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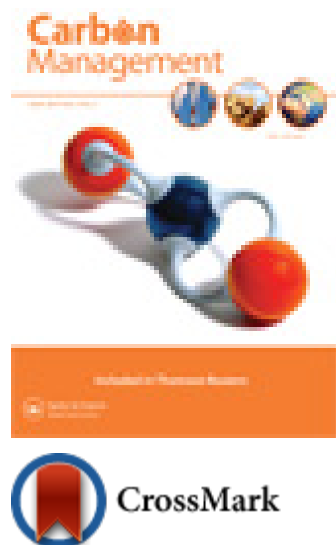
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Responsibility for radical change in addressing climate change

Carbon Management (2014)



Nicole des Bouvrie^{1*}, Sylvia Karlsson-Vinkhuyzen² & Nigel Jollands³

To radically address the problem of climate change, it is not enough to modify specific attitudes and behaviors while upholding the present paradigms. This article aims to show why modifications will never bring about radical carbon emission reductions. We discuss what it implies to desire radical change, using contemporary philosophy as a method. We argue that a key requirement to achieve radical emission reductions is that we as human beings adopt responsibility that brings with it a continuous commitment to the process of change. Acting on the new understanding of responsibility as an internal mindset toward the bringing about of radical change requires a cooperative decision-making model and a new understanding of leadership.

Introduction

Let us assume we all agree that we need to reduce the emission of greenhouse gases in order to minimize climate change. And let us assume we are not satisfied with the rate of reductions that the present approach to carbon management is generating – that, in fact, humanity urgently needs to radically increase the rate of emission reduction. When we assume that there is a need for radical change in order to bring about this reduction, several questions then become unavoidable. What kind of change is necessary? What is meant by “radical”? And what would this radical change look like, for both attitudes and behavior of individuals and institutions?

In order to answer these questions, it is important to first understand what kind of change would be necessary in carbon management that would lead to radical emission reductions. So far, the types of alterations in laws and policies, attitudes and behavior that have been implemented in society have involved some type of change but have not had the desired results – CO₂ emissions still keep rising at an alarming rate. These changes have not been “radical” in the sense that they have not addressed fundamental issues related to CO₂ emissions even in those countries that have made considerable

efforts. Take, for example, energy efficiency. Many see reducing the energy required per unit of service/production as an important climate change mitigation strategy [1,2]. It helps us to slow down the rate of CO₂ emissions, but in itself it does not necessarily lead to the decarbonization of our energy system. Energy efficiency essentially allows us to continue to do the same things, with the same energy types, albeit with less impact per unit of activity. As the International Energy Agency (IEA) says, “new energy efficiency measures make a difference, but much more is required” [3, p. 40]. Despite the high aspiration adopted by the international community through the UNFCCC to stabilize greenhouse gas concentrations “at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system” [4] and many collective decisions taken to materialize this, globally, the emissions are still rising at an alarming rate [5].

We will call the type of change that does not address fundamental issues and allows us to continue thinking within unaltered frameworks “modification.” It is the type of change that Anderson, as quoted by Klein, described as taking place “*within* the political and economic hegemony” [101]. This in contrast to what we

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Key terms

Episteme: An episteme, a notion borrowed from Michel Foucault, is that system of knowledge which gives shape to the discourse that is present at a certain moment and place in time and geography. It is what underlies the discourse and remains unknowable and changeable over time.

Discourse: The translation of the episteme into a knowable and enunciated structure of rules within a specific sphere of human life or science. A discourse is always contemporaneous; in other words, it is limited and structured in a specific time.

Paradigm: The set of discourses present at one moment in time.

Radical change: Change that is not a modification of elements already present (which would be a change within the existing paradigm), but which ruptures the underlying episteme and can thus be called a fundamental change, impossible until it has taken place. Also referred to as an "event". Loosely based on Badiou, an event is the decision in a singular moment that is impossible to decide upon, a rupture of the possible.

Non-adversarial decision-making: Consultation in which the goal is not the "winning" of an argument, but which focuses instead on finding the best solution; this requires not conflict, but cooperation. It is diametrically opposed to Chantal Mouffe's notion of agonism.

Responsibility: The capacity to respond to norms and values present and to act accordingly.

UNFCCC negotiations: The negotiations for agreeing on further international agreements on climate change under the United Nations Framework Convention on Climate Change.

will try to delineate here, a "radical" change, something related to what Anderson has referred to as "revolutionary change to the political and economic hegemony" [101]. When we are looking for a "radical" (in the sense of extreme, far-reaching, all-encompassing) reduction of emissions, we are actually searching for "radical" change. In this paper, we will outline how radical change consists of not just a superficial change (a modification), but instead changes the "episteme" (Foucault), the "world" (Badiou) in which we find ourselves. We will look at why and how radical change differs from modifications, and outline basic necessities needed to achieve this radical change.

We go about this objective as follows. First we will discuss the difference between change as modification, such as a paradigm shift, and radical change that is a rupture of the old episteme. Several problems in bringing about this radical change will be briefly elaborated on in order to get an understanding of the prerequisites regarding the type of radical change that is necessary for achieving a truly radical reduction of emissions. As one of the main problems concerns the framing of the problem and the solution, we will refrain from adding one more alternative technical or policy solution to the problem of how to manage carbon for mitigating

climate change. Instead, we will, in the following sections, discuss one of the basic attitudes of individuals and institutions alike that shape the structure within which we find ourselves, and that are a necessary foundation for bringing about radical change: namely, responsibility. We propose a different perspective on responsibility that can lead to creating an environment in which the event of radical change could be possible.

Another issue we will address concerns the influence our desire to change has on the possible outcomes of the process of change that institutions and individuals seek to implement. This desire structures the required outcome of the process of change. Generally, it is considered acceptable to frame scenarios of climate change in terms of cost-efficiency, percentages of emission reduction or the target atmospheric CO₂ concentration. Yet

we develop the argument that predefining the outcome of any change limits the possible processes leading to this change. In fact, when we already know the necessary outcome, the change that is required in order to achieve it cannot be considered radical at all.

When one agrees that radical change in emission of CO₂ and other greenhouse gases is necessary, we need to become responsible to make this radical change happen, instead of being responsible to reach the delineated atmospheric CO₂ concentration that would solve the problem as we conceive it in the present-day understanding, such as the 2°C target. It is, in the words of Derrida, the need to look for the impossible. The outcome of a radical change is "un-predictable, an event worthy of this name. . . . The event must announce itself as impossible. . . . An event or an invention are only possible as impossible" [6, p. 198]. We argue in this paper that radical change needs the manifestation of responsibility through a commitment that is not fear-driven, but is based upon an understanding that it is detrimental to put a limit on the range and number of outcomes that are deemed possible. Creating an environment in which radical change can happen requires openness toward what is considered impossible in the given episteme. This environment is based upon attitudes and types of behavior that leave the outcome of change open and instead focus on creating a process of radical change.

Our proposed "recipe" for a radical change that addresses climate change is therefore that both individuals and institutions manifest a different understanding of the concept of responsibility, thereby committing themselves to the process of bringing about of radical change. Only when individuals and institutions themselves feel the need to respond to the call to bring about radical change, not because of a fear of punishment but due to an inner need, can we start building an environment in which radical change can come about. We argue that this internalized feeling of responsibility can contribute toward the establishment of a framework of truly open and cooperative decision-making, as a stark contrast to the often conflictive/antagonistic and secretive style of negotiations predominating in the UNFCCC [see 7]. It is the warning of Albert Einstein from some 60 years ago which still needs to be implemented:

Today we must abandon competition and secure cooperation. This must be the central fact in all our considerations of international affairs; otherwise we face certain disaster. Past thinking and methods did not prevent world wars [and climate change]. Future thinking must prevent wars [and climate change]. [8]

One cannot desire radical change without acknowledging that we (individuals and institutions) may be

swept off our feet, that we may lose influence and control. We need to accept that modifications are not going to bring about radical emission reductions. What we need is radical change, including radical change in our own backyard, affecting our own behavior as individuals and institutions, and our understanding of leadership, and in our own epistemic notions of what change means. It means we need to address the framework within which, for example, energy efficiency policy measures and climate change negotiations take place, before we can expect anything even resembling radical change to happen.

Non-radical change

Before we can discuss in more detail what we mean by radical change, it is necessary to make clear what *non*-radical change is. Non-radical changes include changes within discourses, changes within the same world or episteme, and we refer to these changes as modifications [9, p. 372].

The manner in which carbon management is discussed is defined by many factors (place, time, type of institution, goal, language, procedures, consequences, etc.). Combined, these factors could be referred to as the discourse within which the conversation or the debate takes place. In discourse analysis, the manner in which these discourses take place and the way these are framed is analyzed. The framing of a discourse is also referred to as a paradigm, a set of shared preconceptions which we formulate through a certain discourse [10, pp. 108–109].

Take, for instance, a Marxist discourse which has changed over time, such that one part of it could now be defined as a neo-Marxist discourse. These modifications rearrange and reshuffle the existing values and thoughts, but the overall manner in which reality is defined has not changed. A modification “is internal to the established transcendental correlations” [9, p. 372] and therefore does not call for what Badiou has called a site: “A ‘site’ is an object to which it happens, in being, to belong to itself” [9, p. 594]. With this, we can understand that a “site” is an object that is not defined as the product of the world, but is truly radical, a “new” appearing of something that was previously unknown.

The neo-Marxist paradigm and underlying understanding, for instance of defining capital in a certain way, has not changed. Kuhn would describe the moving from a Marxist to a capitalist discourse and thereby changing the underlying understanding of capital as a paradigm shift [11, p. xvii]. Still, the underlying framework and thinking have not changed; merely the answer to the same question (is capital alienable from its human producer) has changed. Even a paradigm shift is a mere modification.

In the international negotiations on how to address climate change, there have been a number of modifications

over time within the same paradigm. Several tensions were built in the UNFCCC, such as the one between industrialized countries and developing countries around the interpretation of the principle on common but differentiated responsibilities and respective capabilities [12]. At the time of the Kyoto Protocol in 1997, it was also widely accepted by industrialized countries that it was their responsibility to take mitigation action first. By the 2009 Conference of the Parties in Copenhagen in 2009, some major developing countries started to acknowledge that they also had responsibility to take mitigation actions even if they still contested (and are continuing to contest in the negotiations for a post-2020 agreement) the legal form that responsibility should be expressed in. At the same time, some poor developing countries take pride in taking responsibility for mitigation. For example, many Small Island Developing States (SIDS) chose to show “moral leadership” by vigorously investing in renewable energy despite their rather insignificant contribution to greenhouse gas emissions on a global scale [13].

Discourses and paradigms are limited by what can be referred to as “world.” Badiou refers to “world” as “a ‘complete’ situation of being” [9, pp. 102, 598]. There are several worlds, each with its own logic. Each is to be understood as an ontologically closed set which contains a transcendental and the transcendental indexings of all the multiples of this transcendental. “World” is thus the underlying framework of thoughts and logic within which the specific discourse and paradigm take place. It refers to something beyond a specific discourse and paradigm. It is the underlying framework, the overall structure that is present in society, often unconscious. A world can thus be seen as a specific set of discourses, paradigms and all their forms. As Alain Badiou puts it, “a world is the set of its modifications” [9, p. 359].

Another way of looking at this concept of “world” is offered by Michel Foucault. In his book *Les Mots et les choses* [1966; English version *The order of things* (2004)], Foucault explored whether there exists a “certain code of knowledge” [14, p. x], a system beyond the empirical notions that fill these systems with facts and understandings. He discovered “a network of analogies that transcended the traditional proximities” [14, p. xi] between the different areas which he examined (biology, linguistics, economy). He outlined what he called “an epistemological space.” By outlining a positive unconscious, what was influencing the people involved in the (scientific) discourse in a specific time and in a specific place, Foucault showed how underlying unconscious “rules of formation” form the concepts and theories present in the discourse. This underlying set of rules of formation – the *episteme* – is translated in a specific *world*, into discernible discourses and paradigms.

An example of a modification within a world can be seen in what Sian Sullivan referred to as the rise of a financialization of environmental conservation [15]. She explained how the “revisioning and rewriting of conservation practises and understandings of nonhuman natures in terms of banking and financial concepts” [15, p. 198] has been taking place. Sullivan calls it a “revolutionary shift in discourses and practises” [15, p. 212], while at the same time acknowledging that the existing paradigms of Marxism and Foucaultian biopolitics is taking one step further, “extending these in radical ways” [15, p. 212]. When we observe the change in discourse that is involved in this financialization of environmental conservation, we agree that this is a profound change, as specific knowledges and values are thereby placed “outside the logic of this financialisation” [15, p. 212]. Yet this change, we argue, should also not be called radical. The underlying episteme has not been changed. In fact, a similar influence of this episteme on the discourse of power and the body was already described by Foucault when he talked about the emergence of biopolitics [16]. Although the consequences of this modification within the discourse are definitely noticeable and can have dire consequences for the manner in which we can discuss conservation, they do not alter the underlying manner in which we regard profit, markets and conservation.

In a discussion on the work of Alain Badiou, Chris McMillan writes about the example of climate change:

Initially, climate change was little more than an occurrence, a symptom at the margins of capitalist ideology. Recently though, it has produced far greater anxiety, suggesting that it had moved to becoming a site of singularity with the possibility of provoking an event. Such has been the effect of capital, however, that climate change has been integrated into the official ideology; it has become a mere modification. [102]

Instead of creating a radical change, a moment of singularity in which an event is provoked and the world that consists of all that is possible is ruptured, climate change debate takes the form of the existing paradigms. Similarly, in the discourse and negotiations on sustainable development, the efforts to launch a concept such as the “green economy” illustrate the lack of radicalness of solutions.

Climate change has been put alongside issues such as poverty, human rights, peace and war as discourses about global challenges for humanity. None of these discourses, alone or together, has ventured much beyond proposals that would amount to smaller or larger modifications in their search for “solutions.” Perhaps the most striking evidence of the lack of radicalness in the proposals for their “solution” is the very compartmentalization of these problems as different ones with diverse sets

of causes. This is also due to the fact that the thinking within which the framing of problems takes place is always already linked to a specific set of solutions. To think about a problem without already imagining the solution or the area that needs to change in order to create that solution is very hard. Especially when it concerns practical matters that deal with physical processes, such as carbon management, it is very rare to consider a fundamental change in thinking the only possible first step to take. Sometimes it is suggested that either solution-focussed and/or problem-focussed thinking are necessary to solve a problem. Yet both approaches take place within the same paradigm and do not alter the conditions and the world within which the problem takes place. Results from these types of thinking will patch things up, but will not radically change things in such a manner that the problem disappears.

What we propose is to take another approach, one that seeks to change the underlying causes of the whole set of challenges, one that would come closer to moving beyond the current episteme. It is as Anderson writes, how “our ongoing and collective carbon profligacy has squandered any opportunity for the ‘evolutionary change’ afforded by our earlier (and larger) 2°C carbon budget. Today, after two decades of bluff and lies, the remaining 2°C budget demands *revolutionary change to the political and economic hegemony*” [101]. One example of an effort that at least rhetorically sought to be aiming for a break with the dominating capitalist-dominated paradigm (and thus a somewhat larger modification) of how to manage carbon is Bolivia's proposal of centering the regime on caring for “Mother Earth” and rejecting the carbon market. President Morales argued in a letter to the UNFCCC in 2008 that “[a]s long as we do not change the capitalist system for a system based in complementarity, solidarity and harmony between the people and nature, the measures that we adopt will be palliatives that will limited and precarious in character” [103].

Take energy efficiency as another example of a modification, a change within a paradigm. We have already pointed out that energy efficiency is an important “strategy” for “solving” the climate change challenge, and that energy efficiency, whether in the production or the consumption side, is not sufficient to completely address climate change. Energy efficiency as a solution is a mere modification. However, one of the reasons that energy efficiency has risen to prominence as a mitigation “solution” [17] is precisely because it is framed in a way that implicitly relies on minimal disturbance to the current system, even often referred to as the “least-cost solution.”

Another way in which modifications are introduced as a way to radically change reality is by using the term “transformation.” This word is related to “form,”

addressing the changing of one form into another, which means that it never truly lets go of the structure that was in place before the transformation took place. In mathematics, a transformation means to change the form of x (an equation, expression, etc), without in general changing the value. This means that a transformation is always a change within a given system, within a world. This is not what we are looking for when we want to look for a radical change.

“Radical” change

“Radical” change alters the very fundamental conceptions that form the basis of a *world*, of an *episteme*. In a way that can only be seen as a “break,” a rupture redefines the categories that make up reality in such a way, that the resulting world cannot be traced back to the previous world. Radical change concerns “a break with the very thing that regulates its appearance” [9, p. 365].

We argue that it is impossible to give clear-cut examples also in the field of carbon management and mitigating climate change of what radical epistemological change would look like. It is impossible to look at the world with a perspective that is not our own. Although we might try, we are always already limited by the way we perceive our world, due to the episteme that we adhere to. The same goes for paradigm shifts. Once a paradigm shift has taken place, a person belonging to and moving within the newly emerged paradigm cannot understand the previous paradigm as a paradigmatic truth. We can nowadays consider the paradigm in which the sun circled the Earth, but we cannot hold this true as we can only consider this paradigm from within our present understanding.

This is why we cannot consider any change in epistemes that we might observe in history radical change. In retrospect, once it has come up, the “new” episteme becomes the foundation for all that is, as the episteme creates the way in which we think and perceive the world. Subsequently, it becomes impossible to think about that moment as a distinctive, rupturing moment, as once the episteme has indeed changed, it has turned into the understanding of what is – albeit a new way of understanding. Any examples of previous ruptures are redundant: the specific “change” that took place at that time is now considered “normal,” as it is now part of our view on history, of what is.

The same way it is not possible to imagine how something would look when it does not fit into our present understanding of reality, it is also not possible to give examples of radical changes that have already taken place. This is not only impossible, but, as we will argue later, bringing up examples will frame the situation and problematically limit the possibility of change. We can at most imagine that something might have been

a radical change at a particular time, but for us looking back at it, there is nothing radical about it. Take again the example of the discovery that the sun does not circle the Earth, but that it is the other way around. Nowadays, it is impossible to *not* take this as part of the general way we look at reality. It has become normal. It is even impossible to truly relate to a way of thinking that does not accept this as the truth. We can see change in understanding as a historical phenomenon, but we cannot deem it radical unless we are subjects to it. From a historical perspective, everything is connected. There is no “break” in time, but only continuation and the building of one event upon and due to another.

For the present problem of the radical reduction of the emission of greenhouse gases (and the other global challenges that we argue are all related), this would mean that it is impossible to anticipate specific examples of what measures it would involve to achieve such reductions and, by implication, what a world would look like once it has achieved radical emission reductions. To put it even more bluntly, we argue that the moment that we have achieved the radical change, we would not even recognize this as such, but instead, the problem would have disappeared. This is why examples given by theorists mentioned before, such as Alain Badiou and Michel Foucault, are problematic, for even if these examples give us an insight into the change that happened, they cannot account for whether they can be considered radical or not. From our present perspective, the objectives of radical emission reductions would have been achieved. But when this perspective is radically changed, the manner in which we frame the problem and objectives will have changed beyond what we can presently imagine. Radical change changes the episteme, the underlying logic of the specific world in which we understand reality. The problem of climate change and related global challenges would thus have disappeared, something unimaginable and impossible for us right now.

The problem of framing

If we are assuming that we need radical change, then we have to look at the problem quite differently from when we, for example, consider climate change as a “wicked problem par excellence” [18], because the definition of such a problem involves the perspective that it can never be “solved.”

Our argument that it is not possible to imagine what radical change looks like does not mean that we can just passively wait for this radical change to appear. On the contrary, not doing anything makes it impossible for this radical change to appear. Yet when we are looking for ways to radically change the climate situation, the problem already starts by the way we frame it. The

way we frame the problem, the solutions, the objectives and the manner in which we understand reality limit the possible outcomes. As Paul Lample describes, “The potential for progress in understanding and for establishing new arrangements in the social order is limitless, yet our patterns of behavior can impose severe restrictions on what we can accomplish” [19, p. 5]. This concerns not only how we frame the problem but also how we frame the outcome. When discussing the need for reduction of emissions of greenhouse gases, when negotiating and reaching agreements on how much needs to be reduced and by whom, we limit the solution to a certain approach.

We can look at the building blocks for the international climate change regime in the form of detailed greenhouse gas inventories that in turn provide the basis for quantitative obligations (or aspirations) of emission reductions of specific gases as one example. This approach puts the focus on a type of carbon management that quickly leads to reductions in the “symptoms” in the form of the emissions of gases that are measurable. In contrast, the measures aimed to promote and facilitate “the development and implementation of educational and public awareness programmes on climate change and its effect” or the measures to promote “public participation in addressing climate change and its effects” which are also obligations in the UNFCCC [20] receive marginal attention both in the negotiations and in domestic action plans. And yet such measures, one could argue, would aim at providing a framework to alter underlying structures of thought and thus would be able to address the very root causes of the problem.

If we desire radical change, we cannot delineate the necessary outcome and expect the change that is imagined to attain that outcome to be radical. This new type of thinking is not merely a “new” vision that is based on the same premises and the same understanding of reality, the same episteme. For a type of thinking to be truly and radically different, a change in episteme is necessary. Especially when it concerns the problems of nuclear war that Einstein referred to [21], or fundamental problems in climate change such as the emission of greenhouse gases, Einstein is correct to state that the survival of humankind is dependent on a radical change, a change of episteme in order to overcome this global challenge.

We can no longer rely on predefined outcomes when we acknowledge that a radical change is necessary. “What interests me in the event is its singularity. It happens once, each time once [*chaque fois une fois*]. An event is thus unique, and unpredictable, that is to say, without horizon” [22, p. 91]. It is as if we are playing chess and the goal has been set: the overthrowing of the opposition’s king [paradigm shift]. To reach this

goal, we need to follow the rules of the game [discourse] and move the pieces on the chess board [modifications]. Then when we see the result, we are surprised that we have not really altered the situation; there has not been a radical change. There is still a king on the board [paradigm], and the rules [episteme] are still the same. By delineating the outcome, any change or possibility for change will be limited by the framing of the preconceived outcome.

What we argue is that in order to make radical change possible, our understanding of our responsibility toward attaining that state of change needs to be reframed. Instead of feeling responsible toward attaining the pre-framed outcome (the percentages of emission reduction or the target atmospheric CO₂ concentration), we need to start feeling responsible to start bringing about the possibility of radical change.

Reframing responsibility

How then can we work toward radical change? We cannot outline a concrete solution, as any solution would frame the situation and limit the possibilities of radical change. Any solution is yet another imposition, another totalitarian gesture that makes radical change impossible. Our desire frames the problem, the expected change, and it frames what we consider the necessary and acceptable outcome. Even our understanding of what it means to “change” could create a barrier to radical change. Furthermore, we cannot think of an example as to what this radical change should look like, for similar reasons. This does not, however, mean that we cannot do anything in order to create an environment in which radical change could come about. We argue that individuals and institutions in society can do quite a lot to bring about the *process* toward radical change, through adopting specific attitudes and practices that can help create an environment in which radical change can take place. In this paper, we focus on one basic attitude, responsibility, as this forms the basis of all our behavior. We will remark on how adopting this attitude influences the manner in which decision-making processes take place, and how cooperative decision-making is fundamental to creating an environment in which the openness necessary for radical change can be realized.

We here focus on the way that we frame our own responsibility and, more importantly, on how we will need to change the way in which we think about our responsibility. Responsibility can be seen as a basic attitude toward the choices we make regarding our life, our passions and our goals. In it, a specific understanding of what it means to be human is present. It also takes into account whether we should act or not, and what our priorities are. Our understanding of responsibility is the basis for the manner in which we structure the world

and the institutions in it of which we may be a part. As such, it should be seen not as a single part of a solution, but as a framework for reconsidering the complete process of negotiation, as it concerns an attitude that is connected and informative to much more.

In society nowadays, responsibility is taken to mean “responding to a certain need.” Especially when it concerns institutions involved in climate change discourses, we take this need to be something outlined and measurable. To respond to this need then means that one takes the necessary steps, agreements and policies in order to make sure that the behavior of individuals or institutions is altered in such a way that the need is met. Later, we will come back to this, and outline two models that could be used to act on this new understanding of responsibility – namely, deliberative democracy and bahá’í consultation.

For example, many governments have taken responsibility to improve their energy efficiency as one of the measures to meet their UNFCCC-related obligations to reduce greenhouse gas emissions. They have done so through a range of actions from pledging to implement certain recommendations (as in the case of the IEA’s 25 energy efficiency recommendations [23]) through to passing mandatory energy efficiency performance regulations for buildings and equipment.

This type of responsibility as a response to a need is important, for without it the present discourse on what climate change consists of would never develop. But this is an external responsibility, based on the present episteme. It uses and often even explicitly refers to external codes of conduct, such as in the previous examples mentioned, in which someone or some institution is telling someone else to be responsible. Underlying this approach is the understanding that if that person or institution does not do what is asked for, he/she/it is guilty of a (moral or legal) crime. It is responsibility based on the fear of possible “punishment.” [Punishment is here used in a very broad sense; it can encompass the guilty feelings of having broken moral expectations (internal punishment or, for people of faith, punishment from a higher power), economic or other sanctions for having failed to comply with regulations, or reputational sanctions – for example, a company or a country who is not doing what others expect of them on, for example, improving energy efficiency.] This way of understanding responsibility leads to a fear-driven society, in which external rules force people to be responsible. It is not a constructive responsibility that can lead to people or institutions feeling responsible toward radical change. It can at most lead to institutions that feel responsible as a response to an effect, an external guilt.

Being responsible for radical change means to be responsible to see how one’s own ideas limit the

possibilities for finding solutions. When one feels responsible to achieve change – including changing one’s own view and episteme – this is a constructive type of responsibility, based on the idea that responsibility is an internal process, a capacity to respond (responsibility) to norms and values present in society or in one’s individual life. The desire to respond to these norms and values brings about the intentionality to act effectively (in the sense of positive, constructive). Responsibility is thus to be understood as something internal, inalienable from the person or institution who is concerned about living and protecting human life and the natural world.

In other words, when one agrees that radical change in emission of greenhouse gases is necessary, we need to become responsible to make this radical change happen, instead of being responsible to reach the delineated emission-rate that would solve the problem as we conceive it in the present-day understanding, such as the 2°C target. It is, in the words of Derrida, the need to look for the im-possible. The outcome of a radical change is “un-predictable, an event worthy of this name. . . . The event must announce itself as im-possible. . . . An event or an invention is only possible as im-possible” [6, p. 198]. “If only what is already possible, that is, expected and anticipated, happens, this is not an event. The event is possible only when come from the impossible. It happens (*arrive*) as the advent of the impossible” [24, p. 285]. The event should be understood as the radical change that comes about when the change in episteme, the impossible change, takes place. And it is the arriving of the impossible that Derrida calls ethics [25]. It forms the basis for our understanding of what it means to be human: the striving toward the unattainable, the happening of the event as the starting point for life, for being responsible, for responding to this call for the impossible.

Derrida shows that this call for responsibility, for the arrival of radical change, is something shared among human beings. As Raffoul explains:

This im-possible is not privative. It is not the inaccessible, and it is not what I can indefinitely defer: it is announced to me, sweeps down upon me, precedes me, and seizes me here now, in a nonvirtualizable way, in actuality and not potentiality. . . . This im-possible is thus not a regulative idea or ideal. It is what is most undeniably real. Like the other. Like the irreducible and nonappropriable difference of the other. [26, p. 134]

What is left for us is to understand how we can make it possible to let this arriving, this event, this radical change take effect in individuals and institutions.

What would it mean, practically, for people and institutions involved in addressing climate change in different arenas to be responsible for obtaining radical

change? Badiou refers to the fidelity to the event of the faithful subject that is involved in bringing about or in witnessing the “event,” the moment we have referred to as radical, epistemic change. This fidelity to the event demands that we are not selective as to what kind of consequences of an event we prefer or predict. “Such a [faithful] subject realizes itself in the production of consequences. . . . The product of this fidelity is the new present which welcomes, point by point, the new truth” [9, p. 53]. This fidelity of the subject, the person and/or the institution in our case, is a certain attitude toward what is happening, an internal responsibility toward the radical change itself. This loyalty to the change, this internal responsibility is based on the necessity to refrain from limiting the possible change in the manner in which one approaches the reduction of greenhouse gases. Staying faithful to the need for a *radical* change results in the scenario that institutions (including governments) and individuals will need to fundamentally alter not just their own behavior, but the *world* that they find themselves in. Although the scope and level of responsibility as well as how it can be manifested differ between individuals and institutions, the paradigmatic change from being internally responsible toward change itself instead of toward a goal is similar.

Being responsible toward radical change implies that we are responsible to make this radical change happen, once we acknowledge the necessity to achieve radical change in order to reduce the climate change problem, an assumption made explicit at the beginning of this paper. In order to make this change happen, we have to stop trying to influence and control the outcome of any climate negotiations. Instead, we have to start creating a space in which this radical change, this event, this rupture of the present episteme, can happen. Only when we (institutions as well as individuals) are loyal to the possibility of this fundamental, radical change can we be said to have lived up to our responsibility.

Just as we can judge individuals’ behavior, we can judge the moral responsibility of institutions based on their participation in negotiations, on the agreements they make, on the manner in which they implement democratic mechanisms. The institutions can take on this moral responsibility by creating environments in which individuals can indeed be responsible, in which individuals can focus on bringing about radical change through themselves and their institutions.

Cooperative decision-making

One of the key features of being responsible toward radical change is to be able to let go of preconceived notions and solutions that frame and thereby limit the possibilities for action. In order to let go of the present episteme, as well as the outcome of the radical change, we cannot

already know or outline the new episteme before this change has happened. Therefore, institutions need to create a place in which individuals can work together in such a way that there are no preconceived notions that limit the possibilities for change. In other words, institutions need to embrace cooperative decision-making models in which preconceived goals are not limiting the outcomes, in order to respond to the call for radical change. This is the type of new practice that we consider important for creating the openness toward that which is not yet known, which is necessary in order for radical change to come about, without limiting it beforehand. What is needed is a process in which the present frameworks can be assessed, in which assumptions can be critically approached and in which the process of searching for a possibly new common understanding of reality is more important than sticking to predefined goals. By implementing such a cooperative decision-making system, institutions create the necessary space that allows for the understanding of responsibility to prevail in order for radical change to become feasible.

Examples of systems that try to implement this and leave room for the impossible, the radical change we are after here, include deliberative democracy [27–29] and bahá’í consultation [30,31,104]. These decision-making systems focus on the clashing of frameworks in order for a new understanding of reality to emerge. They do not ask people to let go of the structure they have been brought up in, the episteme in which they find themselves, as this would be a sheer impossibility. Instead, they provide a framework in which the outcome is legitimized based on the fact that everything that is brought in (the present epistemic notions, including the preconceived notions and ideas) is reflected on without anyone having already decided on the outcome. In several democratic processes, the outcome is already clear, as this is based on who has the most votes. This leads to a situation in which a decision can only reflect the present epistemic situation. Therefore, the outcome of a deliberation looking to create radical change cannot be based on the input. Instead, it should be based on the process of deliberation or consultation, in which it is necessary for people to look for the “right” answer, the emerging truth that can be brought forth as part of the radical change happening. Participants in these systems are focussing on participating in a process of creating understanding, instead of focussing on imposing their own understanding and framework (including their own description of the issue at hand) on the other participants and the outcome. This leads to a system in which a shared understanding of reality is paramount, instead of the “winning” of the argument in favor of keeping one’s own view.

So far, the implementation of deliberative democratic models has often failed [32]. This is most often

due to practical problems concerning implementation. People involved in deliberative or consultative methods are still imbedded and trained within the episteme in which strife is more important than cooperation [30]. This makes it problematic for participants in deliberative processes to acknowledge that participants have the internal responsibility toward a successful *process* instead of a successful outcome. Deliberations are not to be focussing on winning over the opposition, but are a process from which a shared understanding of reality among fellow participants is to be created [33,34]. Participating in such a process requires a level of respect and a collective search for truth [35]. A critical remark by the opposition of deliberative processes is that “I should say that I am not entirely against deliberation. But I am against it for now: I think it is premature as a standard for American democrats” [32, p. 369]. The limited or non-results, or the failing of initiatives such as deliberation [105], is not due to a failing of the system or the idea of deliberation, but the fact that the underlying episteme, the world in which we live, has not yet changed. As long as our epistemic understanding of a human being is based on conflict and strife against others, we cannot expect to acknowledge our own role in creating the limitations to overcoming such attitudes and implementing a framework of deliberation in which our responsibility toward furthering the process leading up to radical change takes a central role.

Acknowledging the normative substance of this matter, we cannot but recognize the fact that the implementation of a non-adversarial cooperative decision-making system on all levels is not so much a theoretical problem as it is a practical one. Recognizing the shift in patterns of thinking which is necessary in order to participate in basic deliberative democratic systems or in the practise of bahá'í consultation, we cannot but point out that it is a fundamental requirement to not only restructure institutions, but also to start educational initiatives that are embedding a cycle of action, reflection and learning that enables the emergence of communities which are growing organically in their capacity to adopt cooperative decision-making. Such educational systems especially designed to prepare people for deliberative and consultative settings are already being developed, but deserve far more attention than is given to them so far [19,36].

Another objection against endeavors of implementing deliberative and consultative frameworks in relation to global carbon management could be that it would be naïve to expect an institutionalized framework such as the UNFCCC negotiations to adopt a cooperative decision-making model and thereby support the process toward radical change. To expect radical change to emerge from a framework

that perpetuates and frames the outcome based on the present episteme is, however, even more naïve. What is needed for one to be responsible is a change in attitude and behavior of both institutions and individuals. Neither will achieve lasting radical change that can take effect without the other.

A radically new type of carbon management

Achieving a radical change in carbon management at any level will require a new attitude of responsibility, and this will need to be actively incorporated into practices of cooperative decision-making that embrace a focus on the process of radical change. One of the problems of incorporating a new attitude of responsibility is that it is impossible to describe the necessary structures that would bring about this change in perspective. Fundamentally new frameworks of thought and epistemic structures cannot be theoretically designed and implemented; they will need to grow organically and can only come about through an intricate process of consultation, reflection and deliberation, with able participants who have acknowledged the responsibility toward achieving radical change. But although it is impossible to outline a concrete example of a necessary structure that brings about radical change (which would, by being made concrete, limit the possibility of a radical break with the present episteme), there are some attitudes that can be seen to help toward achieving an environment in which radical change could come about.

In the field of multilateral negotiation and action on climate change mitigation, for example, a radical change would require individuals and countries to adopt cooperative decision-making and approach the negotiation table without preconceived notions of what the outcome would be. That is, they would need to show a sense of responsibility to the process rather than responsibility toward achieving a specific preconceived outcome. Essentially, this would mean that participating individuals and institutions would give away the precious, and often subtle, controls (negotiation tactics and tricks) used during the negotiation process to achieve the desired results. It would also mean that they have to be given the freedom to deliberate without the restrictions of specific instructions from their home governments, instructions that are aimed to achieve the specific outcome that particular state deems “best.” Important in this regard is to reevaluate the concept of representation, as is necessary to make deliberative processes and radical change possible. Representation is presently linked to paradigmatic understanding and positioning, yet representation can also take place based on merits and capabilities. For a deliberative setting, the capability to listen and speak, and a well-developed sense of responsibility toward the process of deliberation, are

more important than all epistemic views from society being represented, as knowledge and opinions can also be taken into account in other ways than through representation [37].

This approach sounds paradoxical. Which self-respecting country would give up control over achieving its own aims? Yet, as we have tried to show, whenever radical change is required and desired (the assumption made at the beginning of this paper), we cannot expect to be able to continue thinking and behaving within the same frameworks and action patterns that are causing the very thing that we want to change.

What would it mean if individuals and institutions involved in carbon management would adhere to the internal responsibility toward radical change, toward changing the epistemic understanding of reality? Let us explore at least the rough contours of a couple of possible implications.

If negotiators in the UNFCCC process took personal responsibility for enabling a process toward radical change, and started to approach the negotiations more as deliberations of searching for “truth,” a shared understanding of reality, then it may well be that they would start looking around the room and notice that they do not have all the voices they need to reach that “truth” around the table. They may open up the process and invite to the table (and not just to parallel exhibition rooms and side events) individuals and institutions not linked to the executive branches of national governments, whether they represent civil society or private actors, or whether they are from local or provincial governments or national parliaments. Furthermore, if individuals and institutions beyond national governments on their side started to take seriously their responsibility toward radical change, then they might approach the UNFCCC process differently, not only as a way of lobbying objects and arenas for networking and fundraising, but as arenas for identifying what needs to be done by different actors, including themselves. In such a new deliberative context, solutions might emerge that have not been discernible before.

Another example of an implication of adopting a different concept of responsibility is what is required of leaders and leadership for a process toward radical change. Leaders who know the outcome they want to achieve before the radical change has taken place would be useless in such a process. They would be as useless as leaders who do not focus on bringing out all the potential of the group they are seeking to lead. Instead, a leader would have to be passionately committed to the search for a shared understanding of reality through a collective process (deliberation/consultation) and be able to question her/his mental models – the traditional, often unconscious way of interpreting the world – and

replace these with conceptual frameworks as conscious patterns of belief and understanding [38]. We can only imagine how much the process (and thereby the outcome) may change if heads of delegations in the UNFCCC negotiations (or in national parliaments, for that matter) manifested these capabilities. Indeed, it is not only hard to imagine, it is nearly impossible to imagine this when considering the world of negotiations in which these leadership qualities are hardly ever acknowledged as such. But perhaps that is an indication that this is one of the elements that could help create an environment in which radical change is possible.

Conclusion

Assuming change is necessary in order to reduce the emissions of greenhouse gases, we started our paper by illustrating the need for change that is more fundamental than a mere modification. It is understandable why institutions and individuals would prefer to modify the existing world, as this would involve a reorganization of one's life without having to change underlying structures (which includes balances/divisions of power, resources, attitudes and methods of decision-making, amongst others).

One of the reasons why achieving radical change in the domain of climate change is deemed impossible, and often only results in mere modifications, is that climate negotiations limit themselves to a discussion of measures regarding emission rates and other specified outcomes that structure our way of thinking. Focussing on the delineated outcomes not only frames and limits the solutions that could be implemented, but also leaves underlying systems of thought unnoticed. We mentioned as one example of such underlying systems of thought the link of the problem of climate change with the financialization of this problem and its intricate connection with capitalism, which becomes more and more visible. Yet in order to achieve radical change, it is not enough to show this problematic relationship. We need to point in a constructive alternative direction.

Our “recipe” for moving toward radical change is that both individuals and institutions must manifest a different understanding of the concept of responsibility and thereby commit themselves to the process of bringing about of radical change. This includes letting go of predefined notions of what this change should look like, and the role of the individual and institutions in bringing that about: openness toward the impossible. Only when individuals and institutions themselves feel the need to respond to the call to bring about radical change, not because of a fear of punishment but due to an inner need, can we start building an environment in which radical change can come about.

We cannot desire radical change without acknowledging that we (individuals and institutions) may be swept off our feet, that we may lose influence and control. We need to accept that the rearranging of the deck chairs on the Titanic is not going to bring about a radical change in carbon management and thus emission reductions. Neither is civic unrest or revolution in which one dictator/thought/god is replaced by another going to bring us radical change. Instead, we need to come up with a way to cooperate in which participants can look for the solution to the problem without being limited by any desire, paradigm or experience. Indeed, this may by necessity imply that the participants do not look at the climate change “problem” in isolation but as one of the many problems facing humanity. What is needed is a sense of responsibility that is both humble and urgent. What is needed is radical change, so radical that it cannot be imagined to be possible before it has already taken place. What is needed is a commitment to the impossible.

Future perspective

The need for radical change will become ever more imminent in the coming years, as the problems related

to climate change will increasingly influence people's lives. To address the need for radical change, innovations and transformations that rearrange elements within the present power structure, even though they might for a while increase energy efficiency or create an international agreement with obligations for all countries to reduce their greenhouse gas emissions, will not be able to address the problem in such a way that one can speak of a solution.

In order to overcome the problem, a radical new understanding of cooperation in non-adversarial decision-making processes will have to come about, in which responsible participants can address the needs of our time. Although the necessary solution cannot be envisioned, as it lies in the domain of what we now may consider impossible, the coming years will need to be used to create an environment in which the rupture of our episteme can be accomplished. “All we can reasonably venture to attempt is to strive to obtain a glimpse of the first streaks of the promised Dawn that must in the fullness of time chase away the glooms that have encircled humanity “[39].

Executive summary

- The types of alterations in laws and policies, attitudes and behavior that have been implemented in society to mitigate climate change have not addressed fundamental issues related to CO₂ emissions.

Non-radical change

- In the international negotiations on how to address climate change there have been a number of modifications over time, but they have all taken place within the same paradigm and are therefore modifications instead of being the radical change that is necessary.
- Energy efficiency is one such modification without changing the episteme, while it is presented as a prominent mitigation “solution” precisely because it is framed in a way that implicitly relies on minimal disturbance to the current system.

Radical change

- Radical change involves the inclusion of what is as yet deemed impossible, which means it concerns a break with present structures of thought and behavior. One cannot give concrete examples of what radical change in carbon management would look like because it is not possible to look at the world with a perspective that is not (yet) our own.

The problem of framing

- The way that the problem of climate change and its solutions, such as the outcome of an international agreement, are framed limits the scope and amount of possible solutions.
- We can no longer rely on predefined outcomes when we acknowledge a radical change is necessary.

Reframing responsibility

- Individuals and institutions in society can bring about the *process* toward radical change through adopting specific attitudes and practices that can help create an environment in which radical change can take place.
- One such attitude is a notion of responsibility that is a basic attitude toward the choices we make regarding our life and priorities and takes into account whether we should act or not.
- Responsibility in the context of climate change means to have the ability to respond to the need for radical change and thus take the necessary steps, agreements and policies in order to make sure that the behavior of individuals or institutions is altered in such a way that radical change can take place. This includes being responsible to see how one's own ideas limit the possibilities for finding solutions.

Cooperative decision-making

- Institutions will need to embrace cooperative decision-making models in which pre-conceived goals are not limiting the outcomes. Examples of such institutional models include deliberative democracy and bahá'í consultation.

Conclusion

- Only when individuals and institutions feel responsible toward a continuous change process due to an inner need rather than fear of punishment is it possible to build an environment in which radical change can come about.
- Radical change can only happen within a framework of cooperative decision-making, in which everyone is open to one another and to the impossible, and everyone feels responsible for bringing about change.

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