Leverage Points Meets Sustainable Transformation: Speeding Up Sustainability Progress and 101 Mindset Barriers to It

"Give me a lever long enough and a fulcrum on which to place it, and I shall move the world."

--Archimedes

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Abstract: Big societal changes are very likely necessary to address climate change and other environmental and social problems—and fast. But there are no methods, ideas, or Theories of Change (ToC) that can sufficiently and reliably guide us. As part of the exploratory research period for a Ph.D. thesis on big societal changes, the author attended conferences in two related academic fields that study big societal change, Sustainability Transformations and Sustainability Transitions. The conferences were: "Leverage Points for Sustainability Transformation" at Leuphana University, a main focus of this article; and "The 10th Annual International Sustainable Transitions Conference," Carlton University. These fields have believed that such changes must take decades—but it is too risky to assume we still have that much time. The first conference focused on retrieving and inserting one of the classic frameworks of complex systems giant Donella Meadows into the Sustainable Transformations field. It explored whether the metaphor of leverage points and some of the characteristics of Meadows' original 12-level hierarchical model could fit within this field and, in particular, increasing systems level-impact in exchange for relatively low levels of effort.The first conference was largely successful in re-discovering some of the potential of the leverage points framework, a major accomplishment as it could be one such way to accelerate big societal changes. The ideas presented must be extended much further. However, some mindset barriers were shown at that first conference, but were partially overcome at the second conference. A large number of mindset barriers are also discussed in this paper based on the author's decades-long experience as a change-agent. Given the surprising quantity and range of mindset barriers, the author hypothesized that they are an unexpected obstacle to big societal change. Since mindset barriers were shown even at such a conference explicitly aiming for big societal changes, this is early evidence that mindset barriers are both pervasive and correctable. It was also realized that problematic mindsets are actually an interpretation of the second highest-ranking of the 12 leverage points, which indicates their importance as obstacles to systemic change. Whereas trying to address them is consistent with the highest ranking leverage point: challenging the paradigm/mindset.

Keywords: Accelerating Change, Leverage Points, Mindset Barriers, Sustainable Transformation

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[1]The author has been a sustainability change agent for over 40 years. He has worked in state and local government; business; academia, including as a Senior Fellow at Fairleigh Dickinson University's Institute for Sustainable Enterprise, and a past adjunct professor at Montclair State University (MSU). He is a writer, was a journalist for a local radio station, and served on the Board of Ghana 4E, a non-profit organization that is building a computer school in Ghana. He also is a perpetual student.

Introduction[2]

This paper discusses:

- What led to the author's Ph.D. topic
- Summarizes the most important insights from the exploratory work and what has been learned to date about big societal change, including from the Sustainable Transformation and Sustainable Transition fields
- Provides the author's observations from conferences offered by each, particularly the first-time exploration of leverage points into the Sustainable Transformation field
- Is both highly exploratory, and with original thoughts, based in part on the author's over 40 years as a sustainability change-agent and many failed sustainable development initiatives. It hypothesizes that mindset barriers within gatekeeper groups may be one reason why sustainability initiatives and ideas not only fail, but can be non-starters
- Several concepts, such as: ideas about change; definitions of Transformation and Transition; quite a bit about mindsets and mindset barriers, close synonyms to the latter, characteristics of them, many examples of them, and, eventually speculates on some possible ways to overcome them
- Briefly explains Meadows' Leverage Points model and links it both to mindset barriers and overcoming them
- Provides recommendations for the two fields and to OIDA
- Finally, it is hoped that it is particularly useful to students and young professionals, including as an example of how to get the most out of conference attendance; and, for those who choose to aim big. More of these efforts must succeed, and might benefit from awareness of one unexpected "opponent," and the different shapes it could take. Overcoming these, too, beyond more conventionally known barriers to sustainability, most likely are critical to successful transformations.

Methodology

As part of exploratory research for a Ph.D. on big societal changes, the author attended conferences in two academic fields highly related to this subject: Sustainability Transformations and Sustainability Transitions. These were: "Leverage Points for Sustainability Transformation" in February, 2019 at Leuphana University, Luneburg, Germany, a main focus of this article; and "The Annual International Sustainable Transitions Conference," at Carlton University, in Ottawa, Canada. The latter is treated less comprehensively, mostly as a comparison to the former.[3]

The first Conference focused on retrieving and inserting one of the classic articles of systems giant Donella Meadows into the European-oriented Sustainable Transformations field. It explored whether the metaphor of leverage points and some of the characteristics of Meadows' original 12-level hierarchical framework could fit within this field, especially its enticing promise of increasing systems level impact in exchange for relatively low levels of effort. That ramped-up effect is what is needed in a young field facing the dilemma of sensing we're running out of time, while nearly all the precedents transformation studies seems to show that big societal changes have to take decades—time we no longer have.

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[2] A 15-minute first version of this paper was originally presented at the International Conference on Sustainable Development, at Harvard Medical School, in Boston, Massachusetts, on December 11, 2019. This conference was co-sponsored by the Ontario International Development Agency (OIDA), International Centre for Interdisciplinary Research in Law, Centre for Research in Social Justice and Policy at Laurentian University, and MSU.

[3] The author also attended an earlier conference on Sustainable Transformation at the University of Dundee, and four pre- and post-conference workshops at these three conferences, attended by some of these fields' leaders. He read much of the extensive grey literature on change and transformation, participated in several webinars, viewed videos, attended other forums on transformation, including an art exhibit on it. Some of these were outside of the societal-level context of this topic, such as personal and organizational transformation, searching for potential overlap. Besides the presentation to OIDA; he presented aspects of this paper to a group of artists at an Art Gallery, to get their unusual perspective; to academics at a Sustainable Curriculum Consortium Forum, for the most part hearing about transformation for the first time; and to his classmates and advisors of his Ph.D. program. After which, he processed their reactions, and is well into looking into their many suggested leads. He also began reading the academic literature on these two fields.

Besides just conference attendance, results are based on observations from: active participation in the sessions; review of all students' posters; discussions with students;[4] sampling the range of communications modes offered, most of which were unconventional and apparently designed for several learning styles (e.g. extensive real-time cartooning,[5] reviewing a display of attendees' ongoing notes about their thoughts on conference themes,[6] and posting of questions by attendees, encouragement of attendees to sit at a certain area and hold a discussion on a topic announced either by that attendee or another, viewing a periodic film of interviews with people who knew Donella Meadows giving their memories); giving early feedback to conference organizers, to which they listened and responded; large ball-tossing with the "catcher" earning the right to express their current thinking to the overall group[7]; and an Improv[8]; two articles by the organizers (Abson et al 2016; Fischer and Reichers 2019); and comments by the author at the ending "Fishbowl" plenary session.

Of course, a limitation is that no one could be at all sessions of a conference with simultaneous panels and activities, so most likely key points were missed. Beyond these, this work relied on the many mindset barriers that the author has observed during his decades as a change-agent. Much of the mindset work was discussed in Polsky (2019) issued in January, 2019. The author continues to actively collect new mindset barriers since then.[9]

Background

Why This Basic Subject

The author thought: at this point in life, how can he possibly make a big difference—even if he fails, so why not study big societal changes. So many of his previous big picture sustainability attempts, and the efforts by groups he helped, failed. Why? And if he has one big attempt left, what could it be? Perhaps, if we could sufficiently understand how to do so, we consciously could create big changes.

Ideas About Change

While Sustainable Transformation and Sustainable Transitions are relatively new fields, ideas about "Change" itself are not new and are quite common. There are actually many which are called Theories of Change (ToC) within mainstream society. Table 1 shows some of them, as well as some characteristics imputed to change itself. For some ToCs, the figure associated with it is given.

Table 1: Many Explicit or Implicit Often Popular Theories[10] of Change and/or Ideas or Mottos about It
Take advantage of crises;[11] be prepared when crises hit
Be the Change (Gandhi)
The secret of change is to focus all of your energy not on fighting the old, but on building the new (Dan Millman)
Keep on Keepin'-on

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[4] Student-employees assigned a monitoring or other function, and those at tables representing a cause, were particularly happy to be asked their views

[5] This was called "Visual Harvesting," and is aimed to have "a leverage effect" of its own, "as single actors see how they are connected in a bigger system, they are enabled to adapt their actions more accurately to what is needed. This encourages a diversity of perspectives and purposeful collaboration (Lang et al 2019 p.6)."

[6] This was called "Thematic Harvest Walls," "where…[attendees] can record…'aha' moments and insights (Lang et al 2019 p. 7)."

[7] The author's one time success in catching a foul ball at a baseball game did not carry over to catching that big dancing ball, so there was no real time input provided then.

[8] The first time doing that, which was an apprehensive experience, way outside the comfort zone, worrying: "I hope no one caught me on camera doing that!"

[9] Fortunately, or perhaps unfortunately, seeing mindset barriers has become almost automatic.

[10] "Theories" is meant here less in the academic sense, although there may be connections with some of them; and more in the popular sense.

[11] While this article was written before the coronavirus pandemic, thus far the author sees no contradictions with any fundamental point stated. However, as we proceed through, and emerge from, the pandemic period, some things may very well change, including unimagined opportunities for, and actual, swifter, large scale societal changes. While we don't know how long lasting they will be, we're already seeing very non-trivial possibilities in how we spend our time, how we communicate, the social hierarchy of occupations, the net linkage with climate change, even what we think is most important. Probably, more changes are inevitable.

We shall require a substantially new manner of thinking if mankind is to survive (Albert Einstein)
Vote!
Social Protest/Stages of social movements: Indifference, Ridicule, Abuse, Repression, Respect (Gandhi)/Take Friday off from school and protest (Greta Thunberg)/Civil Disobedience or going beyond that/Engage in Mass Noncooperation (Sunrise). These are often now linked to heavy use of social media
Sue the bastards
The times they are a-changing (Dylan)
The more things change, the more they stay the same (Jean-Baptiste Alphonse Karr)
Disconnect from the mainstream and work at the local/micro-scale level
Be a pebble creating ripples in a pond
You must change yourself before you can change the world
Hope and Change (President Obama)
We need more education
Aim for 3.5% of the population; that's enough to accelerate things
Ch-Ch-Changes (David Bowie)
Getting in trouble is necessary (John Lewis)
Walk a tight rope between conformity and rebellion (Debra Meyerson)
Just be nice/Pay-it-forward…and trust the effects you'll never see
Change happens out of discomfort (Renee Lertzman)
Provide information about alarming threats. That will change behavior
Don't focus on personal consumption. Focus on changing systems. The former are both relatively miniscule in effect, with their choices bound by the latter
The 100th monkey phenomenon (Lyall Watson)
Major decisive court cases
Famous books

The above, while fairly common, possibly somewhat true ideas about change and how it works, perhaps serve other functions such as a social one and providing comfort and meaning to some frustrated with the current pace of it. A presumption is they are not proven to be able to rely on, and inadequate for, guiding the big changes we probably need.

Big changes are conceptually distinct from the much more common small, incremental changes. Incremental changes are often the implicit assumption of those working on projects to improve sustainability. They can be seen as more practical, concrete, embraceable, and, one ToC has it, can add up; and, according to another ToC, can approach transformational change. The emphasis here on big changes doesn't imply that incremental changes aren't also needed. If we don't succeed with transformational changes, we have to hope that, cumulatively, incremental ones will be enough.

However, newer goals like pursuing zero net carbon emissions by 2050 (and especially by 2030, as has started to be heard) most likely cannot be reached incrementally. They are going to require some big changes.

Similarly, Rockstrom et al (2009 p. 1) showed "Three of nine interlinked planetary boundaries have already been overstepped." These are the "rate of biodiversity loss, climate change and human interference with the nitrogen cycle." This means we have already exceeded the cushions and, as Herman Daly said,[12] we are eating into our ecological support systems. It is again too risky to rely on just small changes, even an ever-widening accumulation of them, to take us where we need to be.

Still, though, the prevalent view in the grey literature is that the only thing that will work are incremental changes.

A Challenge to the Conventional Wisdom and a Possible Opportunity

The conventional wisdom on change may be missing something—big.

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[12] The author traveled weekly from Trenton to the University of Maryland to be his student, and when teaching, passes on some of Daly's ideas to the next generation—perhaps a form of leverage.

Four years ago, the author noticed three huge changes in the U.S.: the Supreme Court ruled that state laws that ban gay marriage are unconstitutional; Southern states began ridding themselves of monuments that reflected their heritage of slavery; and mainstream society accepted transgenderism.

These were all unexpected, appearing as overnight changes, and with surprisingly minimal blowback from mainstream society. Possibly, there could be an opportunity which is being missed that big, transformational change actually could happen—and quickly. This is contrary to the conventional wisdom that only small, incremental changes are practical, should we need more big changes--as we probably will, such as for addressing climate change.

Further, these might not be the only historical or contemporary big societal changes. Table 2 shows other examples of big societal changes that, (very) arguably, show some of these same properties and/or at least suggest questions and/or nuances for evaluating whether they legitimately meet this level of change.[13]

Table 2: Other Actual or Potential Examples of Transformational Change
The Arab Spring
The end of Apartheid…and not leading to revenge
Cultural shaming of indoor smoking, drinking and driving, not using seat belts, development of a recycling ethic
Partial de-shaming of mental illness
Fall of the Berlin Wall, the Soviet Union and communism
Increasing mainstreaming of vegetarianism and veganism
The election of the first black President in the U.S.
#MeToo Movement
Decrease in global extreme poverty
Less participation by young people, and now some professionals, in football
Greta Thunberg and climate change
Black Lives Matter
Occupy Wall Street
MOOCs
Partial mainstreaming of pot
Brexit and other global populist movements
Recent political unrest in several countries
The election of Donald Trump as U.S. President[14]

Transformation, Transitions, and Leverage Points

The author's dissertation advisors recommended that he explore two European-oriented related fields: Sustainable Transformation and Sustainable Transitions to assess their ideas and status to enable him to see their insights on big societal change. A classmate recommended reviewing Donella Meadows' leverage points model.

Definitions of the first two terms are shown in Table 3.

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[13] Subsequent study of some of these "sudden" big societal changes led to some partially revised thinking. (1) Initially they were seen as rare. Now, while uncommon, they are not quite that rare. (2) There is a wide variety of use of the term, "Transformation," which ranges from legitimate; to possibly legitimate but more relevant to the personal transformation area, like EST; to questionable, as nothing more than disguised incrementalism. (3) While it's still totally surprising when they occur, it is now better understood that a lot of less visible momentum had been building towards them, with many prior efforts and even personal sacrifices. (4) While they are usually positive, at least in the author's view, there is more awareness now that they can be negative, or depend on the viewer's perspective; or might have mixed positive and negative qualities. (5) The author is much more aware now that there can be a lurking backlash to a positive transformation, that when it emerges can put the whole big change at risk. Further, whether a transformation actually occurred or not may depend, in part, on when you decide to assess it. Nonetheless, the possibility still might exist that actual, sudden big societal changes can happen, as maintained by Simms & Newell (n.d.). The specifics provided by the latter are outside of the scope of this paper.

[14] This one, in particular, raises issues as it reversed some of the earlier presumably permanent changes in many public policy areas. It brings up questions about how real the latter really were. The former did have the above-qualities of being big and unexpected.

Table 3: Definitions of Transformation and Transition
Transformation: "…radical changes in the ways in which we perceive our world, create relationships, and organize our societies (Waddell 2016 p. 1)"
Transition: "A process of structural, non-linear systemic change in dominant culture, structure and practices…that takes place over a period of decades (Loorbach 2017 p. 5)"

The author assessed these fields by attending the two aforementioned conferences, as well as a prior one at the University of Dundee, some reading of their academic literature, and through some discussions with these fields' leaders, both at these forums and one-on-one in Rotterdam, Dundee, Luneburg, Ottawa, Eindhoven, and Geneva. While they have developed impressive and useful tools and concepts by which to understand big change, and how to prepare and create pressure for it, they are not (yet) close to truly understanding what actually directly creates it, the big antecedent, the tipping point[15]—and, therefore, how to deliberately launch it. Further, their work, including the cases they study, had led them to believe that big changes must take decades.

Therefore, it is probably not worth the gamble to continue to try to discover and then use the missing piece to solve the big-picture question of how to create large societal change.[16] So the author switched his focus to two other big picture questions.

However, the author has not given up on how to make big change completely. As footnote 13 stated, big changes can happen quickly (Simms & Newell n.d.). The author discusses leverage points idea later in this paper, and also refers to Gladwell's (2002) tipping point idea in the Recommendations section.

Changed Research Questions

The author switched his research priority to one reason why sustainability progress has been so difficult: problematic mindsets, or mindset barriers.[17] While the existence of a few large mindset barriers are known, the lack of attention to this subject shows that, beyond the examples, they are not seen as a deep obstacle. Two of these are: (1) the common expectation that change must be slow and incremental. This, by its nature, makes it more difficult to conceive of how to make big changes quickly; and (2) the decades-old erroneous presumption that GNP accurately measures quality of life or standard of living. This presumption is still widely used and communicated as if it is perfectly fine (Polsky 2020). In contrast, a further hypothesis is that these mindset barriers are pervasive, which probably makes them harder to change, which, in turn, makes problem-solving even harder.

The current Research Questionsare:
- Are Mindset Barriers an obstacle to Achieving Sustainable Transformation?
- How can mindset barriers be overcome, at a societal-level scale—and quickly?

Mindsets and Mindset Barriers
Near-Synonyms

The common view of a "mindset" is extended. Table 4 shows several approximate synonyms to mindset barriers, including cognitive biases, a large category in itself.

Table 4: Similar Concepts to Mindset Barriers
Cognitive biases (over 30 of them, including confirmation bias)
Blind spots
Brain glitches

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[15] A term in common use, popularized by Gladwell (2002). These fields rarely actually use this term, and when they do they typically don't mean it in the same way as the specific action that once taken, or that occurs, creates or leads to big, accelerated change. They tend to mean it in a minor, non-game-changing sense, with observers of a transformation able to point to a number of tipping points along the way. This minor way of using the term may also hide different meanings of it.

[16] Sometimes, historically, that final pivotal event or action might have been unplanned, something that may have been inconceivable before it happens and/or outside of anyone's control.

[17] Certainly there are many other barriers to sustainable development, ranging from apathy to powerful interests actively fighting big changes.

Cognitive sticking points
Dogma
Group Think
Myths
Ideologies
Mantras
Certitudes
Competency Traps
Social Facts (Durkheim 1915 Cited in Westley 2017)
"Socially constructed assumptions and unstated beliefs that may function as barriers to desired transformations toward sustainability (Abson et el 2016 p. 6)"
Partial Frames/Narratives/Partial Truths that we mistake for complete
Obsolete assumptions
Common Sense/Conventional Wisdoms that are not always as accurate or current as assumed
Conceptual blindness

The multitude of terms show that the basic idea of "fooling ourselves," in one way or another, is not uncommon.

Characteristics and Definitions

The following are some definitions and characteristics of mindsets and mindset barriers.

Table 5: Definition and Characteristics of Mindsets and Mindset Barriers
We're not necessarily aware that we have them. They can be subconscious (Rimanoczy n.d.A)
These are barriers we do to ourselves; not those that we can blame on someone else (unless we want to blame our subconscious) (Polsky 2019)
"A fixed mental attitude and disposition that pre-determines a person's responses to and interpretations of situations (American Heritage Stedman's Medical Dictionary 2002)"
It's how we see the world
It's not necessarily the opinion itself; it's what behind it
Mindsets are not necessarily a bad thing, although they may appear to be. Rimanoczy (2013 and n.d.B) actually talks about them in a positive way in her previous and in-process work about the <u>Sustainability Mindset</u>.[18][19] A mindset can be true or correct. Mindset barriers, as defined and utilized here, however, are not
They're "Extraordinary…hard…to change (Cambridge 2019)"
Mindset barriers can be held even by the "good guys"
Mindset barriers appear to be pervasive
They are not like other types of human error, although it may sometimes be a grey area/They are not the same thing as, say, a mathematical mistake

Importance of Mindset Barriers

If mindset barriers are really that pervasive, they present an unexpected obstacle to resolving already difficult problems. Polsky (2019 p. 2) wrote: "These are barriers to awareness and critical thinking which keep us from seeing what we must see and process in order to address the problem, ways of seeing the world that are preventing us from being open to a fuller range of possibilities." Therefore, "…we're much less likely to have the

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[18] Rimanoczy's (n.d.B) positive "Sustainability Mindset Principles" are: Ecoliteracy, My Contribution, Long Term Thinking, Flow in Cycles, Both/And, Interconnectedness, Creativity And Innovation, Reflection, Self-Awareness, Purpose, Oneness With Nature, and Mindfulness.

[19] Gopel (2016) sees mindsets as being both barriers and good things in her <u>The Great Mindshift: How a New Economic Paradigm and Sustainability Transformations Go Hand in Hand.</u> She also invokes leverage points and is one of the few whose ToC calls for both small and big changes, calling it "radical incremental change."

important conversations and consider the ideas, including those out-of-the-box and creative ones, that may be necessary to better address climate change."[20]

Expanding upon a few of the characteristics in the above Table, as they cannot be blamed on external enemies, it puts the onus on us. And that can include even those working towards Transformation. They can range from high level ideas to even personal decisions made during a conference, such as whom to approach to strike up a conversation[21], or how real in practice is my self-identified "open mind?"

Examples of Mindset Barriers

Table 6 shows some of the mindset barriers identified by the author, mostly from a self-published article (Polsky 2019). The Appendix shows additional ones, including some observed since then.[22]

Table 6: Some Mindset Barriers Mostly From Observations by the Author
Business not only is, but must be, a villain. But little knowledge is shown, still, there even is a sustainable business or corporate social responsibility (CSR) field. So an intended audience for ideas is not in a ready position to consider or take advantage of the potential value of this field's many positive business actions, or how they could be extended and deepened—perhaps even substantially
In addition, CSR must be a fraud because if it wasn't it would have moved the needle by now
There is surprisingly little shared knowledge, even among some environmentalists and New Jersey Department of Environmental Protection (NJDEP) staff and managers, of what might be seen as basics. That is: (a) the earth is seriously endangered (the awareness is somewhat better now); (b) economic vitality depends on ecosystem health; and (c) it is possible for local and state-oriented organizations to work occasionally at the global scales—even after pointing out precedents[23]
There's a widespread quiet assumption (bi-partisan and shared by nearly all sectors, including journalists) "There's nothing new under the sun." Therefore, among other things, there is little to be learned from Europe, and little interest in new ideas and reports discussing them. What's more, recipients of reports about new ideas do not have to acknowledge them, management does not owe their writers any explanation if their recommendations are declined, and co-writers do not even seem to expect it
Certain things must always be true. There is no way around them: e.g. businesses and environmentalists will always fight; regulatory toughness goes in cycles
There's a strong preference in policy circles for values like: practicality, legality, political feasibility, political advantage, what is seen as "the real world"; as opposed to those not seen as important, such as vision, creativity, what is seen as "academic," or asking "What is really possible (or needed) if….?" Therefore, there is little exploration of productive hybrids like practical idealism, social entrepreneurship/innovation "which could help in the pursuit of creative ideas' which may be important for addressing climate change (Polsky and Lipoti 2016)."[24]
While "innovation" is often espoused (and not just in government), there is little comprehensive thought on what

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[20]Therefore this work is also relevant to several areas important to the OIDA: innovation, ideas, sustainable development, international development, policy, multidisciplinary thinking, inter-sector work, even practicality at more than the single loop learning level.

[21] A personal anecdote occurred at the earlier Sustainable Transformation Conference at the University of Dundee. The author tried to start a conversation with another attendee sitting near him during a break. That attendee ignored the outreach. As the break was rather long, the author decided to try again. This time the attendee saw the author's attempt to talk with her. It turns out that she is hearing-impaired and didn't notice the first attempt. Having had some family experience communicating with the hearing-impaired, the author and the attendee then had a delightful conversation.

[22] To clarify, this goes way beyond what was observed at a couple of conferences. These are from over four decades of many conferences, projects, meetings, articles/reports and the reaction to them.

[23]And this includes after the author co-wrote and published an article with the then-NJDEP Commissioner explicitly about this (Shinn and Polsky 2002).

[24]Polsky and Lipoti (2016) also "explored widely accepted 'opposites' and found that [in some cases] they actually are not, and 'can be complementary…" if "mental barriers [are] overcome." These included rationality and emotionalism, complexity and simplicity, data and non-quantifiables.

is stopping it, or even knowledge of social or policy innovation
There's a sense that transformational change is not feasible, necessary, or even desirable; that incremental or even baby-step changes are all that is necessary or doable
An often espoused "community"/"collaborative" orientation is not defined or necessarily lived up to, with no need to even check for it
"Both/and" thinking, a key tenet of transformation, as opposed to "Either/or," is not necessarily or consistently practiced, with, again, no need seen to check for it
The dictum is offered one must transform oneself first before one can help transform anything else, as a kind of necessary condition—but usually no proof or logical progression is offered
In mainstream circles, one cannot question society's demand for comfort, convenience, shopping, retreat from the shore due to sea level rise, what is seen as common sense, efficiency as fully beneficial (it is OK to ignore the Jevons Paradox about possible backfiring of efficiency-created actions, and therefore no thought generated on how to prevent it)
Diversity is self-explanatory; it can be defined at the level of presumed group identity, without looking for the actual person behind the assigned label. Therefore, it can be inherently limiting and aggravating to those who do not see their identify adequately captured
Density in land use planning is an absolute good, at least in cities and suburbs, with few good reasons seen to oppose it. Again, there is less thought on how to minimize the objections
It is acceptable to call for "more education" as an additional strategy to address a problem, without adding its several forms (such as unlearning, co-learning, or triple loop learning), treating something so fundamentally powerful and important almost as a superficial add-on
Truth-seeking in the philosophical sense, and the murky pursuit of it we once learned in philosophy class, is obsolete. So is objectivity, including even the pursuit of it, unless it is useful to claim it in a debate/Nuance is unimportant, with even the pursuit of it potentially questionable/The point is to "win the news cycle," or "educate" your social movement, and you don't say anything to jeopardize that
There is strong resistance to accepting being only "Part Right" on issues. Being certain, assertive, persuasive are seen as higher values than curiosity, comfort with ambiguity, saying "I don't know" or "Maybe there's more to this than what I'm currently seeing"
Stories or narratives are very important, but there is little need seen to define what are better or worse guides to, or forms of, them
We only manage what we measure (which also seen in the international development field); something almost doesn't exist if there isn't data for it; "Data speaks for itself." That is, it is self-interpretable, and all will see it the same way
Common forum ground rules to "keep politics" out of discussions in order to keep the peace is unrealistic and prevents the possible discussion of important topics
Humans are at the top of the food chain/hierarchy of species
A declared "open environment" that really has limits to what can be raised prevents the development of ways to address the suppressed issues
"Competencies"are emphasized in evaluation-type contexts, rather than voids or gaps that then need to be filled
Criticisms of capitalism/free enterprise/growth are made without clarifying which forms of it are problems, or whether clarification is unnecessary as all forms of them are
While recognizing the need for new paradigms or systems thinking, follow-up doesn't necessarily go beyond the current more progressive paradigm or practice advocated in real depth. For instance, complexity is invoked, but violations of tenets of it continue, such as seeking "optimization," invoking a single cause, or assuming an unknowing risk of missing the point by taking conventional advice to "communicate simply"
Building on the latter, as it is a bumpersticker/Twitter world, academic, overly scientific, or policy-wonky concepts put off people. Never use doom-and-gloom-laden messages, even though society and the universe are complex systems, with non-linearity's and tipping points, and an overwhelming presumption of "simple is best" risks missing the very point we're in a crisis. But if you say the latter, that risks depressing people and paralyzing their willingness to work on solutions[25]
Sustainability as not seen as newsworthy by mainstream media, decades after The Brundtland Report of 1987
Espousing country sovereignty and cultural relativity without seeing the possible human rights problems with

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[25] Ironically and paradoxically, we've recently seen the development of a "Tell people the blunt, scary truth" theme. However, we're not yet in a period where these two very different perspectives have been reconciled.

that, or the need for nuance
Declining population growth rates or actual population shrinkage continues to be seen as totally negative by mainstream media. Even after being told of this bias, reporting on this subject goes unchanged
The need for interdisciplinary work is espoused by academics, but without serious efforts to challenge identified obstacles to it, or to explore what it would really look like to practice it
Declarations are made of "Peak Oil" or "We're running out of resources" without both acknowledging that past such statements were sometimes inaccurate, or accurate only in narrow ways, and realizing that sustainability's enemies have taken advantage of these types of historical errors ("Yet again the enviros are saying the sky is falling!"), creating unnecessary barriers to transformation
Increases in energy prices cannot be considered, or their merits even weighed, in many discussions about addressing climate change and/or seriously converting to a green economy
The winner of political debates is determined by who had the snappiest lines or best insults of an opponent, and the best spinners

See the Appendix for many more examples of mindset barriers.

Leverage Points

Below, directly from Meadows' classic article, are the 12 leverage points. Most of the discussion at the conference revolved around number 12, as the least powerful way to make change; and numbers 1-3, the most powerful means. Meadows also discussed the general inverted relationship between their power and frequency of use. That is, the lower ranking ones are used more; the higher ranking ones are used less. (Although, to some degree, that's also related to their difficulty of use.)

Places to Intervene in a System (Meadows 1999 p. 3)

12. Constants, parameters, numbers (such as subsidies, taxes, standards)
11. The sizes of buffers and other stabilizing stocks, relative to their flows
10. The structure of material stocks and flows (such as transport networks, population age structures)
9. The lengths of delays, relative to the rate of system change
8. The strength of negative feedback loops, relative to the impacts they are trying to correct against
7. The gain around driving positive feedback loops
6. The structure of information flows (who does and does not have access to information)
5. The rules of the system (such as incentives, punishments, constraints)
4. The power to add, change, evolve, or self-organize system structure
3. The goals of the system
2. The mindset or paradigm out of which the system — its goals, structure, rules, delays, parameters — arises
1. The power to transcend paradigms

Number 12 gets disproportionate attention in several fields. One often hears, as mentioned in an above-mindset barrier: "We can't manage what we don't measure," including in international development, although "evaluation" is the more common synonym there. It is still important, though, as seen in the recent Nobel Economics Prizes awarded for evaluating the different results of interventions between experimental and control groups.

An alternative way of expressing the second leverage point is important to mention as it helps further connect the "mindset barriers" theme of this research to leverage points. Remembering that "world view" and "mindset" are such similar terms, the second could be seen as: "…underpinning…world views of actors that shape the emergent direction to which a system is oriented (Abson et al 2016 p.3)." So if a mindset is wrong, or only part right, it can have an impact.

It is also worth showing alternative ways to express Number 1, as heard at the conference, as they get at different aspects of the Leverage Point that Meadows said was the most important:
- Challenging the Paradigm/Mindset, including one's own
- What do all existing paradigms miss?
- Acknowledge the wisdom of diverse perspectives, knowing that each of them is limited
- Making a conscious shift (Fischer & Riechers 2018)

The top three leverage points are most likely where the best chances lie for transformational change (Fischer & Riechers 2018).

Results

The German conference was largely successful in re-discovering some of the potential of the leverage points framework, a major accomplishment. Their ideas, though, need to extend much further.

A major way would be to ponder the identification of problematic mindsets, consider whether there are even more, and then begin to suggest how to change some of them. It was realized that this is very consistent with the two highest ranking of the 12 leverage points.

German Conference on Leverage Points: Some Yellow Flags

Two examples of mindset barriers were actually shown at the conference. Despite the messages heard there: "avoid radical certainty," practice "radical listening,""interrogate [your] own paradigm," "no paradigm is true," and "be open to uncomfortable questions;" little attention was paid to the threat to transformations, and actual set-backs, from now worldwide populism movements. It was as if these don't exist, offer nothing positive worth listening to, or that the (potentially minimizable) backlash which could come from them aren't relevant. This was also despite the systems perspective, a major tenet of Meadows' work.

Based on the political views expressed, there also was little note made, or questioning about, only progressives attending a conference, notwithstanding the stated value of diversity.

Another mindset barrier was a strong critique of conventional science by some speakers, without also encouraging the need to maintain much of its strong foundation. Ironically, invoking populism again, other than the very different political leanings, the apparent position on science superficially resembles populists' distrust of "elitist" and "biased" science.

Conventional science was critiqued as reductionist, fruitlessly pursuing objectivity and unjustifiably rejecting subjectivity and values,[26] for hypocrisy, such as with faulty peer review or actual replicability, but without identifying what aspects of it are still special and powerful that should be preserved and made an essential part of a holistic composite. It was even unclear whether the scientific method—the Gold Standard--still fits. It is also politically naïve to do this as science provides perhaps the strongest arguments for addressing climate change.

That is not the message that the many student attendees should hear. Instead, students should be explicitly charged with co-evolving science to meet the challenges of sustainability, using the best of the old and the new, which is harder to do if they only hear the critique.

A hybrid approach to science would be more consistent with developing "a framework…[with] tremendous potential to help reveal key, hitherto under-explored avenues to sustainability (Abson et al 2016 p.8)," which the conference organizers see as the potential of absorbing the leverage points framework into Transformations.

Therefore, while reaching Number 2, questioning an existing paradigm and/or expressing an alternative, there was not yet a demonstration of Number 1, showing no uncertainly about limits to the explanatory depth of the latter.

It is noteworthy that mindset barriers were observed at such a conference, whose attendance included some of the field's leaders, but perhaps not so unexpectedly if mindset barriers are seen as either "human nature," just the way the brain often works, and/or maybe a necessary interim step.

For more of the author's observations at the Leverage Points conference, see Table 7.

Table 7: Observations at the Leverage Points Conference
The prior existence of 12 leverage points is not inviolate. You can come up with more/use the concept as a metaphor/[27]the classic article was not approached as a text which must be deconstructed as to her precise meanings, and necessarily kept to

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[26] These two, subjectivity and values, were often highly espoused. The author does not disagree, but perhaps they, too, can benefit from some nuances.

[27] Abson et al (2016 p.4) point out that Meadows "in her words," called them "a work in progress'—she aspired for them to be an invitation to others to think more broadly about systemic change."

One can also use the concept as a means for broader sustainability discussions, or different ways to communicate
The numerical order is transposed by some; e.g. 12 becomes 1 in some retellings
People vary in how they interpret them, or what is included in each, which is not that surprising as there is some ambiguity in a few of them.[28] You don't always know when you're talking about the same one
You can combine some of them. They can interact, with one (at either end) opening space for the other, in either a synergistic or negative direction (Abson et al 2016).[29]
The lower ranking leverage points are still important
Occasionally, Leverage Points and Tipping Points get confused (at least by the author), but they are not entirely separate
While it did not come up at the conference (to the author's knowledge), the organizers wrote about a possible misconception in order to head it off: "…while the analogy of levers and leverage points may imply simple mechanistic relations between a given lever (intervention) and systemic change, we are acutely aware that no such simple mechanistic relations exist." Further, "…changes resulting from the application of a given lever may be complex and unexpected (Abson et al 2016 p. 7)."

Other general conclusions of the German Conference are shown in Table 8.

Table 8: Other Observations at the Leverage Points Conference
The conference was certainly was successful in re-invigorating the Leverage Points idea. There was no disagreement with that main idea
Similar to the earlier discussion about the two fields, there are no silver bullets on how to use them, fundamentally or operationally (at least in the author's view), to take steps to make transformational change.[30] So we're not yet at the point where we can say much more than that leverage points are a promising way to change the conventional wisdom that we need decades for big changes to occur
There was a rare wrestling with the difficult concept of complexity, which usually is either ignored, or mentioned but without exploring its implications[31]

Hopefully, we will see more future use of the leverage points concept, better understanding of how to use them, and, perhaps, make some progress towards finding something close to those silver bullets.

The Ontario Conference

A contrast was found on some of these points at the Sustainable Transitions Conference in Ontario. This conference, in contrast to the first-time nature of the earlier one, benefitted from its stature as the 10th held by this field. Perhaps that encouraged its reflective nature. It didn't have to establish the basic ideas necessary to establish a field or sub-field, but, instead, could build more depth. It may also have benefitted from a new audience as it was the first time this conference was held in North America.

Just four months after the German conference, there was some progress in overcoming some of the above-mentioned mindset barriers.[32]

Table 9: Some Observations about the Ontario Conference
There was a specific session on populism, deconstructing it and seeing how it could actually be re-conceptualized, and possibly even helpful, overcoming the barrier at the German conference[33]

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[28] For instance, it is not clear whether a carbon tax falls in Numbers 12 or 5.

[29] Fischer and Riechers (2018 p. 1) point out: "sometimes, relatively superficial interventions may pave the way for deeper changes, while at other times, deeper changes may be required for superficial interventions to work." Abson et al (2016 p. 7) give a hypothetical example: "…it is possible that *parameter* adjustments (for example, agro-environmental payments to farmers) or changes in *feedbacks* (for example, increased understanding of the impacts of climate change) may challenge or even shift the mind sets of actors—therefore ultimately altering the emergent *intent* of a given system of interest."

[30] Other attendees may disagree with this.

[31] For instance, no one at the author's workshop table was worried that complexity overly hampers construction of actions.

[32] For the most part, this paper focuses on contrasts between the conferences, relating to the key themes. There were, of course, more topics discussed at this other conference.

There was an explicit realization: "We don't have decades," We must focus better on acceleration/There are things our field, Sustainable Transitions, doesn't know
They could sometimes take deeper perspectives; e.g. does transformation have to mean that literally everything has to get transformed?;[34] watch out for pseudo-transformations; do we not want to see fixes to current problematic policies because that would lessen pressure for needed big changes?
There still is no silver bullet identified to make big societal change
There was mention of various kinds of bias, a close synonym to mindset barrier, in the context of their presence making learning from failure harder[35]
There was recognition of the duality of objective versus activist science, and the need to reconcile them; and the same about reform versus radical change. These can create useful dialectics, although there is a risk of capture that prevents transitional change
They overcame the mindset that small business cannot help with Sustainable Transformation/There is a role for them
There was recognition that there could be cracks within the regime and therefore opportunities to work with select elements within it. Therefore the regime does not have to be totally opposed
There was also recognition of the presence of paradoxes in the quest for transition and some thought given on how to resolve them

Discussion/Conclusions

There is strong evidence that mindset barriers are both pervasive and fairly likely are an obstacle to transformation. If even those within these fields, dedicated to working for big changes, can show mindset barriers, then this might be a real if unexpected concern.

It remains a mystery how to get close to and actually take the final step(s) towards the actual transformation. Ideas like leverage points are one of the few ways now identified as at least having this potential. So rediscovering and legitimizing them is a key accomplishment. Certainly, though, these fields need to focus more on understanding and developing this final step toward the intended transformation.

However, given what we've now seen politically in several countries around the world with big changes that can be seen as transformations, but were then lost, such as some of the examples in Table 2 (e.g. much of what was accomplished during President Obama's term, seen by some as a nation- and culture-wide watershed when he was first elected, is being reversed; most of the Arab Spring is gone), backlashes have to be part of the picture. Therefore, some of those working towards transformations should give some consideration to potential backlashes, including how to try to minimize their existence or damage they could create. This could include some efforts to talk to populists and others not part of the transitions effort to seek some common ground as change is pursued.[36]

Since mindset barriers appear to be pervasive, there is an obligation to try to develop ways to overcome them. The following are suggested criteria that ideas would, ideally, have to meet.

Table 10: Criteria for Measures to Overcome Mindset Barriers
Must be potentially applicable to almost the entire society
Must be capable of being rapidly implemented, preferably accompanied by suggestions on exactly how to do this,

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[33] Ideas mentioned, although without a lot of subsequent critical analysis, were: legitimizing the frustration felt by some who join populist movements; actually using it as a way to support a carbon tax by emphasizing that even though prices will increase, the total electric bill will go down; it can protect common property, and benefit disadvantaged communities. It also was mentioned that populism, itself, is neutral, but can be co-opted by those with an authoritarian bent.

[34] The answer, after some discussion, was "No."

[35] Bruno Turnheim, at his session, "Failure in Socio-Technical Transitions," spoke of four types of biases: Prescriptive, Interpretive, Cognitive, and Selection. An example of each, respectively, is "Uncertainties are a difficult message," "Retrospective simplification," "Over-emphasis of radical novelty," and the "Risk of the illusion of determinism."

[36] See the author's eight-part Series on "Whether We Should and How to Talk to the Trump Voter (Polsky 2017)."

and also preferably not on a personal change-by-personal change basis. That is, they can work on multiple people at the same time
Testable with a population sample and/or in a specific place

For now, actual means to overcome mindset barriers are speculative. The following are some suggestions, which were compiled from the author's reading of the grey literature and by asking that explicit question to others.[37] If any seem to make the grade, they conceivably could be chosen as independent variables in the empirical part of the dissertation process. It is premature now to project how that could be done, or how the independent variables could be operationalized.

Table 11: Suggested Speculative Ways to Overcome Mindset Barriers
Spiritualism in politics based on some of the ideas of Marianne Williamson
Scale up empathy, meditation, yoga, mindfulness, reflection to the societal level
Slow down the pace of life, so that there is more time to process things/"Look Up: Put down your phone and take in the wonders around you (Haberman 2019)"
Much more community (but it has to be real)
Deeper ecological awareness within the population. Guided by experts, nature immersion experiences, particularly of those not familiar with it
Mainstreamed Greener design
Encouragement and reinforcement for admitting when wrong and that some truths can be murky or partial/Encourage looking for nuance and less settling for black-&-white thinking
More Greta-ism
Science fiction
Higher quality/More frequent conversations, particularly with those with different political views. Get to know them as people, first. Practice active listening
Scale up Art/Poetry/Philosophy to the societal level
Look to the Organizational Development field (Bill Reed, Isabel Rimanoczy, Kent Fairfield)/Look at the processes developed to create a positive "Sustainability Mindset" (Isabel Rimanoczy, Kent Fairfield) to see if they can be adapted as a way to overcome mindset barriers
Emphasize unexpected benefits, including when it is contrary to a common sense assumption; e.g. historically, "Pollution Prevention Pays"[38]
Love/"Give huge squishy hugs"
Be nice—particularly to those who are not to you/"Take a breadth and choose compassion. And then cry in private"/If you're stuck, flailing, or frustrated, just be nice…and you never know about the paying-it-forward results
Be a role model
"Make decency go viral (Cody Barlow)"[39]/More "So people really can be nice/honest/generous" YouTube videos
Swap narratives with those with whom you are feuding
More "Decency Citations" by Police to those "caught being nice"
Active Listening skills training in schools
Mandated classes for students in recognizing cognitive bias
Mutual concession of a personal vulnerability to change the atmosphere and catalyze a quality discussion with an adversary
Change rules for school debate from competition to co-opetition/Build-in mutual problem-solving in defining "the winner"
More memes (but can they reflect relevant nuances?)
Shake up normal routines[40]

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[37] Readers are invited to submit their own ideas to the author.

[38] An idea of Wim Hafkamp's.

[39] This one and the previous four ideas resulted at least partially from a request the author made through the Facebook page of Carol Peterson on December 1, 2019.

Recommendations

Here are some suggestions for the Sustainable Transition and Transformation fields, over and above the leverage points topic. Some of these involve operations at their conferences.

Table 12: Suggestions for These Two Fields
Do not limit pre-conference workshops to just "early career scholars" but keep them open to others, including those in their mid-career or even late-career switchers. Otherwise it violates the stated value of diversity
Practice greater Self-reflexivity (Polsky 2019). Ask yourself: is my self-identified open mind really open?
Community is too important to just assume it's working. As one way to express or operationalize espoused community, talk to someone at a conference who you ordinarily would not approach, including a student or a conference employee. Poke your head into what's going on at another, concurrent conference and cross-fertilize. If not immediately successful, give it another try
Ensure there are always some sessions at conferences on biodiversity
Deepen the substance of discussions about real world policy making and the policy/politics environment, including how it might be opened for supporting transformation
The art component at some of these conferences can be outstanding. Even when it is experimental and doesn't quite work, the willingness to try new things is commendable. Continue to build on this existing strength.[41]
Since these fields are still relatively young, and to large degrees offshoots of the sustainable development field, seek to learn from the experiences of those who were part of the latter from its beginning, seeking to make it mainstream. There is no time to risk making the same mistakes
At conferences, organizers should monitor Twitter use and say something if they suspect attendees with their heads down are possibly missing important insights or opportunities to connect the old-fashioned way
Part-way through conferences, organizers should approach some attendees and ask: "How is this going for you? Are we missing some things promised in the conference promotional materials or during the Introductory remarks?"
Also at conferences, bring up a couple of contemporaneous large societal issues and show how they can connect to these two fields. They can even be issues that had not been previously explicitly or commonly associated with sustainable development, such as tax evasion or European farm subsidies
The definition of "success" cannot exclude a resulting or threatening backlash
Give more attention to Gladwell's Tipping Points. Despite the sometimes randomness of some tipping points (in his sense of the term), explore whether there are some sorts of patterns to a number of final steps that actually immediately led (if "cause" is too strong) to big societal changes that can inform research, and possible action.

In addition, ponder the following:
- Could big societal change happen quickly? How (without being limited by a personal favorite ToC)?
- Are mindset barriers the big unexpected problem they seem to be, which is supported by an interpretation of Meadows?
- How can we overcome mindset barriers?
- How can we take advantage of the rediscovery of leverage points?
- Can we formulate a new science taking the best of the old and the new?
- Is it possible to avoid or at least minimize destructive backlashes? Do we need to, and can we learn to, talk to those with different political views—or are we doomed to fight? If the former, how do we steer beyond even an early polite stage towards actual cooperative problem-solving, particularly as areas of major societal tension cannot be indefinitely avoided. Under the right conditions—which would need to be determined, these new acquaintances might attempt to make a contribution, directly or indirectly, toward the pursuit of jointly agreed social change goals
- Can the incremental/big change duality explained in this article be seen as actually more nuanced; that is, with hybrid or intermediate forms of change?

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[40] This one and the previous four ideas resulted at least partially from a request the author made to his audience at a talk on the "Art of Progress," M Gallery, Washington Boro, on November 30, 2019.

[41] At one conference, a cartoonist took the author's suggestion about how to graphically show a just-made key point by a speaker, which was a thrill for the author to indirectly be involved in the artistic process.

- Is the pandemic, despite the intense damage it is causing, proving to open up both new types of big and positive societal change opportunities, as well as adding to our understanding of how big changes are possible (although preferably without the suffering) and fast?

  Here are two suggestions for the OIDA's Annual International Conference on Sustainable Development:
- Raise the bar for presenters of submitted presentation/paper topics to require them to cover the environmental leg of the basic sustainability triad, even if they choose to focus on the social or economics legs. That is, presentation proposals should not be accepted if they only discuss, say, financial aspects of a project or idea. That should not be considered sustainable development
- The conference Call for Papers should encourage the identification of environmental/economic relationships. Just how do they connect?

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Appendix

        Besides those listed in the "Mindset Barriers" section in this paper, this Appendix shows those mentioned in other documents written by the author (Polsky 2019) or the author's class (Polsky et al 2018), some newer ones observed that have not been referenced before this, and ends with some that others have noted. In total there are 101 identified mindset barriers.

Table 13: More Mindset Barriers
Discussions at climate change conferences, particularly those focused on students, that give the impression that a limited range of strategies, such as advocacy and activism on certain issues, are sufficient to address this immense problem/Saying or writing climate change will take "an all-of-the-above" strategy, but, in practice, focusing on a limited number, and excluding others
Refusal to show humility by not conceding "we don't fully know how to solve the problem"/Not emphasizing the need for constant learning, implying or sometimes explicitly stating: "We know how to solve climate change" (as distinct from "We know more than enough to start")
Only minor improvements in the level of bicycling are feasible
Carbon sequestration (by apparently any means) is not necessary and would necessarily distract from carbon reduction efforts
We can achieve ambitious goals without a vigorous, competent, visionary, creative, reflective, and responsive government
Current business-as-usual government stakeholder processes are sufficient
There is no reason to go beyond current common use of market "costs" and "prices," other than briefly mentioning in our Economics 101 classes that they vastly understate the economic and other damage from externalities, which is a huge part of why we have this problem. Therefore, it is much harder to even discuss a carbon tax
The focus by some on the issue, as they see it, of "over-regulation," "onerous regulators/enforcers," lost equity due to regulation creates such anger that it makes it hard to even engage a discussion of a green economy. Therefore, discussions about the role and properties of sustainable development-compatible regulation rarely occur
The apparent and certainly welcome-sounding agreement on most sides of debates that "we can have both economic vitality and environmental protection," with perhaps one or two examples given, can hide that we're not necessarily all talking about the same thing. If we're inadvertently talking past each other, we're not going to do our best in actually achieving "both." Further, we may not know how to do that, or what the best of both even looks like
There is a strong belief that small businesses cannot be expected to do very much that is sustainable, as they are preoccupied with survival, have to tend to conventional operational matters, and/or don't have the capital to invest in environmental actions
Any environmental claim by a business is automatically seen as "greenwash" in some circles, assumed to be illegitimate or fraudulent, which, among other things, does not provide much incentive for their trying something new in an environmental area needing improvement and innovation
There is a, perhaps, more insidious, nuanced form of denial that Gooding-Call calls "as harmful as any level of denial-based inaction." These are from "people who, theoretically, are on the right side." They "may absorb climate change information without processing it," and "…believers shake their heads and sigh about climate change before proceeding onward with business as usual," such as "moderate liberals [who] nod vacantly and ignore pleas to change… (Gooding-Call 2018)." This helps explain why even during politically "good" environmental periods we don't take the necessary steps. While it may be seen as important, it just

isn't that urgent. It isn't considered a mainstream topic or as relevant as the scandal or emergency of the day
In some circles, it is acceptable to argue for holding off on actions to address climate change if you can point to a larger alleged culprit. This can be seen (1) in international affairs, with countries pointing the accusatory finger at each other; (2) with personal consumption in favor of working at the systems level; and (3) with population size in favor of, paradoxically, personal consumption. The barrier is that all of these, plus many other actions, are necessary to reach transformational goals
It is considered perfectly fine to give one's usually negative view on "taxes" without being expected or asked also to consider the benefits provided by them, or confirm whether someone complaining about them is even aware that there are benefits, and is prepared to live without these. This contributes to a cultural norm that taxes are necessarily a bad thing, which also makes it more difficult to pass a carbon tax
While sustainability does come up from time to time at climate change conferences, usually it's as an adjective prefix to, say, farming or another field like architecture, which may or may not reflect any fundamental re-thinking of that field, as implied by the prefix. But for the most part, deep ideas and tenets from sustainability are often missing or not well integrated into the thinking about addressing climate change. It's as if climate change could be addressed without conscious and serious attention to sustainable development[42]
While environmentalism and sustainability are interrelated, with the former conceptually one third of the latter, in practice conjoining them, not seeing the differences
Seeing and communicating sustainability as a series of successes, positive accomplishments, involving relatively easy win: wins, necessarily requiring "benefits" to the potential sustainability actor in order to induce action—which may sometimes be true, but without mentioning it probably won't always be true. And then what do you do? Also not mentioned are the scope and depth of challenges ahead, current uncertainty about how to solve some of them, the philosophy and perspective the field offers to try to address them, or sustainable development as a framework to look at most issues
Sustainability education programs can be oriented to group projects and actions, and do not need to also communicate the special qualities of sustainability, such as opportunism, lifelong curiosity, representing who is not in the room, making additional systems connections, urgency, comfort with ambiguity, not being satisfied with even "success" and trying to go further
Seeing and communicating sustainability, even sometimes nominally as "interdisciplinary," "multidisciplinary," or "transdisciplinary," but without mentioning key fields such as philosophy, ethics, the philosophy of science, or the humanities
Critics of sustainability from the political left who are calling for new terms to replace it (such as Thriving, Flourishing, and Regeneration), often describing it inaccurately or incompletely, without necessarily understanding its full potential, the progress made by a number of sectors that would be confused by a change, the possible similar problems of the replacement term, and usually without describing what could be an acceptable relationship, such as an evolution, between the old and the new terms
Prominent graphical representation of the relationships between the three legs of sustainable development (i.e. economics, environment, social) which is not realized can be interpreted by an audience in completely opposite ways (e.g. economics encompasses the environment—versus vice-versa)[43]
Seeing social movements, with a heavy dose of political protests, as perhaps the most powerful way to effect change, emphasizing specific historical "victories," without considering whether the adversaries in the story stayed defeated and did not come back another day to re-gain power and eliminate the gains, or if the basic conflicts continue to play out for decades, with perennial ups-and-downs

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[42] The author recently had a conversation with a New York Times columnist who had been under the impression they are the same thing. Once corrected, he wrote a piece on sustainability, one of the first in the Times (Manjoo 2019).

[43] This was recently tested and confirmed in the author's talk at an Art Gallery (although, perhaps it was because artists are better at observing subtlety in artwork).

Framing political moderates and progressives as necessary adversaries, without realizing that in some ways they need each other politically and, over the longer term, influence each other's ideas
There's no point in seeking the humanity within political opponents. In effect, or in some cases it is seen as the reality that they don't have any, or it doesn't matter
Seeing the real or main purpose of pursuing a Ph.D. as to get a credential and to show you understand and can do "academic" work in order to get a job usually at a university, and not (or not also) take that period of the candidate's life to figure out the solution to a tough problem which could help society
A government leader subscribing to very ambitious net zero carbon emissions goals without simultaneously phasing out of planned new and even existing fossil fuel infrastructure, apparently not seeing these as contradictory
One person can only address a limited part of the problem and, therefore, suggestions to people, particularly students, should offer only limited steps they could take. In other words, other than perhaps at commencement speeches, those becoming interested in the problem are not alerted that, perhaps, they could be the exception that has the potential to take, invent, or inspire giant steps, or discover new paradigms that in the future create what becomes recognized as common sense
For success, it is necessary to focus on a few limited things, or "Stick to one's knitting;" as opposed to making relatively modest efforts to leverage the potential impacts in usually less visible ways of multiple, high potential change-agents working on multiple sustainability projects.[44] The latter can be seen as "unfocused," "scattershot"/"all over the place," or hampering the organizational/cultural necessity to have identifiable "projects," with understood ways of recognizing "achievement," "deliverables," or "wins"
Assuming that spirituality (or at least some aspects of it) has no place in mainstream politics, and when it enters the political realm treating the political candidate communicating it with "snark and mock[ing] (Power, 2019)," instead of listening and critically evaluating what they have to say
The con sides of recommended framings to win public support on issues are not explored, such as whether it reinforces the lack of recognition of, or appreciation for, nuance—which may be important at some point to more fully address the problem
Urban areas with major problems that are pursuing sustainable development rejecting free help from outside their city because "We have all the internal resources and expertise we need in our city." They overdo the understandable message that they have more internal resources and capacity than realized, and to raise spirits, but throw away possibly valuable external help, or are overly suspicious of it. They miss that "We're all in this together" and "Everyone needs help"
Environmental and sustainability giants or prominent figures who decline a request for a few minute conversation with someone approaching them, or don't suggest an alternative time or means. They do not seem to understand the thrill that would provide, as well as the opportunity for a life and/or career-changing moment for the person asking them; an investment in a conversation with hugely leveraged possibilities
Upcycling is not possible because it defies the laws of physics
The local level of government is the most appropriate and responsive scale to work on sustainable development because everyone knows everyone, including the Mayor[45]
Academics who don't see it as part of their role to read and comment on articles and reports about new ideas in their field, even if they are part of an academic network. They do not see it as important for there to be a vital epistemic community, of which they are a part, that helps to advance the development of new ideas, including on policy and ways to pursue sustainable development
A good idea is not possible if it comes from a group/country whose "Politics I don't like
Now that native/indigenous peoples' ideas about stewardship and the Earth are starting to be taken seriously,

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[44] This mindset might actually be true; that is, the only way that works, and not really then a barrier. However, the author hopes it's not actually true, at least for everyone, and would like to see some future professionals try to challenge the practice of it; see if they could be successful, both in conventional and much larger senses of the term; and build up a body of knowledge about what works.

[45] This one is probably partly true, at least for some people and certainly for some issues. But it overlooks the debilitating effects of potential personal feuds by local officials that makes it harder to get things done; insularity, exclusive focus on "pocketbook" or "pothole-filling" issues, and lack of interest about issues that while usually seen as relevant at larger geographic scales, still may have impacts at the local level.

we don't need to be constructively critical toward, or discerning about, these
Invasive species are always a bad idea
Sustainability is about [creating] value, but not about values—as opposed to both
Free will and autonomy are nearly impossible for people, to the point of not even needing to be part of the discussion. The urge, comfort, and appeal of conformity, as well as societal constraints to, and the penalties for, not doing so, are overwhelming

Finally, certain figures have pointed out forms of what this paper calls mindset barriers.

Fairfield cites many negative mindset qualities that others mention, starting with Doppelt:

- "One's primary focus [is] me
- Seeing the systems you are part of…experience our thoughts and feelings as separating us from other species or strangers who seem different…instinctively focus on single causes and one-way causation rather than feedback loops and non-linear change. We ignore time delays of outcomes. Symptoms draw our attention, not root causes, as do immediate effects rather than long-term patterns (Doppelt 2012)"…and "optimizing only certain parts will inevitably lead to suboptimal or even destructive outcomes for the entire system (Ackuff 2007 in Doppelt 2012)." "Our desire for quick fixes negates our ability to take accountability for more than merely fragmentary responses with complex systems like climate change…"
- "Earlier impulses toward survival of one's own family, tribe, and clan have outlived their usefulness…but the 'us-versus-them' mentality endures"
- (Not) "acknowledging your trustee obligations and taking responsibility for the continuation of all life"
- "Holding back" on "exerting our free will," giving into "confirmation bias," and …"considering ideas as established facts, not just our own inferences with which we construct our own understandings (Doppelt 2012)."

Fairfield also references Rimanoczy, who references Adams (2008):

- A "short time orientation
- A local scope of attention (Adams 2008 in Rimanoczy 2013)."

Fairfield asks: "Why is there so little action to reverse [our declining] course (Fairfield 2018)?" He then cites Rimanoczy's "several factors of resistance to [positive] change," which include:

- "Control—humans have claimed their superiority to the animal world for centuries, and this carries over to controlling the earth." She uses the term from Kolbert's <u>The Sixth Extinction:</u> 'species arrogance"
- "Comfort–….much of the quest for comfort in modern society has been purchased at the expense of exploiting natural resources beyond any sustainable level (Rimanoczy 2013)"
- (Referencing Markus and Kitayama) "Independence—… the general tendency of Americans toward a more individualistic construal of self militates against easily acquiring such a mindset concerned with general welfare… (Markus and Kitayama 1991 in Rimanoczy 2013)"
- "Competition—the drive to compete…runs deep. 'Survival of the fittest' reveals linear thinking and leaves little room for notions of collaboration for the common good. Hard-core market values and competition crowds out compassion and care for others and the world
- Speed–…the norm of speed offers the illusion of high productivity, even though it can leave little room for multi-faceted consideration and profound reflection"
- "When TV news reports daily on vicious political back-biting, mayhem and crime, it builds an accretion of expectations of self-centered, fear-drenched life in the world."

Rimanoczy also blames too much emphasis on "the classical scientific approach of left brain analysis of sustainability," and its "quashing" of "deep insights through strong intuition"… "by the premium put on positivistic proof (Rimanoczy 2013)."