The above-mentioned, by the potential far-reaching influence, can dramatically alter the norms of behavior of states on the international arena, the global security environment, as well as the international legal network which codifies arms control and disarmament, among other things.

For almost five decades, throughout the Cold War years, the bipolar international order was defined by the interests of two competing superpowers. Their positions were carefully balanced across the world and provided some semblance of stability.

By contrast, after the breakup of the Soviet Union (and the so-called international socialist system), the global security architecture entered the unprecedented phase of flux. The past

three decades have witnessed a gradual transition away from a bipolar to a unipolar world, characterized by weak and inconsistent American leadership, and to a multipolar equilibrium of power. This process has been accelerated by persistent efforts on the part of Russia and China who started to demand their share of influence on world affairs.* One can mention the US rivalry with China; the important role of the EU, however with internal discrepancies; its relations with the USA, China and Russia.†

"The past three decades have witnessed a gradual transition away from a bipolar to a unipolar world, characterized by weak and inconsistent American leadership, and to a multipolar equilibrium of power."

This coincided with the annunciation of the New World Order. As originally proposed by President Bush Sr., this Order was breaking with the long-held tradition of placing the military component at the center of the global security system. The new approach proclaimed the Comprehensive Security Doctrine in which democratic values, supremacy of law, global economic prosperity, social justice, human rights, environmental protection, healthcare, education, demography and other elements played an equally important role.

However, the central tenet of the new international security architecture was undiminished and focused on equal security for all states—big or small, economically prosperous or underdeveloped. Although very attractive in theory, this basic premise turned out to be impossible to attain in practice.

There is no single reason for this unexpected failure and to analyze this phenomenon we should look at the doctrines of national interest of different countries, their geographical location, political culture, social and traditional value systems, etc. But this calls for serious in-depth research. Here, we will concentrate only on one: the most important factor, which is the theory and practice of democracy.

The end of the 80s and the beginning of the 90s witnessed the relentless and single-minded march of newly-liberated Eastern European countries, some Latin American and South-East Asian nations towards the democratic model. But by the end of the 90s, this

* Reality is too complicated. Besides values, the states have their own economic and political interests according to which each makes its choice. In some cases, China and Russia, frequently allies, for instance, in issues like human rights and internet governance, have different positions; in some other cases, first of all in the inviolability of borders: unlike Russia, China did not recognize the annexation of Crimea, or the independence of Abkhazia and South Ossetia, while Russia did not recognize China's claims in the South China Sea. There are some other discrepancies as well. (Russia and China: Partners of Choice and Necessity by Ian Bond, 2016. Centre for European Reform Report. http://www.cer.eu/publications/archive/report/2016/russia-and-china-partners-choice-and-necessity, p. 34.)

† Russia and China: Partners of Choice and Necessity by Ian Bond, 2016. Centre for European Reform Report. http://www.cer.eu/publications/archive/report/2016/russia-and-china-partners-choice-and-necessity; How can Europe hold its own in a world radicalized by nationalism, populism and chauvinism? A speech by Foreign Minister Heiko Maas: "Courage to Stand Up for Europe – #EuropeUnited", 13.06.2018, https://www.auswaertiges-amt.de/en/newsroom/news/maas-europeunited/2106528; The Five Structural Problems of EU Foreign Policy by Jan Techau, https://www.kas.de/c/document_library/get_file?uuid=d69ffdb0-3aa3-a7b2-2e8d-67bd2f5868a0&groupId=252038; Making America Great Again versus Made in China. The US Geo-Economic Rivalry with China by Stormy-Annika Mildner and Claudia Schmucker, DGAPanalysis 2, 2019, https://dgap.org/en/think-tank/publications/dgapanalyse/making-america-great-again-versus-made-china.

process slowed down, came to a standstill and even started to reverse.* In other words, the democratic boom was substituted by the democratic recession.†

> *"The best thing that can happen to democracy to make it more attractive is its further development and refinement in the USA and Western European states."*

We witness the decline of liberal democracy‡ and value-based foreign policy, both of which have seriously damaged international security. Today, a combination of Trump's 'America first' realism, which some experts qualify as 'egoistic',§ Russia's aggressive policy aimed at restoring the Soviet empire, the invasion of Georgia (2008), the annexation of Crimea (2014) and an incursion into the Donbas region of Eastern Ukraine,¶ adventurism in Europe and the Middle East, and increasing authoritarianism with the state-controlled media around the world have led to a dangerously insecure world not only for state actors but for individuals as well, as it was recently well-evidenced by the shocking assassination of Jamal Khashoggi. It is evident that oftentimes nobody is able to be a guarantor of security.**

Consequently, we have a polarized world divided along the lines of poverty and prosperity, education and ignorance, liberal market or centralized economy; a world with disappearing common traditional values; a world dominated by oil and gas interests, military power, money-grabbing oligarchs establishing world order which is both unstable and increasingly insecure, terrorism, migration flows, violation of borders, etc.

As it was proven over and over again, the lack of a universally accepted model of democracy, different levels of development, traditional and cultural peculiarities are the reasons for the instinctive rejection of Western values by countries.

Another reason is the fact that democracy is as much a cultural as a socio-economic phenomenon. Consequently, the most popular Western model of democracy does not completely explain the Indian practice, which—despite regular democratic elections—includes a deep-rooted system of castes, a different standard of human rights, etc. The model of Western democracy also contradicts the uniquely individual Russian interpretation of the phenomenon (the same is true for Azerbaijan, Kazakhstan, Uzbekistan, Algeria, etc.). One

* Democracy in Decline: How Washington Can Reverse the Tide by Larry Diamond, 95 *Foreign Affairs*. 151 (2016), https://www.foreignaffairs.com/articles/world/2016-06-13/democracy-decline.

† Facing Up to the Democratic Recession by Larry Diamond, *Journal of Democracy*, Johns Hopkins University Press, Volume 26, Number 1, January 2015, pp. 141-155.

‡ How can Europe hold its own in a world radicalized by nationalism, populism and chauvinism? Speech by Foreign Minister Heiko Maas: "Courage to Stand Up for Europe – #EuropeUnited", 13.06.2018, https://www.auswaertiges-amt.de/en/newsroom/news/maas-europeunited/2106528.

§ How can Europe hold its own in a world radicalized by nationalism, populism and chauvinism? Speech by Foreign Minister Heiko Maas: "Courage to Stand Up for Europe – #EuropeUnited", 13.06.2018, https://www.auswaertiges-amt.de/en/newsroom/news/maas-europeunited/2106528

¶ To which, by the way, the reaction of NATO was not immediate, let alone the prevention. (NATO's Duty at 70 by Anders Fogh Rasmussen, 2019 Project-Syndicate, https://www.project-syndicate.org/commentary/nato-accession-for-ukraine-georgia-without-russia-veto-by-anders-fogh-rasmussen-2019-04). According to Rasmussen, the aggression of Russia was a result of the delay of the decision of the NATO Membership Action Plan (MAP) for Georgia and Ukraine at the Bucharest Summit and that was a mistake.

** The Five Structural Problems of EU Foreign Policy by Jan Techau, https://www.kas.de/c/document_library/get_file?uuid=d69ffdb0-3aa3-a7b2-2e8d-67bd2f5868a0&groupId=252038, p. 76.

also cannot fit into the Western democratic tradition the notion of stabilizing the function of armed forces and their role as guardians of the constitution, as it is the case in some countries (Turkey, Thailand, Myanmar, etc.)

Does that mean that we either have to approach the theory and practice of democracy with a high degree of flexibility, or to admit the simple fact that democracy today has a number of different, independent, equally important forms of self-expression depending on regions, specific countries, their history, traditions and even religion?

The past 20-25 years have amply demonstrated the negative consequences of forcing democracy on countries against their own free will (Iraq, Afghanistan, Syria, etc.). One can only imagine that the efforts to do so will be even less successful in the future.

The best thing that can happen to democracy to make it more attractive is its further development and refinement in the USA and Western European states.

But we do not think that there is anything immanent to democracy even in its present form, which makes it unacceptable to any region or any country, or precludes its basic tenets from being fully implemented. Quite the contrary, there is no country, political or religious doctrine that precludes them from achieving a high level of education and technological innovation, or progress in general, which are usually associated with developed democracies.*

However, for democracy to be fully embraced and successful, there are a few preconditions.

1. It is difficult to expect that democracy can and will win everywhere and always. However, there will always be a small chance of this happening. As a rule, democracy prevails when the social and cultural environment has been prepared. In other words, democracy cannot be effectively functional without highly educated people who are accustomed to independent thinking. Independent thinking, on its part, turns into unhindered self-expression through high political activism and regular free elections.
2. Democracy cannot flourish in a society which is permeated with mutual suspicion and low tolerance.
3. Industrialization, sustained economic growth create a precondition for the modernization of the society. It is exactly the modernization that serves as the outer optics for on-going social changes within the country and globally. For example, modernization puts a spotlight on new notions like gender equality, a general democratic wave, the universal theory of peace, emergence of worldwide morality, etc.

Here, we would like to draw attention to two important facts:

- first, modernization does not mean Westernization and thus is not a threat to an indigenous culture (Japan and South Korea are not trying to be Western countries, and Western European countries are not taking after the USA);
- and second, modernization does not automatically turn into democracy.

* As Rasmussen informs us, Ukrainian soldiers told him "they were proud to be fighting for freedom and democracy not just for their country, but for all of Europe" NATO's Duty at 70 by Anders Fogh Rasmussen, 2019 Project-Syndicate, https://www.project-syndicate.org/commentary/nato-accession-for-ukraine-georgia-without-russia-veto-by-anders-fogh-rasmussen-2019-04

Now let me make a few observations concerning the institution of regular and free elections, as the most telling expression of the democratic achievements of any given society. It should be mentioned at the outset that democratic societies are strong not by their elected ruling class, but by the very fact of this class being elected, and re-elected, when necessary in a free expression of the will of the people.

"Democratic societies are strong not by their elected ruling class, but by the very fact of this class being elected, and re-elected, when necessary in a free expression of the will of the people."

Everybody more or less knows about the positive influence of elections on the advancement of democratic values. But little is known about their other—no less important functions. For example, elections are the most effective way of the collective "punishment" of the irresponsible electorate. The one which sells, barters, gives or bargains away, or in some other way diminishes the value of the greatest achievement of humanity—one person-one vote. Bad governments are elected by good people who do not vote.

And this is a more or less old and well-documented phenomenon. Yet, there is a new and rather disturbing trend emerging globally. It is the open use of administrative resources by incumbents, financial and political pressure, threats, physical violence, aggressive use of social media and "fake news" outlets, deceit, lying, cheating, "trolling", stealing urns and, in some cases, even raiding the polling stations, as it was the case during recent elections in Georgia, and generally rigging the election results.

Among these assorted instruments, a special role is played by bribery—a form of governmentally encouraged corruption: we are talking about direct and open buying of votes, especially those belonging to the most vulnerable members of the society.

Analysis shows that in developed societies one can most effectively fight the "idea, vision, philosophy" with the same, either with the combination thereof with administrative and financial resources, or with special interest groups, etc.

But in poor countries, money is and, for the observable future, obviously will remain, the most effective weapon. Here, we are not only talking of directly buying votes, but also of buying political scientists, mass-media outlets, black PR companies, institutions specializing in mind control, etc. with a view to influencing the electorate for the benefit of their clients and achieving the desired results.

Again, analysis proves that in countries in which free elections do not have a long-established history and have not become a respected tradition and which yet have to constitutionally or otherwise legally codify the system of checks and balances, the population is losing trust in its effectiveness fast, and this in turn encourages further radicalization of the society.

As it turned out, developed countries are not totally immune to these negative occurrences. Known facts of Russian interference in the election in the USA in 2016, election in Norway in 2017, election in Georgia in 2012, suspected interference from China, North Korea, WikiLeaks, etc. speak volumes of the readiness of these perpetrators to travel the extra mile to create divisiveness in the free world and throw the system of free elections into turmoil.

But recently we have started to observe another new and disturbing trend. Namely, the unmitigated efforts of those who were elected through free democratic elections and who are still in power to resort to any and every legal and mostly illegal trick to extend their staying in power indefinitely in contradiction to the constitutions and organic laws of their own countries. This is happening in Russia, Turkmenistan, Uzbekistan, Turkey, Venezuela, etc.

In a certain way, the old, time-tested tradition of periodically changing a country's leadership through elections is faced with a new method of using the institution of free elections to stay in power indefinitely under the guise of blessing from the population. But we can say that the recent, most notable failure of such attempts in Venezuela, Turkey and Kazakhstan is a source of optimism that the old tradition is not weakened and is fighting back. And here we pin our hopes on the collective wisdom of the People. Yes. It is the People, patriots, the society of highly educated, professional, thoroughly modern individuals—those who tasted the fruits of Democracy and remember the flavor to whom we entrust our future and the future of mankind in general.

After WWII, peace was kept by the balance of power and the Doctrine of Deterrence with its different modifications like "Massive Retaliation", "Minimal Deterrence", "Mutually Assured Destruction", etc. However, the world today is faced with qualitatively different challenges, most of them non-military in nature and global by application. While issues like international terrorism, ISIS, domestic civil wars in Syria, Russian military adventurism, asymmetrical wars, etc. can be dealt with by heightening military awareness and resolving the emerging problems that cannot be resolved by the instruments of the Doctrine of Deterrence.

For a modern notion of global security, cyber security has become the vital and most viciously attacked element. It is difficult to prevent cyber-attacks and to predict stability in the sphere because of fast technological innovations.* Social media, which in some cases can make and disseminate false information,† is gaining more and more importance.

To approach this problem at a practical level, the world at large will have to develop a new set of non-military deterrence instruments, some of which will be of "positive" and some of "negative" nature.

For example, negative world opinion, moral pressure to bear economic and trade embargos, financial and legal sanctions will represent a negative set of deterrents; while the encouragement of states to claim their fair share of development and general progress, to fully participate in the distribution of wealth generated through modern science,

* Deterrence in Cyberspace by Joseph Nye, 2019 Project-Syndicate https://www.project-syndicate.org/commentary/deterrence-in-cyberspace-persistent-engagement-by-joseph-s-nye-2019-06, p.5.

† American Soft Power in the Age of Trump by Joseph Nye, 2019 Project-Syndicate, https://www.project-syndicate.org/commentary/american-soft-power-decline-under-trump-by-joseph-s-nye-2019-05.

technological advances, global financial systems, equitable distribution of trade benefits—will be considered as positive instruments.

2. Conclusion

We need new international security paradigms. In other words, the New World Order based on the recognition of the new reality that the military, political, social, environmental, cultural, religious and cyber threats are equally great and important and as such should be included in the new Comprehensive Security Doctrine which will be adopted universally and which will be based on the combined activities of existing international military and non-military organizations like the UN, EU, NATO, TTP and others. These organizations should act with a high degree of cooperation and in harmony, meaning that progress should be in all directions and success in one area should have a positive impact on advancement in another.

Of course, since it is a developing, complex and overwhelming concept, the New World Order cannot be described fully within the format of a conference and general statements. Hopefully, in the months and years to come some of the ideas outlined in this paper will find a rightful place on the agendas of international conferences and in the research curricula of leading scientists specializing in the political, military, social, legal and other aspects of international security. The governments of small and medium-sized states must be called on to suggest ways of restoring and strengthening the global security order, strongly lobbied governments should re-center their focus on universal values in their foreign policies, and international institutions like the UN have to be strengthened.

Author Contact Information
Email: galasania@ug.edu.ge

Bibliography

1. A. F. Rasmussen: "To which, by the way, the reaction of NATO was not immediate, let alone the prevention NATO's Duty at 70". *2019 Project-Syndicate* https://www.project-syndicate.org/commentary/nato-accession-for-ukraine-georgia-without-russia-veto-by-anders-fogh-rasmussen-2019-04.
2. H. Maas: How can Europe hold its own in a world radicalized by nationalism, populism and chauvinism? "Courage to Stand Up for Europe – #Europe United". *13 June, 2018*. https://www.auswaertiges-amt.de/en/newsroom/news/maas-europeunited/2106528
3. I. Bond: "Russia and China: Partners of Choice and Necessity". *Centre for European Reform Report. 2016. p. 34.* http://www.cer.eu/publications/archive/report/2016/russia-and-china-partners-choice-and-necessity
4. J. Nye: "American Soft Power in the Age of Trump". *2019 Project-Syndicate* https://www.project-syndicate.org/commentary/american-soft-power-decline-under-trump-by-joseph-s-nye-2019-05.
5. J. Nye: "Deterrence in Cyberspace". *2019 Project-Syndicate* https://www.project-syndicate.org/commentary/deterrence-in-cyberspace-persistent-engagement-by-joseph-s-nye-2019-06, p.5.
6. J. Techau: "The Five Structural Problems of EU Foreign Policy". https://www.kas.de/c/document_library/get_file?uuid=d69ffdb0-3aa3-a7b2-2e8d-67bd2f5868a0&groupId=252038;
7. L. Diamond: "Democracy in Decline: How Washington Can Reverse the Tide". *95 Foreign Affairs 151. 2016.* https://www.foreignaffairs.com/articles/world/2016-06-13/democracy-decline.
8. L. Diamond: "Facing Up to the Democratic Recession". *Journal of Democracy Johns Hopkins University Press*, *Volume 26. Number 1. January 2015. pp. 141-155.*
9. S. A. Mildner and C. Schmucker: "Making America Great Again versus Made in China. The US Geo-Economic Rivalry with China". *DGAPanalysis 2, 2019*. https://dgap.org/en/think-tank/publications/dgapanalyse/making-america-great-again-versus-made-china.

CADMUS, Volume 4, No.1, October 2019, 122-126

Advantages and Disadvantages of Global Unity & Disunity

Ashok Natarajan
Secretary and Senior Research Fellow, The Mother's Service Society, India;
Fellow, World Academy of Art & Science

Abstract

Humanity has evolved from the family and local community over millennia through several stages to finally create the present fractured and unstable global community of nearly 200 nation-states, some of which are barely a few decades old. But already there are signs that the process of social evolution will continue until it eventually results in some form of a unified world community. The major challenges confronting humanity today all result from the inadequacy of a diverse community of sovereign nations competing with one another for power and advantage and their inability or unwillingness to act effectively and concertedly to address the problems of our collective existence. Recurring war and violence, persistent poverty, financial instability, widening inequality, ecological destruction and climate change are some of the salient features which compel us to conclude that the continued evolution is both necessary and inevitable. The material and social benefits of global unity will be immense in terms of greater and more equal access to knowledge, power and wealth, but they will bring with them a new set of challenges to ensure that peace and security are not achieved at the expense of freedom, cultural diversity and the fullest development of individuality.

Global human unity has been the undeclared goal of humanity all through history and it has been unconsciously pursued thus far. Civilization has been moving towards this goal in so many ways. Our concern right now is the unity of nation-states that merge into a global state. The birth of the global state necessitates the emergence of a global government. The UN which emerged following World War II is a precursor to a global government. Though it has failed to form its declared goal of world government, it has nevertheless done distinguished work in many fields. It stopped or helped limit the impact of many wars though it could not prevent the proliferation of nuclear weapons and four decades of international tension during the Cold War. When the Cold War ended, the world missed a great opportunity to advance global progress towards formation of a world government.

Though we know only the physical world, it has a subtle dimension and there exist subtle planes of action not perceptible to physical eyes, such as the noosphere. In between lies the world of cyberspace that is run by electronics much as the physical world is run by electricity. Internet is the symbol of the world of cyberspace where the limitations of space and time have been almost abolished. As each line of activity needs a world body for its governance, formation of the world government necessarily requires the creation of numerous international organizations such as WTO. Air travel has come under such a global

governing body with great many benefits both to the passengers as well as the airline companies. The main unifying factor behind such activities is the spread of information. Where there is willingness to share information, there unity is promoted.

"If world currency is created, it would lead to infinite increase in money supply."

Values such as customer satisfaction or money back guarantee are non-physical. These non-physical values have revolutionized commerce and have made it spread world-wide. Companies like Google and Amazon have moved to a higher level by becoming aware of the needs and requirements of their employees and customers. This singular attitude has uncovered an enormous social potential. As of now, we are only at the stage of fulfilling comforts and conveniences. Beyond this lies the zone of creativity and joy. When those elements are released, it will have the physical impact of restoring the climate equilibrium that has been disturbed. Joy is a measure of inner equilibrium which has the power to bring about an outer equilibrium and also solve the present water shortage. Attention to water can remove its scarcity.

Development comes from expansion which can be horizontal as well as vertical. While global governance looks like a horizontal expansion, it cannot be achieved without an expansion in the vertical dimension. Vertical expansion involves development in the quality of organization and administration, such as that which would be brought about by development of a world army, world currency, world language and world culture etc. Sri Aurobindo deals with all these aspects in his book *The Ideal of Human Unity*.

India has many different ethnic groups, each with its own language, culture and way of life. Each ethnic group has a language of its own about which it is very sensitive. When the British expanded their colonial control over India they created administrative provinces. After Independence in 1947, the national government wanted to announce Hindi as the national language instead of English, which the southern state of Tamil Nadu preferred. In 1952, the Indian government took an initiative to reorganize Indian states on the basis of language. While undertaking a fast demanding a separate Andhra Pradesh, a patriot died in the process. This generated social unrest greater than the one which occurred in 1947 for freedom. A commission was set up to look into the issue and the problem was solved. Sri Aurobindo commented that in the future, Indian culture would be cosmopolitan in character where all the regional cultures would mingle in a positive and healthy way. That, he predicted, would form the model for the future world. Such an intermingling of cultures has already been taking place in the US, which is one of the reasons for her strength. When two cultures meet, the mere interaction makes both their languages more vigorous. A meeting of Persian and Hindustani languages gave birth to the Urdu language which was Nehru's mother tongue. As a result of heavy cultural interchange, American English is fast emerging as a world language. World currency and world army are additional factors that will only strengthen it more.

Money has a tendency to grow by exchange as well as by increasing trust. It emerged on the scene in the form of coins. It was a great mark of mental development when humanity chose to accept coins as money. It was an act equal to changing from observation to ideation.

It has never been satisfactorily explained till today. It requires changing our focus from product to symbol. In Europe there has been a tradition of proxy wedding when the groom is away in the army. Such a thing is unheard of in India even today. Exchanging one product for another for the sake of a dubious symbol can be a risky affair. But money as a symbol was accepted for real and on the basis of that one act mankind made a tremendous advance in the proliferation of money. Coins in turn were replaced by paper currency and are recently being replaced by digital currencies. In both instances, it led to a great proliferation of money. Today the increasing speed of the internet and creation of new forms of money continue the trend.

"The emergence of global government is an inevitable development in the course of social transformation."

When a nation expands beyond its borders, money plays a significant role. The EU was patterned after the US and as such it marked a considerable progress in European affairs. However, her failure to establish a political union with a federal government and independent central bank has prevented the Euro from acquiring full effectiveness. German reunification brought about many problems of which currency is important. It led to a massive currency shortage but later on paved the way for its expansion. If world currency is created, it would lead to infinite increase in money supply. In theory, the power of Money and knowledge are infinite and only the limitations of social institutions are limiting their creation. In theory, the function of knowledge is to bring out the unknown.

When humanity gives up its ignorance, evolution will still move forward and it will bring out and give expression to what is already known within ourselves. The discovery of the reality of infinity is a movement from ignorance to knowledge. The computer stands at the border between ignorance and knowledge. It helps us to overcome impossibilities. The arrival of Indian numerals has made arithmetic very easy to learn. When insurance was first introduced, the premiums charged were high because there were few policies issued. Later, the whole society accepted the value of insurance and the cost for each insuree fell as risks were spread over a wider population.

This article covers both advantages and disadvantages of world unity. This phenomenon of duality is present in all walks of life. But in this case the advantages of unity are so predominant that one is tempted to ignore the disadvantages though they are present in a small measure. American society is very mobile and people are willing to go wherever jobs are available. This has helped to alleviate the stress of unemployment. Europeans tend to be more stationary and it is difficult to persuade a person to take up a job that is more than 50 miles away from his hometown. Stationary habits breed local attachment while mobility removes such an attachment.

Creation of global government is a further step in social transformation. Social existence began at the physical level and only much later moved to the mental level. At some stage the concept of society emerged, a landmark in human thought. When people realized the

importance of others for their own security, they formed social groupings instead of attempting to destroy others. As a first result, people began to live in collective settlements. Farming that provided food for the whole society became possible with the beginning of sedentary collective life. People lost their antagonism towards others who lived in the same settlement and reserved their hostility for those outside the community. What began as the local community later evolved into the present day Nation-State. Competition between communities evolved into competition between nations. The next evolutionary step is for the nation-state to evolve into the future world state, in which there will be no 'other' who is perceived as a foreign threat.

"Political equality can only become a reality when it is accompanied by economic equality."

UNESCO has launched a publication on the emerging social transformation. It is a sign that the thought has matured in the social consciousness of humanity. It is bound to further ripen into solid action. Up until now, national boundaries have been erased by imperial conquest. But the formation of the European Union and the United States of America is based on a higher way of living. The world stands to benefit greatly from the formation of the global state in the field of education. This field has been badly affected by two factors. One is memorization which has its origin in the period before the invention of the printing press. The other is that even though printed books were introduced centuries ago and the Internet now provides information at everyone's fingertips, the teacher is still regarded as the primary source of knowledge for education. Little has been done to replace the role of the teacher. Inadequate attempts have been made to shift the emphasis in education from transfer of information to stimulating thinking on the part of the student.

The Dictionary and Encyclopedia are landmarks in the history of education. When a student thinks on his own and interacts with other students and teachers he becomes alive in his mind. Learning becomes a process of thinking which means that the curiosity of the student has been awakened. When a student thinks on his own, his learning pace becomes 10 times faster than when he is simply taught. Many methods are known for awakening the student's curiosity. The American educator Glenn Doman has practiced his methods with great success. A global government will enable all such methods to be combined together for maximum benefit of the children. Once the student's curiosity has been awakened, the information of the whole world is at his disposal. Such an arrangement will considerably shorten the time required for study. Learning takes on a practical dimension and opens up the possibility of earning also. This will have a revolutionary impact. Any student studying by this method can abridge the time required for learning by 10 years and acquire the knowledge of an adult citizen by age 15 instead of 25.

The emergence of global government is an inevitable development in the course of social transformation. It is a movement away from the physical to the mental. When the physical plane is saturated, the excess energy moves up from there towards the mental. It cannot be stopped, though its course can be made to deviate as we have seen since the Great Crash of 1929. Capitalism which died during the Great Depression has been kept on life-support

for the past 90 or more years. The collapse of Communism in 1990 marked the beginning of the end for capitalism as well, not its final victory as so many concluded at the time. Its life cannot be extended further. We see that the cry for liberty could not be silenced since the break-out of the French Revolution. The same applies to the demand for equality. Economic equality has not yet been achieved and a wide inequality is the prevailing norm nowadays. Political equality can only become a reality when it is accompanied by economic equality. This process will be completed only when social and psychological equality are also achieved. Besides liberty and equality, there is also fraternity. The addition of fraternity is inevitable in the long run. The only reservation about such a development concerns the desirability of full equality before individuality has been achieved. Premature imposition of equality could lead to the suppression of individuality rather than its fullest development.

World government can infinitely multiply the dissemination of knowledge, social power and money. Any of these goals achieved prematurely could do harm. When it is achieved in excess measure, knowledge may lead to superstition and excess power may turn into cruelty. When money supply is in excess, its evolutionary role as a builder of society gets diluted. Abundant knowledge can be absorbed through wider education which can serve as a corrective measure. If values are in abundant measure, they can absorb excess power and thereby prevent its misuse. Abolition of competition on a universal scale will promote cooperation. We see excess of money in the US has prompted the country to act negatively in the UN. America's withdrawal from UNESCO endangered its very existence. What type of global government we get depends on what type of leadership we have. Global currency, language, world army and visa all await their birth in Time.

Author Contact Information
Email: ashokmirra@gmail.com

CADMUS, Volume 4, No.1, October 2019, 127-138

Scientists Reporting:
Top 25 Recent Online Reports on the Global Environmental Emergency

Michael Marien*
Senior Principal, The Security & Sustainability Guide;
Fellow, World Academy of Art & Science

Abstract

Earth scientists and biologists have much to say about the changing state of nature. Many of them join together in important collective reports, available free online, but too often ignored. It may well be even more powerful to assemble brief information on an array of these scientists' reports. To illustrate, abstracts of some two dozen reports, nearly all published in 2018 or 2019, are arranged in six categories: 1) Climate, Health, and Energy (IPCC, ICIMD, IEA, etc.); 2) Land and Seas (IPBES, IUCN, NOAA, etc); 3) Biodiversity, Food, and Water (IPBES again, WWF, FAO, UNESCO); 4) Agendas for Action (SDSN/SDGs, SRC/CoR, GCAS, IRC); and 5) Overviews (UNEP, WEF, GCF). Concludes with several questions raised by this exploratory exercise.

The information revolution in recent decades has produced floods of knowledge, opinion, disinformation, and entertainments in many new formats. Who should we consider for evidence-based thinking about the complex world we live in? Scientists,† of course, even though they may sometimes disagree. Even more important are carefully vetted reports from large groups of scientists. And still more important, arguably, is a survey of some two dozen recent reports‡ that are readily available online.

Generally, these free reports from major organizations concerned with urgent environmental issues are handsomely produced, amply documented, and clearly written. Most of these reports run into hundreds of pages,§ and are evaluated by scores and sometimes hundreds of scientists, and nearly all of them have executive summaries.

But most scientists' reports get little or no attention in the media or academia. Many journalists do not know of these reports, or describe them only briefly. Most of academia is still devoted to creating original bits of knowledge in journal articles and occasional books,

* Michael Marien is an independent social scientist living in Central New York. He is a Fellow of the World Academy of Art & Science, and Senior Principal of "The Security & Sustainability Guide" to over 2,000 organizations (www.securesustain.org), a project of WAAS.

† "Scientists" are defined here in the conventional usage of natural, physical, or "hard" sciences.

This excludes the "soft" social sciences, the humanities, and the professions, where scholarship is often as rigorous, although sometimes influenced by ideology or individualistic flourishes. A more important distinction is that natural scientists are prone to working together, as illustrated by the reports reviewed here and important journal articles with multiple authors, sometimes in the dozens.

‡ Apologies are due for the squishy count of reports. There are 25 "primary" reports (one of them in two parts) and 8 "secondary" but related reports that are added on and briefly discussed.

§ This survey includes 11 reports over 450 pages, including two that are over 1,500 pages.

while ignoring the "gray literature" category of new online reports that summarize the best of scientific thinking on "wicked" existential problems. Book reviews are confined to fiction and non-fiction books, usually in hardcover. Admittedly, one does not give a climate change report as a Christmas gift, or choose it for summer reading at the beach. This is serious non-fiction, but it should be accessible to any and all who might be interested.

"Every year brings hundreds of new reports from hundreds of organizations, some more important than others. Any one report viewed alone does not do justice to the growing global emergency of too many people inflicting costly harm on the environment in too many ways."

The blame for obscurity is not entirely on the media, academia, government, or a disinterested general public. Nearly all recent science reports include a summary that is quite adequate for most potential readers. A few reports even summarize the summary, e.g. the IPCC "Headline Statements." But outreach stops at this point, instead of seeking new forms of dissemination to promote the necessary science-based transformation to sustainability.

Every year brings hundreds of new reports from hundreds of organizations, some more important than others. Any one report viewed alone does not do justice to the growing global emergency of too many people inflicting costly harm on the environment in too many ways, despite many efforts at mitigation, resilience, conservation, and developing new technological remedies.

A listing and brief discussion of recent scientific reports can help to focus attention on the general problem. A "Top 10" would seem adequate, but does not do justice to the many facets of the global environmental problem, or the many excellent recent reports, i.e., of the 25 reports identified here, more than two-thirds were published in the past year. With one exception,* all of them are collective efforts, and most of them solely by concerned scientists.†

1. Climate, Health, and Energy

Nearly everyone worried about global warming knows about the UN-sponsored Intergovernmental Panel on Climate Change, the authoritative agency in Paris that assesses climate change and its impacts, based on work by hundreds of scientists. Their recent offering, **Global Warming of 1.5 ºC** (Special Report, Oct 2018; 26p Summary and 3p Headline Statements), describes potential impacts and risks of 1.5 ^{0}C vs. 2.0 ^{o}C warming above pre-industrial levels, summarizing over 6,000 studies. It concludes that, at current

* The single exception to these collective reports is *A Farewell to Ice: A Report from the Arctic* by Peter Wadhams, who has as much of importance to say—and more—than the two other Arctic reports reviewed here. See review in *CADMUS*, 3:3, Oct 2017, 165-166.

† The Agendas for Action and the two Overviews on global risks are largely authored by economists and other social scientists, although certainly based on what "hard" scientists have written.

rates, "global warming is likely to reach 1.5 °C between 2030 and 2052," with severe risks (in order of importance) for corals, the Arctic region, small-scale fisheries, coastal flooding, and terrestrial ecosystems. Future risks can be reduced by accelerating coastal hardening, efficient irrigation, sustainable water management, etc. Four scenarios illustrate rapid and far-reaching transitions in energy, land, buildings, transportation, and industrial systems. The IPCC's history as a focal point of climate change assessment ensured widespread mention of this special report, far more so than any of the other reports listed below. But many others are equally important—and more readable.

The **Fourth National Climate Assessment**, a massive two-volume effort from the U.S. Global Change Research Program, was mandated by the U.S. Congress, and thus escaped the head-in-sand climate change denial of the Trump administration. **Volume 1: Climate Science Special Report** (2017, 470p; 23p Summary), provides a non-technical overview of US and global climate change—past, present, and future—with projections and scenarios of temperature and precipitation change, drought and floods, extreme storms, Arctic change, sea-level rise, and potential surprises.

Volume 2: Impacts, Risks, and Adaptation in the United States (Nov 2018, 1,515p; 86p Report-in-Brief with 8p Summary) provides an excellent survey of economic and social areas that will be increasingly imperiled, as well as a detailed assessment of projected changes in 10 U.S. regions. Growing impacts and risks are described for water and energy supply, land use, forests, ecosystems and biodiversity, oceans, high tide flooding of coastal areas, agriculture and rural communities (productivity decline expected, especially in the Midwest), built environment and cities, infrastructure and property losses, transportation, air quality, threats to human health, threats to indigenous peoples, U.S. international interests, and sector interactions. Although Volume 2 is limited to the U.S., the framework for assessing rising costs of climate change, and where encountered, could be applied to any large country or region.

On the other side of the world, **The Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability, and People**, from the International Centre for Integrated Mountain Development (Kathmandu, Nepal; Jan 2019, 627p; 61p Summary from www.icimod.org) offers a different but no less concerned approach. The HKH region extends over all or part of 8 countries, encompasses 1.8 billion people—nearly six times the U.S. population—and is the source of 10 major river systems. This extensive and highly detailed regional report provides scenarios and proposals to meet the UN's Sustainable Development Goals for the endangered area, which is likely to see a major decline of water depending on the degree of warming. The ***Downhill Scenario*** warns that the Himalayas could warm by 4.4 °C and lose two-thirds of its glaciers, bringing major disruption to food and water supplies. The ***Business as Usual Scenario*** assumes that climate change mitigation does not meet the 1.5 °C IPCC target. The ***Prosperity Scenario*** envisions large-scale sustainable development investment, with regional, national, and local cooperation.

An especially worrisome report appears in Britain's premier medical journal, warning that public health gains of past decades are being reversed and offset by climate change.

Lancet Countdown: Tracking Progress on Health and Climate Change (*The Lancet,* 28 Nov 2018), was prepared by 150 experts from 24 academic institutions and UN agencies, who tracked 41 indicators across five domains: 1) climate change impacts, exposures, and vulnerability; 2) adaptation, planning, and resilience for health; 3) mitigation actions and health co-benefits; 4) financial aid economics; and 5) public and political support. It concludes that extreme heat, drought, and floods will continue, leading to more infectious diseases, lost labor, and diminished crop yields, and advocates a "global transformation for public health."

To deal with climate change, a major—but by no means only—response is to accelerate the transition from fossil fuels to non-polluting and renewable sources. But it is no easy matter, as shown in great detail by the "gold standard" of long-term energy analysis: the annual report of the International Energy Agency, an independent arm of the OECD in Paris. **World Energy Outlook 2018** (Nov 2018, 650p; 6p Executive Summary) describes global energy trends, energy and the Sustainable Development Goals, and scenarios for oil, natural gas, coal, energy efficiency, renewables, and growing dependence on electricity. Three overall scenarios are provided. The ***Current Policies Scenario*** leads to increasing strains on almost all aspects of energy security. In the ***New Policies Scenario***, a rising tide of electricity, renewables, and efficiency improvements stems growth in coal consumption, and oil use for cars peaks in the mid-2020s. But trucks, planes, ships, and especially petrochemicals keep overall oil demand rising. The share of renewables in the power mix will rise from 25% today to around 40% in 2040. The ***Sustainable Development Scenario*** accelerates clean energy transitions with an integrated strategy to achieve energy access, air quality and climate goals, and carbon capture, utilization, and storage. The share of renewables will rise from 25% today to two-thirds in 2040. The share of generation from nuclear plants will stay at around 10%.

2. Land and Seas

Many people concerned with environmental issues know of the IPCC. But very few are aware of the equally important Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (www.ipbes.net). Their **Assessment Report on Land Degradation and Ecosystem Services** (2018, 686p; 44p Summary) is a powerful eye-opening work by 184 authors, summarizing some 4,000 sources. Land degradation—a pervasive, systemic phenomenon in all parts of the world—is a major contributor to climate change. Current degradation of some 12 million hectares per year, notably desertification, "is negatively impacting the well-being of at least 3.2 billion people" and represents "an economic loss of c.10% of global gross product." Declining land productivity also leads to socio-economic instability. "Unless urgent and concerted action is taken, land degradation will worsen in the face of population growth, unprecedented consumption, and climate change." A global target of Land Degradation Neutrality will require new policies. However, reversing current trends "could generate up to $1.4 trillion per year of economic benefits." Widespread lack of awareness is a major barrier to corrective actions. Also see **Climate Change and Land** (IPCC Special Report, Aug 2019 draft, not paginated), stating that "climate change has adversely impacted food security and terrestrial ecosystems, and contributed to desertification and land degradation in many regions." In turn, changes in land conditions drive global and regional

climate by affecting intensity, frequency, and duration of extreme events. Adaptation and mitigation responses are proposed, as well as near-term actions.

Land degradation parallels changes to the oceans, as reported in **Ocean Connections: An Introduction to Rising Risks from a Warming, Changing Ocean** from the International Union for Conservation of Nature (May 2018, 466p; 37p Summary). "The ocean is now changing more rapidly than it has for millions of years," due to human interaction with the atmosphere and land, as well as increasing expansion of the human footprint across the ocean. This extensive work by 80 scientists describes ocean/earth system interaction, extreme storm events, pollution, hypoxia (oxygen deprivation), acidification, human health and disease, harmful algal blooms, coral bleaching, fisheries and aquaculture, rising sea levels, ineffective governance, and ocean warming consequences and costs.

Changes in both land and sea are especially profound in the Arctic region, as noted in the **Arctic Report Card 2018** (Dec 2018, 113p; 2p Summary), of the U.S. National Oceanic and Atmospheric Administration. Published annually since 2006, these essays involve 81 scientists from 12 countries on the acceleration of ice melting in a region where temperature changes are twice as high as elsewhere. Topics include rising air temperature, melting of the Greenland ice sheet, terrestrial snow cover, the rising threat of marine microplastics (higher than all other ocean basins in the world), the increase in river discharge, harmful toxic algal blooms, and how Arctic warming affects the jet stream by allowing cold Arctic air to move south. Curiously, methane is not mentioned.

"Clearly accelerating" change in the Arctic is also described in **Global Linkages: A Graphic Look at the Changing Arctic** (March 2019, 54p), produced by GRID-Arendal, a Norwegian foundation cooperating with UN Environment, written by a team of 15 scientists and 12 reviewers. In addition to many maps and charts, the clearly-written text warns of the melting cryosphere (ice, snow, permafrost), pesticide and industrial chemical pollutants, plastics pollution, mercury, and biodiversity concerns. Permafrost—22% of Earth's surface—is melting and expected to make a major contribution to CO_2 and methane emissions, leading to more thawing. A 20% decline in the current permafrost area is expected by 2040, with 50-65% decline by 2080. Also see **A Farewell to Ice: A Report from the Arctic** by Cambridge University physicist Peter Wadhams (Oxford University Press, 2017, 240p) who describes Arctic methane release as "a catastrophe in the making," creating extra global temperature rise of 0.6 °C by 2040. This is a well-informed outlier position at present, but may soon become mainstream.

3. Biodiversity, Food, and Water

The Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services issued a lengthy summary of its **IPBES Global Assessment Report on Biodiversity and Ecosystem Services** in May 2019, with the full report of >1,500 pages to be issued later in 2019. It is "the most comprehensive ever completed," building on the landmark Millennium Ecosystem Assessment of 2005. Based on a systematic review of about 15,000 sources, it was compiled by 145 expert authors from 50 countries, with inputs from another 310 contributing

authors. The IPBES Chair warns that "The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of our economies, livelihoods, food security, health, and quality of life worldwide." Some 75% of the land-based environment and about 66% of the marine environment have been significantly altered by human actions. Land degradation has reduced productivity of 23% of global land surface. Some $235 to $577 billion in annual global crops are at risk from pollinator loss. Plastic pollution has increased tenfold since 1980. Heavy metals and other wastes have produced >400 ocean dead zones. Of the 8 million estimated plant and animal species on Earth, including 5.5 million insect species, up to 1 million species are threatened with extinction, many within decades. The number of invasive alien species has increased by 70% since 1970. Over 2 billion people still rely on wood fuel for their primary energy needs. And $345 billion in global subsidies for fossil fuels are resulting in $5 trillion of overall costs, including nature deterioration externalities.

"A global transformation of the food system "is urgently needed" to feed a future population of 10 billion people."

Complementing the above, the 12th edition of the World Wildlife Fund's biennial flagship report, **Living Planet Report: Aiming High** (Oct 2018, 144p; 35p Summary) provides the latest data of the WWF Living Planet Index, which tracked over 4,000 vertebrate species in the 1970-2014 period. The key finding is that global populations have declined by 60% due to agriculture and over-exploitation, and increasing human consumption. WWF proposes a new global deal for nature to reverse biodiversity loss, with a 2020-2050 roadmap for action offering clear goals, targets, and metrics, in support of their Bending the Curve of Biodiversity Initiative. Also see *Nature Communications* 10 (3 Jan 2019), on the rapid decline of bees and other invertebrates.

The State of Biodiversity for Food and Agriculture (Feb 2019, 529p; 64p Overview; 4p Executive Summary), is the first global assessment from the Food and Agriculture Organization of the UN, Commission on Genetic Resources, drawing on information from 91 country reports prepared by some 1,300 contributors, and inputs from 175 authors and reviewers. Discusses genetic resources (animals, forests, aquatic), ecosystem services, insect pollination, soil formation, and resilience. Biodiversity is essential to food and agriculture, but many key components are in decline, due to multiple interacting drivers of change. Much of the planet's biodiversity is being eroded, "often at an alarming rate." Use of many biodiversity-friendly practices is increasing, but "sustainable intensification" is needed to ensure food security and nutrition. Also see **The State of Food Security and Nutrition in the World 2019** (FAO/UN, July 2019, 212p), warning that some 2 billion people worldwide experience moderate or severe food insecurity, including 8% of the population in North America and Europe, and **Mainstreaming Biodiversity for Sustainable Development** (Organisation for Economic Cooperation and Development, July 2018, 180p; 4p Executive Summary), on the value of natural ecosystems in economic growth and good practices in agriculture, forestry, and fisheries.

The EAT Foundation in London, along with *The Lancet,* have formed the EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems. Their report, **Food in the Anthropocene,** was published in *The Lancet* (16 Jan 2019, 47p; 30p Summary from https://eatforum.org). The 37 scientists from 16 countries, led by Walter Willett and Johan Rockström, warn that most of the world population is inadequately nourished and many environmental systems and processes are pushed beyond safe boundaries by current food production. A global transformation of the food system "is urgently needed" to feed a future population of 10 billion people, by increasing consumption of healthy foods (fruits, vegetables, nuts, whole grains, legumes) and decreasing consumption of unhealthy foods (red meat, sugar, refined grains). Also see **Creating a Sustainable Food Future: Solutions to Feed Nearly 10 Billion People by 2050** (World Resources Institute, World Bank, UNEP, UNDP, July 2019, 556p; 90p Synthesis Report, Dec 2018), warning that food demand is on course to increase by 56% in the 2010-2050 period, and demand for animal-based foods by 70%. Meeting this demand requires reducing food waste, shifting to plant-based foods, increasing fish supply, and improved food production without expanding farmland.

The **UN World Water Development Report 2019: Leaving No One Behind** (March 2019, 182p; 9p Executive Summary), published by UNESCO on behalf of UN-Water, notes that "water use has been increasing worldwide by about 1% per year since the 1980s," due to population growth, economic development, and evolving consumption patterns. Water demand is expected to increase 20-30% above current levels by 2050. Agriculture, with 69% of global water withdrawals, will remain the largest user, although total share of water use is likely to fall. Over 2 billion people live in countries with high water stress, and some 4 billion people experience severe water scarcity for at least one month per year. Levels of water stress are likely to increase. "Improving water resource management and providing access to safe and affordable drinking water for all is essential for eradicating poverty, building peaceful and prosperous societies, and ensuring that no one is left behind on the road to sustainable development. These goals are entirely achievable, provided there is a collective will to do so." **WWDR2018: Nature-Based Solutions for Water** describes soil moisture retention, groundwater recharge, constructed wetlands, green roofs, etc.

4. Agendas for Action

The most prominent agenda worldwide is the UN's 17 Sustainable Development Goals "to transform our world" by 2030, adopted in Sept 2015. A detailed overview of progress to this end is **Sustainable Development Report 2019: Transformations to Achieve the Sustainable Development Goals. Includes the SDG Index and Dashboard** (Bertelsmann Stiftung and Sustainable Development Solutions Network, June 2019, 465p; 2p Executive Summary), with considerable detail finding mixed results. Denmark, Sweden and Finland top the Index, but "no country is on track for achieving all 17 goals." High-level political commitment to the SDGs is falling short of historic promises, e.g.: SDGs are mentioned in central budget documents in only 18 of 43 countries surveyed. Half of the world's nations are not on track for achieving SDG 1 (No Poverty). Countries obtain their worst scores on SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 15 (Life on Land). No country is

"1.5 °C compatible" or a Role Model for climate mitigation; all EU countries are "Insufficient," China is "Highly Insufficient," and the US, Russia, Saudi Arabia, and Turkey are "Critically Insufficient." Six transformations are needed to achieve the SDGs, as regards education/gender/inequality, health/wellbeing/demography, energy decarbonization and sustainable industry, sustainable food/land/water/oceans, sustainable cities and communities, and digital revolution for sustainable development (see J.D. Sachs, J. Rockström, and five others, "Six Transformations to Achieve the Sustainable Development Goals," *Nature Sustainability,* 26 August 2019). The **2019 US Cities Sustainable Development Report** (SDSN, July 2019, 52p) has ranked 105 cities annually since 2017. The top four: San Francisco/Oakland, San Jose/Santa Clara, Seattle/Tacoma, and Madison WI. The worst city was Baton Rouge LA.

Most of the scientists' reports identified here provide an agenda for action to remedy all or some of the above problems. Several reports emphasize speeding up the agenda, notably **Transformation is Feasible: How to Achieve the Sustainable Development Goals Within Planetary Boundaries** (Oct 2018, 58p), published by the Stockholm Resilience Centre as a Report to The Club of Rome. Jørgen Randers, Johan Rockström, and four others describe four scenarios in detail: 1) *Same*: baseline of current policies; 2) *Faster:* acceleration of economic growth; 3) *Harder:* government and business try harder to deliver on the UN's 17 Sustainable Development Goals; 4) *Smarter:* choosing five transformation actions: rapid renewable energy growth, accelerated food chain productivity, a new development model, reduced inequality, and investment in health and education for all. Randers is one of the four authors of **The Limits to Growth,** the well-known first Report to the Club of Rome in 1972. Rockström is the former director of SRC and lead author of the nine "planetary boundaries" concept published in 2008. This important concept is not described here in any detail, but amply reinforced by the other reports on this list.

The **Exponential Climate Action Roadmap** (Sept 2018, 107p) was presented at the Global Climate Action Summit in San Francisco, concerning global economic transformation by 2030 to meet the Paris Agreement, halving emissions by 2030, energy supply, green bonds, circular economy approaches to production, green buildings, food consumption, forest management, and game-changing strategies. Written by 20 scientists from SRC, Future Earth, WWF, and other organizations, it underpins the Entrepreneurs Call to Action signed by over 300 CEOs.

In 2014, the Global Commission on the Economy and Climate published **The New Climate Economy,** arguing that ambitious climate action need not cost much more than business-as-usual growth. **Unlocking the Inclusive Growth Story of the 21st Century: Accelerating Climate Action in Urgent Times** (World Resources Institute, 2018, 207p; 6p Key Findings and Summary) argues that "we are not making progress anywhere near fast enough." Current economic models "are deeply inadequate" in capturing opportunities for a transformational shift or the grave dangers of climate inaction. "Bold action could yield a direct economic gain of $26 trillion through to 2030, compared with business-as-usual. And this is likely to be a conservative estimate." The challenge now is to accelerate transition to "a new climate economy in five key economic systems: energy, cities, food and

land use, water, and industry." Priorities for urgent action are pricing carbon, investing in natural infrastructure such as forests and wetlands, zero-emission energy transition plans, and reforming regulations and incentives that hamper shifting to a more circular economy.

The circular economy approach is described in detail by **Re-defining Value—The Manufacturing Revolution** (2018, 272p; 56p Summary), produced by the International Resource Panel, launched by UNEP in 2007 to improve use of resources worldwide. A circular economic system is needed for a sustainable global economy, enabled by remanufacturing, refurbishing, repair, reuse, and value-retention processes, resulting in less waste, green jobs, and lower production costs. The seven authors highlight systemic barriers that may inhibit progressive scale-up, and how they could be overcome. IRP has also published **Global Resources Outlook 2019: Natural Resources for the Future We Want** (March 2019, 158p; 36p Summary) on material resources, water, land use, environmental impacts, multi-benefit policymaking, and two scenarios: Baseline and Sustainability.

5. Overviews

A very extensive overview—"the world's most comprehensive environmental report"—describes the **Global Environment Outlook Report 2019** (March 2019, 708p; 25p Summary in six languages), the flagship report of the UN Environment Programme. First published in 1997, this 6th report (GEO6), with the theme of "Healthy Planet, Healthy People," covers climate change as a priority issue, the growing chasm between rich and poor countries, declining genetic diversity as a threat to food security and ecosystem resilience, rising sea levels and ocean temperatures, ocean acidification, water quality "worsened significantly since 1990" in most regions due to organic and chemical pollution, governance challenges, biodiversity ("a major species extinction event is unfolding"), land and soil, resources and materials, effectiveness of environmental policies, the need for transformative change, innovations for systemic transformation, trends in target achievement for selected Sustainable Development Goals, and benefits from following sustainable future pathways: human health and well-being, prosperity, and resilient societies.

In marked contrast to the hefty 708-page GEO6, **World Scientists' Warning to Humanity: A Second Notice** by William A. Ripple and seven others (*BioScience* 67:12, Dec 2017, 1026-1028) is a compact 3-page overview, a follow-on to an earlier 1992 statement. Signed by >15,000 scientists from 184 countries, now organized as the Alliance of World Scientists, most environmental trends of the past 25 years were seen as "getting far worse." Concern is expressed about current and potential damage to planet Earth, the 35% increase in human population since 1992, and "potentially catastrophic" climate change. Governments are urged to take immediate action as "a moral imperative to current and future generations of humans and other life." A 13-point agenda is outlined, calling for renewable energy sources, dietary shifts to mostly plant-based foods, reducing food waste, access to family planning services for all, more outdoor nature education for children, halting conversion of forests and grasslands, well-funded and well-managed nature reserves, and "drastically reducing" consumption of fossil fuels, meat, and other resources.

"In the 2020s, new leadership in new directions is needed from experts and advocates, inside and outside of academia."

In further contrast to the two overviews above, **The Global Risks Report 2019** (Jan 2019, 107p), issued by the World Economic Forum of corporate and government leaders meeting annually in Davos, Switzerland, is based on the WEF Global Risks Perceptions Survey of "nearly 1,000 decision-makers from the public sector, academia, and civil society." Scientists are not mentioned, although some respondents, at least, probably have science backgrounds. This 14th annual edition on evolving risks summarizes the top ten by likelihood and impact. ***Top Ten in Likelihood:*** extreme weather events, failure of climate change mitigation or adaptation, natural disasters, data fraud or theft, cyberattacks, man-made environmental disasters, large-scale involuntary migration, biodiversity loss/ecosystem collapse, water crises, asset bubbles in a major economy. ***Top Ten in Impact:*** weapons of mass destruction, failure of climate mitigation/adaptation, extreme weather events, water crises, natural disasters, biodiversity loss/ecosystem collapse, cyber-attacks, critical information infrastructure breakdown, man-made environmental disasters, spread of infectious diseases. No action agenda is proposed, but the report is a valuable reminder that weapons of mass destruction and ruinous cyber-attacks can worsen environmental problems even more. We cannot have sustainability without security, but we also cannot have security without sustainability.

Global Catastrophic Risks (2018, 79p; 7p Forward), the annual report of the new Global Challenges Foundation in Stockholm, overlaps with the WEF Risks Report in concerns about nuclear weapons, chemical and biological weapons, catastrophic climate change, ecological collapse, pandemics, and natural disasters—specifically a globally catastrophic volcanic eruption. It differs from Davos by considering an unlikely asteroid impact, technologies such as artificial intelligence and solar geoengineering, and unknown risks. Concludes that "the next 50 years will determine the next 10,000 years," and that "much is at stake, too little is done, and if we wait until later, caring may no longer matter." Amen.

6. Concluding Questions

Summing up, these recent online reports present several questions.

- *Too Long, or Too Short?* Some readers with eyes glazed over will find this survey to be too long, while others could argue that it is too short. Surely, the short abstracts presented here beg a more extensive analysis of similarities and differences between these "save the world" agendas, along with many others such as the Green New Deal.
- *Too Disconnected?* The SDGs are mentioned in a few agendas, but are generally ignored, as are other, competing agendas. Is it desirable to attempt to overcome this fragmentation to some degree?
- *Does Aggregation Make Any Significant Difference?* Will more and better surveys help understanding and/or accelerate action? Will calls for a carbon tax or remedies for deforestation by ten large organizations, instead of one, make any difference?

- *Climate Change, or Global Environmental Emergency?* Most scientists, as well as the public, focus on the wicked problem of climate change, increasingly seen as a "climate crisis." It is certainly an existential threat. But, as many of these reports demonstrate, it is part of a wider global environmental emergency involving degraded land, polluted oceans and air, and declining biodiversity. Even if climate change is halted in coming decades—which is highly unlikely, as increasing Arctic thawing adds more greenhouse gases—the other environmental problems will remain. Will a broader picture of the global environmental emergency encourage more action on climate change, or dilute attention?
- *Why Is There No Information System for Sustainability?* A comprehensive system is needed to identify all important sustainability information—reports, books, organizations, conferences, and articles not only in academic journals but in newspapers and magazines. It should not be confined only to Bibliography, but to Abstracts, Surveys, Indexes, and Critiques. This is easily remembered as Operation BASIC, proposed nearly 60 years ago and still on target.* There are hundreds of information portals offering information on climate and other related matters,† but they are still relatively narrow and overly academic, missing most or all of the hundreds of online reports and "green" books published every year, and failing to highlight what is most important by and for the global leaders of the 2020s who must facilitate the necessary transformations to sustainability.
- *Is a New Strategy Needed?* Generalized reports from leading scientists are important, and deserving of far more attention than they get, both individually and collectively. But, insofar as priorities go, we do not need still more books and reports, let alone obscure journal articles, or more "transdisciplinary" thinking in general, as some advocate. Thinking broadly about strategy, more effort should be made in public outreach: op-ed essays, spin-off articles, and talk-show appearances by leading authors, journalists, and advocates for the evidence-based transformation. Most of the reports in this Top 25 overview include a readable summary, which could be copied and sent to activist groups, teachers, busy policy-makers and, more importantly, their staff members. Also, in addition to the ethical and existential reasons for taking action, far more attention should be given to the benefits of green policies and the costs of ignoring or actively denying what the scientists are saying, and not taking appropriate action or promoting inappropriate action such as supporting fossil fuels.

The key issue is how to develop a broader and deeper appreciation of this emerging global emergency, which by all informed accounts is worsening. In the 2020s, new leadership in new directions is needed from experts and advocates, inside and outside of academia. They

* Bertram M. Gross, "Operation BASIC: The Retrieval of Wasted Knowledge," *Journal of Communication* 12, 1962, 67-73. Also discussed in Bertram M. Gross, *The Managing of Organizations* (Free Press, 1964, 858-860), as regards "the [urgent] development of more effective knowledge availability systems" for improvement of administrative education—what would currently be seen as "governance"—due to "information overload" and the "problem of trying to keep up" (pp.857-858)

† See Overview Section 1E of The Security & Sustainability Guide (www.securesustain.org) for a listing of over 150 information portals, all useful but none comprehensive.

should promote the broader concept of an increasingly costly environmental emergency that threatens national and global security, draw more attention to the best environmental reports and ideas, and engage in new forms of outreach. An annual list of important recent science reports is one of many necessary actions. The sooner these actions are taken for better environmental information management, the better, for the health, security, and well-being of all.

Author Contact Information
Email: mmarien@twcny.rr.com

New political alliances and new elements of regulation are needed if the emerging problems are to be solved.

Estelle Herlyn & Franz Josef Radermacher,
Income Distribution and Social Policy: Relevance for the Social Dimension of Sustainability

Democracy cannot be effectively functional without highly educated people who are accustomed to independent thinking. Independent thinking turns into unhindered self-expression through high political activism and regular free elections.

Giuli Alasania,
Turning Points: In Search of a Post-Cold War Global Security Order

Obstinate resistance to progress has always plagued and retarded human advancement. With greater knowledge, higher levels of education and more powerful means for communication now available, humanity is better poised than ever before to overcome the obstacles.

Garry Jacobs,
Beyond the Nation-State: Failed Strategies and Future Possibilities for Global Governance and Human Wellbeing

As long as we cling to a monetary monoculture, democracy, national sovereignty and further economic integration will remain mutually incompatible and we will stay trapped in the global trilemma.

Stefan Brunnhuber,
Overcoming the Global Trilemma: New Monetary Politics in the Anthropocene: Dani Rodrik Revised

System change necessarily occurs in the context of seeing humanity and the planet as a vast living—and alive—collaborative system.

Petra Kuenkel & Sandra Waddock,
Stewarding Aliveness in a Troubled Earth System

Leadingship recognizes that each of an organization's members has a unique set of physical, intellectual, moral and spiritual strengths and weaknesses.

David Harries,
Global Leadership in the 21st Century

In the 2020s, new leadership in new directions is needed from experts and advocates, inside and outside of academia.

Michael Marien,
Scientists Reporting: Top 25 Recent Online Reports on the Global Environmental Emergency

CADMUS

Inside This Issue

The Emerging New Civilization Initiative (ENCI) invites us to explore a paradigm shift towards seeing the world as an interconnected whole and to bring such a view into the mainstream discourse of global sustainability transformations.

Carlos Alvarez-Pereira,
Emerging New Civilization Initiative (ENCI):
Emergence from Emergency

Understanding the workings of the human mind is critically essential to see our way out of the many blind spots that trap us. Society has always been led by individuals with strong, value-based independent thinking. We need an education that releases such individuality in everyone.

Janani Ramanathan,
All the Education We Need

Millions of people should not be suffering in this wealthy, intelligent, advanced, supposed democracy. It is time to end this insanity. Implementing a sustainable financial system is a critical aspect of ending this injustice and maximizing the wellbeing of all citizens and society.

Frank Dixon,
Sustainable Finance

Agenda 2030 is based on systems-thinking and emphasizes that the SDGs are indivisible. A major challenge for governments today is to ensure that goals are not addressed in isolation and effects are not measured against single indicators alone.

Hans d'Orville,
The Relationship between Sustainability
& Creativity

What type of global government we get depends on what type of leadership we have. Global currency, language, world army and visa all await their birth in Time.

Ashok Natarajan,
Advantages and Disadvantages of
Global Unity & Disunity

Continued…