

Emerging New Civilization Initiative (ENCI)

Emergence from Emergency

Engagement Paper - June 2019

Making the Impossible Inevitable

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.

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 keep 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 the challenges, mostly created by ourselves? None of the incumbent discourses is able to answer these questions. Business as usual answers 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 between ourselves. 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 to the Dubrovnik Meeting share 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 than 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 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, CO2 emissions were again on the rise in 2017. The world invests in renewable energies several times less than 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 to 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 they are based on a decomposition method. They split 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 (the people present at the Dubrovnik Meeting) think or 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 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 hitting 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 both 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.

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 have also 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, even if 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?

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, 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 one. 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?

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.

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 to living within her, taking care of her health as much as ours (on 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 a deepening 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 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.

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 one of the perspectives, 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 so-called "Artificial Intelligence") are invoked. Learning more from biological processes and using our capacity to acquire, transmit and process information seem 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 not we 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 individual transformation itself produce the creation of a new paradigm? Will the present obsession on 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 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 who 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 open more windows into the feeling, intuitive and non-verbal communications within and between us. It would also 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.

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.

Beyond this philosophical (and uncomfortable) question, we have many blind spots relevant to our future as species. A big one is that, for the time being, sustainable development is an oxymoron. When looking 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 at 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 arising 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 me 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.

What is the Unique Role of CoR and WAAS combined?

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 to include 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 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.

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 the attendants to the Dubrovnik Meeting. 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.

Credits

This paper does not pertain to an individual, it is rather the outcome of many inspiring dialogues and readings, put down in black and white by a 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 to the Dubrovnik Meeting. Not to mention the authors of the references listed below, of course.

References

- Alvarez-Pereira C. (2016)** "Towards a Society of Living". *Eruditio*, volume 2, issue 2, 72-101.
- 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.
- Andersen L.R., Björkman T. (2017)** "The Nordic Secret. A European Story of Beauty and Freedom". Fri Tanke.
- Bardi U. (2017)** "The Seneca Effect. Why Growth is Slow but Collapse is Rapid". Springer. *Report to the Club of Rome*.
- 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.
- Bateson G. (1979)** "Mind and Nature: A Necessary Unity". E.P.Dutton.
- Bateson N. (2016)** "Small Arcs of Larger Circles: Framing Through Other Patterns". Triarchy Press.
- Bateson N. (2017)** "Warm Data". International Bateson Institute.

- Bauman Z. (2008)** "The Art of Life". Polity Press.
- Bonneuil C., Fressoz J.B. (2013)** "L'évènement Anthropocène. La Terre, l'histoire et nous". Éditions du Seuil.
- Brundtland G.H., Ehrlich P. et al (2012)** "Environment and Development Challenges: The Imperative to Act". University of Tokio Press.
- Capra F., Luisi U. (2014)** "The Systems View of Life. A Unifying Vision". Cambridge University Press.
- Ceruti M. (2004)** "Taches aveugles, écologies du changement, dynamiques d'auto-organisation". Conférence ACX-APC & AFSCET, Paris, Campus Jussieu, 26/10/2004.
- Daly H. (2008)** "Towards A Steady-State Economy". Report to UK Sustainable Development Commission, 24/4/08.
- Fiorini R.A. (2018)** "Transdisciplinary Education for Deep Learning, Creativity and Innovation". *Eruditio*, Vol 2 Issue 4, July 2018.
- Funtowicz S., Ravetz J. (1993)** "Science for the Post-Normal Age". *Futures*, volume 25, number 7, September 1993, 739-755.
- Georgescu-Roegen N. (1971)** "The Entropy Law and the Economic Process". Harvard University Press.
- Göpel M. (2016)** "The Great Mindshift: How a New Economic Paradigm and Sustainability Transformations Go Hand in Hand". Springer.
- Graeber D. (2011)** "Debt: The First 5000 Years". Melville House.
- Hayashi Y. (2019)** "Note on New Civilization. A Japanese Perspective". Private communication.
- Healey R. (2009)** "Holism and Nonseparability in Physics". Stanford Encyclopedia of Philosophy, Stanford University.
- Hoffman R. (2012)** "On the Need for New Economic Foundations. A Critique on Mainstream Economics". *Cadmus*, volume 1, issue 5, 77-85.
- Jackson T. (2009)** "Prosperity without Growth. Economics for a Finite Planet". Routledge Ed.
- Jacobs G. (2014)** "Ways of Knowing: Life Beyond Chaos". *Eruditio*, volume 1, issue 4, 9-30.
- Jantsch E. (1980)** "The Self-Organizing Universe. Scientific and Human Implications of the Emerging Paradigm of Evolution". Pergamon Press.
- Korten D. (2018)** "Ecological Civilization and the Earth Charter: Pathway to the World that Can Be". Private communication.
- Korten D. (2019)** "Economics for the People of a Living Earth". Private communication.
- Künkel P. (2018)** "Stewarding Sustainability Transformations. An Emerging Theory and Practice of SDG Implementation". Springer. *Report to the Club of Rome*.
- Kunneman H. (2010)** "Ethical Complexity". In "Complexity, Difference and Identity: An Ethical Perspective" (Cilliers P., Preiser R., editors). Springer.
- Lanier J. (2010)** "You Are Not a Gadget". Penguin Books.
- 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.
- Lietaer B. (2011)** "Au coeur de la monnaie. Systèmes monétaires, inconscient collectif, archétypes et tabous". Éditions Yves Michel.

- 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*.
- Maturana H., Varela F. (1980)** "Autopoiesis and Cognition: the Realization of the Living". D.Reidel Publ.
- Maxton G. (2011)** "The End of Progress: How modern economics have failed us". John Wiley & Sons.
- Meadows D.H. et al (1972)** "The Limits to Growth". Signet, 8th edition. *Report to the Club of Rome*
- Meadows D.H. (1999)** "Leverage Points: Places to Intervene in a System". The Sustainability Institute.
- Meadows D.H. (2002)** "Dancing with Systems". The Systems Thinker, vol 13, n° 2.
- Morris I. (2015)** "Foragers, Farmers and Fossil Fuels: How Human Values Evolve". Princeton University Press.
- 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.
- 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.
- Odum H., Odum E. (2001)** "A Prosperous Way Down". University Press of Colorado.
- Ostrom E. (1990)** "Governing the Commons: The Evolution of Institutions for Collective Action". Cambridge University Press.
- Ostrom E. (2007)** "A diagnostic approach for going beyond panaceas". PNAS, vol 104, n° 39, 15181-15187.
- Pauli G. (2010)** "The Blue Economy: 10 years, 100 innovations, 100 million jobs". Paradigm Publications. *Report to the Club of Rome*.
- Peccei A. (1977)** "The Human Quality". Pergamon.
- Piketty T. (2013)** "Le Capital au XXIe siècle". Éditions du Seuil.
- Polanyi K. (1944)** "The Great Transformation. The Political and Economic Origins of Our Time". Beacon Press.
- Postman N. (2005)** "Amusing Ourselves to Death: Public Discourse in the Age of Business". Penguin Books.
- Prigogine I. (1997)** "The End of Certainty. Time, Chaos and the New Laws of Nature". Free Press.
- Ragnarsdottir K.V. (2015)** "How does Permaculture Stack Up in the Real Economy". International Permaculture Conference, London.
- 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*.
- Renn O., Chabay I. et al (2018)** "Global Sustainability Strategy Forum". Institute for Advanced Sustainability Studies (IASS).
- 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.
- Rosa H. (2005)** "Une critique sociale du temps". La Découverte.

Rushkoff D. (2019) "Team Human". W.W. Norton & Co.

Schor J. (2014) "Sustainable Lifestyles and the Quest for Plenitude". Yale University Press.

Sen A. (1999) "Development as Freedom". Oxford Economic Press.

Spash Clive L. (2008) "Deliberative Monetary Valuation and the Evidence for a New Value Theory". *Land Economics*, volume 84, number 3, August 2008, 469-488.

Steffen W. et al (2015) "Planetary Boundaries: Guiding human development on a changing planet". *Science*, published 15/1/15.

Sterman J.D. (2006) "Learning from Evidence in a Complex World". *American Journal of Public Health*, vol 96, n° 3, 505-514.

Stirling J.D. (2014) "Towards innovation democracy? Participation, responsibility and precaution in the politics of science and technology". UK Government Office of Science.

The World In 2050 Initiative (2018) "Transformations to Achieve the Sustainable Development Goals". International Institute for Applied Systems Analysis (IIASA).

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.

UN World Commission on Environment and Development (1987) "Our Common Future". Oxford University Press.

Valero A., Valero A. (2015) "Thanatia. The Destiny of the Earth's Mineral Resources". World Scientific.

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*.

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*.

Zhou J. (2019) "The Technological Turning Points of an Ecological Civilization". Private communication.