

Governing the future under climate change: contested visions of climate change adaptation

Lauren Rickards¹

Abstract

Climate change adaptation is a Trojan horse of contested, ideological meanings under the guise of a largely technical and apolitical process. Careful analysis is needed to better understand what is going on when we use the term adaptation and, in particular, what specific futures are more or less likely to emerge as a result of the particular ways we frame the adaptation issue. This paper highlights the deeply cultural and political character of climate change adaptation by firstly describing the range of ways in which adaptation is conceived and, secondly, positing a view of adaptation as a governance project directed at ‘the problem of the future’. Using Ben Anderson’s concept of anticipatory logics, this paper discusses the contrast between a preparedness and pre-emptive approach to adaptation, and attendant beliefs about the future and human-environment relationship, in order to illustrate the varied meanings given to and political implications of adaptation. The influence of cultural narratives about the trajectory of civilisation is used to highlight the way adaptation implicates models of human development. Scenarios, notably normative scenarios, are discussed as a significant practice for making visible not only visions of the future but the decisions on which they are based. It is argued, however, that work is needed to enhance their ability to explore multiple presents as well as multiple futures in order to tease out and better understand the “starting conditions” of the path-dependent and future-creating project of climate change adaptation.

¹Victorian Centre for Climate Change Adaptation Research and the Melbourne School of Land and Environment, University of Melbourne

Introduction

Climate change adaptation is a governance project directed at ‘the problem of the future’. It is shaped by how we conceive of, envisage and relate to the future under climate change, and our beliefs about human agency. The influence on adaptation of these fundamental cultural constructs and their associated power relations is poorly acknowledged. So too are the deeply political and ethical implications of the choices we implicitly make about adaptation on the basis of how we frame it. For, climate change adaptation is not only a strongly contested concept, but a silently contested one. In keeping with the dominant ‘political realist’ attitude to climate change in general (Manuel-Navarrete 2010), climate change impacts and adaptation are still primarily discussed in misleadingly narrow terms that position adaptation as a predominantly technical issue or as an inevitable or unquestionable process free of cultural or political content. Not only does the consequent lack of debate about adaptation greatly increase the risk of maladaptation, but it obscures the positive potential of adaptation and delays vital discussions about the present.

Due to a particular understanding of what adaptation is (adaptation as defeatist), adaptation was initially slow to gain profile in climate change discussions (Barnett and O’Neill 2010). It is now a commonplace concern across the public, private and community sectors. While such engagement in the topic is important, one of the characteristics of adaptation is that it is heavily ‘path dependent’: that is, sensitive to starting conditions. These starting conditions include how the whole idea and purpose of adaptation is understood. To get the process of adaptation off to a good start requires discussion about what the whole adaptation exercise is assumed to be about. Theoretical examination of the concept of adaptation lags behind its application in policy and practice, but has the potential to assist this process by highlighting assumptions and their alternatives.

By helping to explore the cultural and political character of “the adaptation project”, this paper extends the ‘cultural turn’ in studies of climate change (Hulme 2009) to studies of our response, and contributes to the ‘critical turn’ in adaptation studies identified by O’Brien et al (2009). By focusing on the issue of how we “disclose” the future in order to know and manage it, this paper furthermore contributes to the ‘epistemic turn’ in research on adaptation highlighted by Collins and Ison (2009).

Relying on predictions of specific future conditions to direct adaptation planning is one particular way of relating to the future under climate change. Yet, the impenetrable wall of uncertainty that climate change seems to place between us and the future has altered our conception of the future and its predictability. Alternative ways of ‘making the future present’ (Anderson 2010: 1) in order to govern it through adaptation are being sought. The papers in this series look at one such way: scenarios. Representing a momentous epistemic and epistemological shift from prediction that has significant repercussions for governance, scenarios move us beyond the idea of a singular most likely future to the idea of diverse possibilities. This paper begins the task of exploring the relationship between the refracted vision provided by scenarios and varied visions of adaptation. To begin, the latter is discussed and a new broader view of adaptation that incorporates other contested meanings is suggested.

Divergent interpretations of the adaptation project

Deep ambiguity around the concept of climate change adaptation allows for strongly divergent interpretations. An introduction to more detailed discussion in subsequent sections, this section

outlines some of the most dominant perspectives, which incorporate various dimensions of the idea that adaptation is both process and outcome, continual and responsive, intentional and unintentional.

The term adaptation was initially imported from ecology. It therefore comes with biological baggage that shapes the way human adaptation to climate change is understood. In ecology, adaptation refers to the process by which, over evolutionary time, a species (“the key”) adjusts to better fit its environment (“the lock”) in response to some change in that environment. In this lock and key model of adaptation, human adaptation to climate change is understood as a process of unilateral and responsive change. The dominant understanding of adaptation, this interpretation frames adaptation as humans “fitting to” the environment (Collins and Ison 2009). Ironic in the context of anthropogenic global climate change, this model of adaptation implies that humans and their environment are separate entities and, more specifically, that human agency over the environment is strongly limited. It also implies that a perfect fit between species and environment is possible and desirable and that a degree of fit is necessary for the ongoing survival of the human species.

Collins and Ison (2009) highlight an alternative way of conceptualising adaptation: as a process of humans “fitting with” the environment. Based on the metaphor of how a foot and shoe both adjust over time in response to the other, this model presents humans and the environment as more interconnected. Rather than human agency being limited to merely adjusting to a ready-made situation, humans are seen to shape – ‘to make suitable’ (Gidley et al. 2009) – their environment as well as respond to it. Humans and environment are seen to co-evolve as a result, with “adaptation” being the name given to the emergent outcome.

The difference between adaptation as “fitting to” or “fitting with” the environment is seen in debates about the relationship between adaptation and mitigation. Adaptation as the “flip side to mitigation” is perhaps the most immediate interpretation of adaptation in the context of climate change. In some ways, this pairing of mitigation and adaptation positions them as complements, reinforced by the emerging “division of climate change labour” between areas of research and levels of governance (with international and policy arenas being responsible for mitigation, and regional and local arenas being responsible for adaptation, based on further presumptions about what adaptation is). However, to a lesser extent, the labour of governing climate change is also imagined to be divided between mitigation and adaptation over time, mitigation being the priority “until climate change starts” and adaptation the priority “once it has started”. Adaptation becomes thought of as purely reactive. Combined with the “biological bias” of the “fitting to” metaphor described above, which focuses our attention on climatic or at least physical stimuli at the expense of the host of non-physical impacts of climate change that cascade through society, this interpretation of adaptation is exceedingly narrow. It leads to the idea that adaptation and mitigation are in opposition: mitigation is trying to fight climate change and adaptation is not. As discussed further below, adaptation is conceived in this framing as a dangerously passive and defeatist mindset that, if adopted at this “early” stage of climate change, threatens to undermine the impetus and resources of mitigation and make climate change worse.

The theoretical separation of adaptation and mitigation in the above framing is countered by two efforts to expand the conceptual category of climate change impacts. In the first, mitigation is incorporated under adaptation as the set of social, political and economic adaptive changes that

have commenced, albeit very slowly, to reduce greenhouse gas emissions and concentrations in response to “the problem of climate change”. Here, the very existence of climate change and the imperative to address the problem at source is interpreted as part of the “impact” of climate change that adaptation is needed in response to. Framing mitigation as a type of adaptation importantly acknowledges the serious adaptive effort required to establish mitigation responses.

The conceptual category of climate change impacts is, secondly, being expanded to incorporate the “impacts” of adaptation efforts themselves. Captured in the recent normative concept of maladaptation, these adaptation impacts are identified in terms of changes to vulnerability. In a recent influential editorial, Barnett and O’Neill (2010) define maladaptation as:

action taken ostensibly to avoid or reduce vulnerability to climate change that impacts adversely on, or increases the vulnerability of other systems, sectors or social groups (p. 211).

Vulnerability is a measure of potential harm. As such, it incorporates the concept of potentiality – that is, possible future outcomes – and the subjective category “harm” (Hinkel 2010). These two components demand that we trace the effects of climate change through society far beyond greenhouse gas emissions to climatic, non-climatic and, ultimately, adaptation, impacts. More specifically, they call for attention to the mitigative and collective effects of adaptation actions. The first means that mitigation is framed as a criterion of adaptation, as a rule to ensure adaptation does not worsen the problem of climate change. It demands that we trace the effects of adaptation actions into the future, not only in relation to our own vulnerability, but that of future generations. This focus on others points us to the need to attend to the collective effects of adaptation actions in the present. By formalising a focus on the vulnerability of “others”, Barnett and O’Neill’s definition of maladaptation illustrates what O’Brien et al. (2009) mean when they call for ‘a larger conceptualization of “we” that extends responsibilities to others (people, species and ecosystems)’ in the face of climate change (p. 12). We discuss the implications of this more ambitious framing of “good adaptation” further below.

When considering how adaptation is understood, it is of course important to refer to the particularly authoritative voice (albeit somewhat discredited lately) of the IPCC. According to the IPCC (2001), climate change adaptation is:

adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC 2001).

In this definition, the IPCC demonstrate the more expansive interpretation of climate change impacts discussed above, incorporating expected as well as actual impacts, and the effects of climatic stimuli as well as the climatic stimuli themselves. Their definition also incorporates a further point of difference in competing interpretations of adaptation: the idea of ‘beneficial opportunities’. Whether or not adaptation incorporates positive change above and beyond ‘moderating harm’ is a question of what standard or level adaptation is set at in relation to climate change impacts. That is, what level of change is adaptation trying to achieve, and why? Related to the issue above about how broadly climate change impacts are conceived, three hypothetical positions can be distinguished on this question, which, it should be noted, is related to but distinct from the question of what level of change is ultimately achieved. These positions are represented here as the full repair, partial repair

and improvement positions. They reflect increasingly ambitious goals with respect to how much change adaptation should try to achieve and, therefore, reflect different perceptions of human agency and the relationship between the present and future.

The first, the “partial repair” or “acceptance” position, is a pragmatic stance that accepts from the outset a certain level of, or some forms of, climate change harm, based on the assumption that it is not possible or not optimal to try to adapt to such harms. A widely accepted attitude, this position is promoted by economists such as Fankhauser (2010), who, on the basis of predictive models of climate change, climate change impacts, and costs and benefits, highlight that it will be expensive (or, at least, cost-ineffective) to try to mitigate against or adapt to all of the harm produced by climate change (dependent, of course, on how human-induced climate change, climate change impacts and the subjective concept of harm are defined). They advocate instead for a more targeted approach that seeks to “repair” some harm, defined either as moderating overall harm to a certain level and/or neutralising some types of harm in full.

Besides economists, the partial repair approach is also promoted by those concerned to ensure that, in a situation of choices and trade-offs, those groups who are most vulnerable receive targeted adaptation attention. As noted above, however, a limitation of such a quest is that the influential concept of vulnerability, used in many adaptation calculations, is a measure of potential subjective harm in an uncertain climate change future (Hinkel 2010). In other words, it is far from clear cut and subject to strongly divergent interpretations, as illustrated by debate over whether vulnerability should be calculated in relation to specific climatic impacts, climate change impacts in general, or a pre-climate change conditions (Miller et al 2010). Overall, the partial repair position reflects the need to attend not only to the distribution of direct climatic impacts but the distribution of indirect ones as well, in particular the distribution of the financial and non-financial harms of adaptation efforts themselves, which are likely to demonstrate a pattern distinct from the distribution of other climate change impacts. Often motivated by a concern with who is going to finance adaptation efforts, this approach raises crucial questions about which climate change impacts will be addressed and which will be left “unfixed” (at least at a given moment in time), who bears the costs of subsequent climate change impacts, and who bears the costs of the impacts of adaptation fixes.

The second stance on adaptation level is the mainstream “repair position” that presumes that adaptation will neutralise, or least *try* to neutralise, all climate change harms in order to restore “balance” and maintain life as it is. Often reflecting a normative belief in the inherent stability of life that is seen also in calls to ‘stabilise the climate’ (Hulme 2009), this position tends to assume adaptation will be, or at least could be, a “100% effective fix”. It is based on an imagined “deficit model” of climate change “loss” being attenuated by adaptation “gain”, which interprets the effectiveness of adaptation as a linear scale. In such discourses, an attitude of “fixing” climate change impacts often implies a notion of permanent solutions, despite growing awareness (discussed further below) of continual change in the environment and thus continual shifting of adaptation targets. Combined with the idea of being able to neutralise all climate change impacts in the first place, the repair position is more ambitious than the partial repair position, but is still inherently conservative. This is the case even in variations on the position that accept that adaptation will never be 100% effective or evenly distributed, but maintain that the goal should be to try for such an ideal nevertheless. Egalitarian in relation to the future (if not present), this approach refuses to engage in the cost-efficiency or triage discussions posed by the partial repair

position above about what areas or objects of adaptation should be targeted from the outset, preferring instead to try to fix it all in an implicit vote for the desirability of life as it is. In doing so, it risks being dismissed as a seriously unrealistic stance, especially if the climate change impacts it aims to neutralise are interpreted in the expansive mitigative and collectivist mode discussed above.

While it is ambitious to try to neutralise all climate change impacts, it is arguably even more ambitious to try to actually enhance life under conditions of climate change. Yet, this is the goal of the third discernible attitude on the issue of the ideal adaptation level: the “improvement position”. Like the shift in health discourses over the last two decades from a focus on illness to one on wellbeing (eg. Seeman 1989), the improvement position sets the target for adaptation above and beyond merely moderating climate change harms to the more ambitious level of absolute as well as relative progress. As an advocate of this approach, Peter Ellyard (2009) phrases it, the goal for the future is not just to ‘survive’, but to ‘thrive’. What ‘thriving’ looks like and involves is a matter of fierce debate. As we discuss in detail below, it brings into view competing visions about what future is desired as well as feared. It encourages people to proffer outlines of the next chapter of humanity, of the grand project that we call civilisation, as well as assessments of preceding chapters. In particular, it initiates debates about the extent to which adaptation is and ought to be aligned with – or against - conventional models of development.

It is here we come to the final and broadest framing of adaptation to note, which is the one this paper introduces: the idea of adaptation as a governance project directed at ‘the problem of the future’. Based on Ben Anderson’s (2010) discussion of anticipatory logics, this high level framing of adaptation reflects a theoretical interest in governmentality (as first described by Michel Foucault 1977, 1980). It interprets adaptation to climate change as a directed, political process by which society and the future is shaped through rationalities, mentalities and techniques (such as scenarios). Focused on the co-constitutive role of power and knowledge, this neo-Foucauldian framework allows us to interrogate how adaptation is being approached from an ideological, cultural, political, and epistemic point of view. We turn now to consider this approach in more detail.

Images of the future under climate change

A human geographer, Anderson (2010) is concerned with ‘how geographies are lived and made as futures are prophesied, imagined, deterred, regularized, invested in, hoped for...’ (p. 2). A conventional understanding of geographies suggests that by ‘geographies’ he is referring to the emergent human-environment systems that manifest from the process of co-development. Such geographies are closely aligned with Collins and Ison’s (2009) idea of adaptation as a co-evolutionary emergent phenomenon. Indeed, they can be considered a manifestation of adaptation efforts, which we see, then, are presents ‘lived and made as futures are prophesied, imagined, deterred, regularized, invested in, hoped for...’ (p. 2). That is, adaptation creates the present driven by perceptions of the future. Anderson’s focus emphasises the influence that our visions of the future (implicit or explicit) have on our actions in the present. In applying this to adaptation, we see also the converse: the relevance of the present to our visions of the present. It is this that is referred to as the ‘path dependency of adaptation’, discussed above.

Presumptions about the relationship between present and future (and past) are captured in what Anderson calls ‘styles’ of governing the future: statements ‘through which ‘the future’ as an abstract category is disclosed and related to’, which ‘condition and limit how ‘the future’ can be intervened

on (p. 2). What this means is that how we conceive the future in general shapes how we think about adaptation. Without going into the myriad ways the category of the future is conceived, it is worth noting three dominant and somewhat contradictory ideas: one, that the future is a continuation of the past and present (ie. that time is a continuum); two, that the future is something that “happens to us”; and three, that the future is teleological, that is, driven toward some goal.

These general understandings of the future are reflected in the different ways that climate change is felt to have altered the future. On the one hand, climate change has created the sense that our future is more “closed”. It has done this in two ways. First, it has simply reminded us of our biological character – reminded that we are organisms reliant upon an environment. Suddenly we are aware, for example, that we exist within a “climate envelope”. Secondly, and more specifically, climate change reduces our “biological freedom”, for what it is. Under climate change, conditions threaten to shift in directions we are currently unadapted to. While we take pride in our ability to substitute social ingenuity for biological fit, this social compensation has its limits. Thus, we are now not only more aware that we live within a climate envelope, we are aware that its temporal and spatial extent is contracting. Combined with the challenges that climate change poses to our self-identity and way of life, this constriction of favourable conditions creates the sense that our options for the future are decreasing. Reflected in the ideas that adaptation is about (mere) survival and involves tough choices about which harms will be moderated, suddenly it feels like game we are playing has a whole lot more rules.

At the same time, climate change also opens the future. Climate change and other sources of complexity are represented as radically opening the future, potentially disconnecting it from past and present by taking the world in a fundamentally different direction to where it has been before. The result is that, as Anderson (2010) emphasises through an analysis of other pervasive, potentially catastrophic threats such as terrorism and pandemics in addition to climate change, we increasingly ‘style’ the future as a surprise, rather than a given. One of the things about climate change that especially add to its potential for surprise is that, like many processes of change, it operates at multiple frequencies: long wave and short wave. It therefore presents the possibility of not only a major disjuncture between the present and the future, but between the near and long term. The question then is how the processes operating at each temporal scale interact, and whether any one discernible change in the environment, or human response, will amplify, dampen or distort another. At the same time, climate change is more than an issue of additionality. It promises to introduce qualitatively as well as quantitatively new phenomenon; that is, to insert ‘troubling and unforeseen novelty’ (Anderson 2010: 4). Alongside other modern risks, it shifts our attention away from only that which is probable, to consider that which is merely possible. Low probability, high consequence events have morphed from objects of paranoia to everyday concerns.

Preparedness, precaution and climate proofing

Profoundly shaken by statements about the uncertainty and potential for radical step-change that climate change introduces, our expectations about what lies ahead are in disarray, leaving us with a feeling that not only will there be more rules in the future, but we do not know what they will be. How do we manage the future in such a state? In particular, how do we ‘bring the future into the present’ in order to govern it?

Anderson (2010) suggests that in Western society we govern the future on the basis of ‘anticipatory logics’: ‘programmatically way[s] of formalizing, justifying and deploying action in the here and now’ consistent with how the future is ‘styled’. Anderson highlights three such approaches to acting in the present on the basis of the specific and dominant framing in Western society of future as surprise. These approaches - precaution, preparedness and pre-emption – are not only relevant to climate change because climate change is one of the pervasive and potentially catastrophic threats that has led to the future being cast as surprise, or because mitigation is a precautionary action, as discussed below. In addition to these two points, which are discussed by Anderson (2010), is the usefulness of understanding adaptation as a governance project shaped by such conflicting anticipatory logics. Not only does this framing of adaptation help to explain the existence of other contested framings as discussed further below, but it highlights the highly political and ideological character of adaptation. As Anderson notes, anticipatory logics not only frame the future as a whole in a particular way, but ‘involve action that aims to prevent, mitigate, adapt to, prepare for or pre-empt *specific* futures’ (p. 3, italics added). Climate change adaptation is especially shaped by two anticipatory logics - preparedness and pre-emption. Explored below in turn, these underpin some of the different interpretations of adaptation discussed above.

“Preparedness” was not long ago an unfamiliar concept. It is now a term we hear frequently, both in relation to climate change and a range of other threats. Originating from disaster management and its antecedent, military planning (Ellemor 2005), as well as from evolutionary psychology (eg Seligman 1971), the original focus of preparedness was - and remains to a degree - discrete, detectable events, whether climatic, military or other. According to Lakoff (2007), preparedness is an especially popular strategy in relation to:

threats that are not manageable through techniques of calculation: preparedness typically approaches events whose probability is not calculable but whose consequences could be catastrophic (p. 247).

In other words, preparedness is a ready-made stance for climate change adaptation. In relation to climate change, however, it takes on a particular form, given the especially wide range of triggers that need to be monitored (even while responding to those that manifest) and the especially long wait times implied by low probability triggers. Organised around the “absent presence” of climate-induced catastrophe, and combined with surveillance of a growing array of other (associated) threats, preparedness under climate change has become a perpetual, generalised, and idealised state, a norm of continual and generic readiness.

Of the three anticipatory logics Anderson discusses – precaution, preparedness and pre-emption - preparedness is the least interventionist approach. In its pure form, preparedness does not involve – does not *allow* - “interfering” in the future to try to reduce the likelihood that a threat will manifest. Preparedness is future-oriented, but ‘brings the future into the present’ (Anderson 2010) wholesale and undisturbed. It thus presents a particular challenge for and attitude towards climate change adaptation. In terms of the IPCC’s tripartite model of vulnerability (“exposure to plus sensitivity to climate change impacts minus capacity to adapt equals residual vulnerability”), preparedness can be seen to be focused on the popular third component: adaptive capacity. The implied adaptation strategy is to adapt once the exogenous climate change impacts “arrive”.

While being tensed on the verge of the future in a state of constant readiness (Anderson 2010) is a relentless and exhausting task, it is also a relatively passive one. It is this version of “wait for it” adaptation that has caused mitigation activists so much anguish. Mitigation is a form of precaution: another of Anderson’s anticipatory logics but far more action-oriented. Formalised in the precautionary principle, precaution is a means of trying to prevent specific, identified but uncertain threats from becoming catastrophic outcomes. Action is taken in the present to “intervene in the future” and thwart the imagined progression of a determinate but not yet irreversible threat, reducing the probability of ‘bad surprises’ taking hold (Derrida 2003). Compared to precaution, preparedness appears oddly impotent and unconcerned. It gives adaptation the unfavourable reputation of either being about “giving up” or being dangerously arrogant. While precaution attempts to “dash into the future” in order to try to adjust its worst features, preparedness stays firmly on the edge of the present, straining to see as far as possible but never presuming or attempting to change what is seen. It allows surprises to unfold, either resigned to their impact or confident that they can be managed, all the while remaining tensed, ready for the next surprise. Interpreting adaptation in such light, Orlove (2009) criticises the way it leads to a sense of complacency with ‘the promise that problems can be addressed... that the harms associated with climate change can be modified and beneficial opportunities exploited’ (p. 161).

Although preparedness can be criticised as either a hope-less or arrogant stance, what is at issue is not actually an expectation of outcomes but a way of relating to the future. Preparedness is not so much pessimistic as fatalistic. It still aims for and expects a positive outcome. But such optimism is contained to our ability to react to a challenging situation rather than being extended to an ability to reduce the likelihood of such situations arising in the first place. In other words, in a preparedness mindset, the future is closed; it is a foregone conclusion. But what remains possible is the ability to try to react effectively, which is to say, the ability to try to adapt quickly, to maintain as optimal a fit with one’s environment as possible. It is the expectation that from this limited degree of agency a positive outcome will result that gives preparedness its reputation as being dangerously over-confident.

Perhaps in recognition of our limited ability to perfectly adapt to a climate change-impacted environment, and certainly in recognition of our limited progress in mitigating the emergence of such an environment, a preparedness approach to adaptation increasingly incorporates the idea of “climate proofing”. Extending the focus on adaptive capacity to the question of sensitivity to climate change impacts, climate proofing is the attempt to insulate something of value from the negative impacts of climate change. Associated with images of “bunkering down”, climate proofing is a process of trying to retro-fit existing systems to withstand new climates. Usually focused exclusively on direct climate impacts and often specific climate events, such as drought, the notion of climate proofing adds an attitude of resistance to the stance of preparedness. Ecologically speaking, resistance is a life strategy based on heavy investment in one option. A “do or die” kind of approach to survival, resistance is an attempt to withstand the shocks that life throws up². Like precaution, a resistance strategy is inherently conservative; it is about protecting that which already exists.

² Thus a fire-resistant tree like an oak, for example, has thick bark in order to try to insulate it from the heat. But if it does burn, it is unable to reshoot. In contrast, a resilience life strategy involves pursuing survival based on the ability to bow to, but “bounce back” quickly from, life’s disturbances. Thus, a fire-resilient tree like a Eucalypt burns readily but is able to quickly reshoot and germinate.

Climate proofing, then, presupposes the existence of an object of value in the present. While this will be in many cases a legitimate assumption, representing, for example, a belief in the validity of subjective risk and loss, it is also one that climate change demands that we interrogate. We turn now to another anticipatory logic of great pertinence to climate change adaptation – pre-emption – that further highlights the need to question how we value the present in order to reach decisions about how we will approach the future.

Pre-emption and the creative potential of uncertainty

Central to anticipatory logics is the idea that ‘not only is the present on the verge of disaster, but disaster is incubating within the present’ (Anderson 2010). This concern about the potentially negative generative role of the present is often discussed in relation to climate change adaptation as ‘path dependency’: that what we do now shapes our options for the future (Inderberg and Eikeland 2009). The influential role of the present justifies a stronger response to threats such as climate change than the arrested action of preparedness. At least that is the attitude of the third anticipatory logic Anderson (2010) discusses: pre-emption. Like precaution, pre-emption is a proactive approach to the future. But whereas precaution acts in the present in order to intervene in the future and reduce specific, identified risks, such as the possibility that greenhouse gas emissions *are* leading to climate change, pre-emption acts in the present ‘over threats that have not yet emerged as determinate threats’ (Anderson 2010: 14). As the man credited with first popularising the doctrine of pre-emption, George W. Bush, stated in a speech to the United States Military Academy in 2002:

If we wait for threats to fully materialize, we will have waited too long. We must take the battle to the enemy, disrupt his plans and confront the worst threats before they emerge. In the world we have entered, the only path to safety is the path to action. And this nation will act (in Massumi 2007: 1).

There are four particularly pertinent things about the logic of pre-emption for climate change adaptation. One is that, whereas other modes of action are based on some trigger and shaped by some degree of evidence, pre-emption holds that waiting for such triggers and evidence to emerge is waiting too long. In contrast to the idea of “wait and see” adaptation, pre-emption acts in the “pre-trigger” period.

Crucially, this is not just about acting early. Precautionary action is also early, but is conducted in response to an identified, manifest risk. Rather, the second thing about pre-emption is that it changes the epistemic basis of anticipatory action. It takes the lack of clarity about the future as justification to act on an imagined possibility. In doing so, it removes the burden of proof from the decision to act and introduces the potential of being self-justifying³. By giving authority to imagination and possibility, it also grants significant power to practices - such as scenarios - that help to organise and distil imaginings about the future.

³ For example, according to Massumi (2007), under the doctrine of pre-emptive action the justification of the invasion of Iraq does not rely on whether there were actually weapons of mass destruction present or not. All that is important is that there *could* have been.

The third important thing about pre-emption is that it fights to restore human agency and identity in a world where the balance of power seems to have shifted to our environment, including but not limited to the 'natural environment'. In contrast to the seemingly de-humanising connotations that accompany adaptation as "fitting to" one's environment (discussed below), and in contrast to the perceived passivity of preparedness in particular, pre-emption offers the appealing prospect of placing adaptors on the front foot and taking 'the battle to the enemy'. The result of this reinvigorated sense of human agency is that pre-emption is generative in other ways. As Anderson (2010) puts it:

In comparison with the emphasis on continuity that we find in precaution [and preparedness], pre-emption unashamedly makes and remakes life (Martin 2007)... Unlike precaution, which aims to preserve a valued life through prevention, pre-emptive logics work by proliferating effects and creating life... (p. 14).

Associated with the generative character of pre-emptive action is that it is, fourth, transformative. As Anderson states: 'pre-emptive logics work by unleashing transformative events' (p. 14). By eliminating rather than just reacting to threats, pre-emption promises to "design out the problem" rather than "bolt on a quick fix". In doing so, it adheres to the enduring ideal of efficiency as well as that of creativity and appeals to a wide variety of parties (Massumi 2007).

The combination of empowered imagination, a reinvigorated sense of human agency and an inclination towards transformative change is a heady mix. It conjures up memories of the creative potential that uncertainty and an open, indeterminate future were once regularly celebrated for. As noted by Roger Jones (2010) in relation to risk, modernity has a productive as well as destructive relation with uncertainty (Foucault 2008). On the one hand, the idea of 'future as surprise', and climate change in particular, casts life as contingent and produces the need to constantly secure life 'in relation to the dangers that lurk within it and loom over it' (Anderson 2010: 6). On the other hand, there remains a belief that this 'securing of life must not be antiethical to the positive development of a creative relation with uncertainty'. That is, we need to be open to the unanticipated and to be willing 'to risk' as well as reduce risk (Jones 2010) in order to enable creativity and create-ing. As Anderson (2010) concludes:

Uncertainty is both threat and promise: both that which must be secured against and that which must be enabled. In this context the pragmatic question for anticipatory action becomes: how to act in a way that protects and enhances some form of valued life? (p. 6).

Under climate change, the idea of *enhancing* life as well as protecting it may seem odd. But if the future truly is open, it may contain positives for us as well as negatives. This is seen in the idea contained in the IPCC definition of adaptation discussed above that adaptation needs to seek out and exploit beneficial opportunities as well as moderating harm, to aim to improve life as well as repair it (even fully).

We come, then, back to the idea of improving life through climate change adaptation. In extending the remit of adaptation beyond the limit defined by climate change impacts, the improvement position introduced above emerges into a highly political space. Politically, repairing climate change

damages is quite a straight-forward task: you identify the damage and you fix it. Misleadingly apolitical, the desirability of the *status quo* that you are working to maintain is not offered up for debate. Once the notion of improvement comes in, however, the political complexity increases exponentially. For, of course what counts as improvement is highly contested. It calls into question not only the level of adaptation that we have been discussing, but the direction of it. It calls into question the desirability of specific futures and the desirability of life as it is. Under climate change ‘carbon is a strikingly generative cultural object’ whose management opens up variegated possibilities (Bridge 2010: 10).

Interpreting improvement

In discussions about the direction of improvement in the future, the conceptual starting point is not just the present, but the past. It is a matter of how humanity’s trajectory to date is interpreted. Broad narratives circulate in Western society about where we are to date and where we are headed. As Mike Hulme (2009) argues, we need to appreciate the role played by such mythical pre-climate change stories about the human condition, as they shape the symbolism we attribute to climate change and the goals we implicitly attribute to adaptation.

In general, there are two main stories about human development over time. Imbued with religious and mythical images, these stories of humanity’s origin, trajectory and purpose either see such change as being for the better, or for the worse. They are described by Carolyn Merchant (2003) as the Progressivist and Declentionist narratives that use the concept of the Garden of Eden as humanity’s original - and now, since “the fall”, *desired* – home. In these stories or, more broadly, genres, history is interpreted as a teleological quest to recover our “truly Human” status. Where they differ is in their stylistically contrasted opinion as to whether we have been moving in the right direction to achieve this goal. Not meant to be realistic positions as such, the two positions are useful heuristic tools.

In the hegemonic Progressivist narrative, institutionalised in Western culture through the paradigm of modernism, human evolution and development over time is represented as progressive: as a successful if incomplete process of proving humans’ status as exceptional beings, superior to the rest of Nature and closer to God. In the Declentionist narrative, this general trajectory of change is not questioned, but the value attached to it is. To “Declentionists” (eg McKibben 1990, 2010, Norberg-Hodge and Goering 1995, Ruddiman 2005), the “Garden of Eden” that we have lost symbolises a closer – rather than more distant - relationship with the rest of Nature. Realising our true human potential demands not more emphatic demonstrations of human exceptionalism, but a reversal of efforts to date to insulate human society conceptually, symbolically and practically from “the rest of Nature”.

Whether we relate or not to the religious imagery in Merchant’s description of these narratives, we are all familiar with these conflicting interpretations of the positiveness or negativeness of society’s trajectory and relationship with the environment. Crucially, these contrasting perspectives strongly shape how “the next chapter” of human society – that is, society under climate change – is conceived. To Progressivists, climate change is an obstacle, albeit a very large obstacle, on an ultimately unwavering route to the future. The implicit goal of adaptation, then, is to maintain our current course or, for those who adopt the repair position described above, at least the current position on humanity’s imagined path. For those who adopt more of an improvement position to the

question of what level of adaptation we should aim for, ongoing progress along the existing trajectory of change is believed to be possible, but such conservatism of direction may necessitate radicalness of method (that is, transformative change for a conservative end). In either case, the idea of humans passively “fitting to” the environment is rejected as archaic and out of keeping with a human subjectivity proudly based on our superiority to and (at least partial) control over the rest of Nature.

There are indications that such confidence in the ongoing desirability and feasibility of the dominant direction of Western society under climate change is widespread. This is most evident in the way that climate change adaptation is being increasingly interpreted as a vehicle for reinvigorating human development efforts. This use of climate change as a reason to revitalise development efforts is based on two elements of the tripartite IPCC model of vulnerability: sensitivity to climate change impacts; and adaptive capacity. In terms of the first, further human development is posited as the answer to reducing sensitivity to (physical) climate change impacts on the assumption that an overt dependency on natural resources (a close relationship with Nature) exacerbates such sensitivity⁴. Despite evidence that replacing a direct reliance on natural resources with one on “social resources” such as urban infrastructure is not a route to lesser sensitivity to climate and its changes⁵, a presumption remains that the more “distanced” people are from climate and other natural resources, the less vulnerable they are to climate change impacts. This underpins the idea of “climate proofing” and other development efforts aimed at “rescuing” human populations from Nature” in the Progressivist belief that such an idea is possible and desirable.

Human development efforts are also being reinvigorated by the climate change adaptation project by the apparent alignment between enhancing adaptive capacity and conventional development pathways. Being highly amenable to human agency, adaptive capacity is a popular focus for climate change adaptation projects, becoming in many cases the singular focus, particularly in Western countries (Preston et al 2010). Adaptive capacity is also a common focus for adaptation because of its seemingly close fit with existing development goals and activities. As the “ability to manage change”, adaptive capacity is a low-risk concern enhanced by many of the same goods that development aims to create, such as human health, education and wealth. The result is a convenient convergence between climate change adaptation and existing notions of progress and a celebration of the synergistic creation of ‘co-benefits’ that mean that adaptation efforts strengthen the development enterprise and, arguably, require few unique activities. As a result, the growing effort to ‘mainstreaming’ adaptation becomes less about inserting a new goal into existing exercises than identifying the adaptive benefits that such exercises are already creating (see, for example, McGray et al 2007 on ‘serendipitous adaptation’). Indeed, the alignment between the goals of adaptation and development seems so great that some have declared that ‘adaptation *is* climate-resilient development’ (eg. Fankhauser 2010, italics added). In other words, in this vision of adaptation, the neo-liberal progress project is not in question; rather it is reproduced and reinforced as the future is

⁴ See, for example, Marshall 2010 on how farming communities’ more direct reliance on natural resources leads to certain sensitivities to physical climate change impacts. While this is true and important, it does not follow that their overall sensitivity is greater than those who do not have such an overt reliance on natural resources.

⁵ See for example, Murphy (2001) on how in Canada a reliance on centralised electricity infrastructure greatly increased the sensitivity of mainstream populations to the impacts of ice storms relative to Amish communities.

interpreted as a continuation of the present, and further progress is posited as the solution to the additional challenge of becoming less climate sensitive and more adaptive. As indicated above, this is not to say that a Progressivist goal for the future does not involve transformative or pre-emptive change. To the contrary, such conservative-oriented transformation may be increasingly necessitated if the goal is to be upheld in the context of environmental change that, arguably, is pushing society in an alternate direction.

Declensionists stridently criticise Progressivists' refusal to question the fundamental model of societal development. For this group, climate change is a clear reason and long-awaited catalyst for a fundamental change in the direction of society, even if this vision of change is accompanied by little or no hope of it happening. Sometimes interpreted as a justly apocalyptic punishment for the wrongness of our relationship with the environment, climate change is regularly presented as evidence of fundamental flaws in our conception of progress (Swyngedouw 2007, 2010), including a techno-optimist arrogance toward the possibility of distant, unknown risks, accumulative threats and Malthusian crises, all of which allow 'the causes of disaster... to incubate within life' (Anderson 2010: 5). Adaptation, in turn, is directed not only toward repairing climate change damages in the future, but toward repairing our relationship with Nature in the present, based in part on a belief in the ideal of a perfect fit. The co-benefit that adaptation is seen to offer is not a convenient alignment with dominant goals, but a much-needed existential crisis for humanity.

While Merchant's discussion of humanity's trajectory is focused on the Human-Nature relationship, there are alternative readings of the existential crisis initiated by climate change. A related version of the Declensionist narrative, for example, is focused on social justice and the need to repair inter-human relationships. Sometimes aligned with a focus on environmental sustainability and sometimes positioned in competition with it, this focus on social justice has found particular resonance in the climate change situation, given the uneven temporal and spatial distribution of causes and effects that exists.

The literature is full of examples of authors attacking each others' Progressivist or Declensionist inclinations. In the climate change context, battle lines are strengthening around the particular issue of population (Bailey 2010). With reproduction a quintessential issue of individual rights, human creativity and the civilisation process, the issue of global population level and its control has long been taboo in Western society. Yet, this 'elephant in the room' (Bailey 2010) is being increasingly acknowledged in climate change discussions as, alongside patterns of production, consumption, and adaptive capacity, population size is identified as a key source of mitigation and adaptation challenges. To Declensionists, such as Hamilton (2009) for example, nonstop population growth is a fundamental way in which humanity has become a curse on the environment and the radical notion of controlling population needs to be entertained. In contrast, Progressivists like Petroni (2009) take exception to the ecocentrism of such a view and argue against the 'hijacking' of climate change discussions by (Declensionist) neo-Malthusians intent on associating 'uncontrolled' population growth to environmental peril.

Whether adaptation is seen to offer co-benefits aligned with the persistence of the existing mode of Western progress or with its revolution, it is being seized upon by strongly opposing groups as a vehicle to remake (or continue to make) human society in their desired image. Both positions are hailing adaptation to climate change as a route to an improved world, often under the rubric that it

is a 'no regrets' or 'win win' exercise. Yet, as indicated by the existence of competing understandings of what regret and winning look like, and growing awareness of the cost that any change, including an adaptation action, entails, such an optimistic view of adaptation is naive, no matter what vision of the future you prefer. While working towards integrated approaches that are attentive to the possibility of maladaptive repercussions is important, there is no simple or magic solution to the problem of adaptation or the problem of climate change it has arisen in response to. Rather, as Adger et al (2009) note, adaptation demands that we squarely address 'the question of what type of world we want to live in and whose values count in deciding this' (p. 8).

Making the future present

To govern the future as we are attempting to do through climate change adaptation, requires that we "make it present"; that we somehow construct an idea in the here and now of what the future can, will or should be like. Anderson (2010) argues that we negotiate the potential impasse of knowing a future styled as surprise through a range of practices that make specific futures present through epistemic objects, materialities and anticipatory affects.

Conventionally, our approach to making the future present has been narrowly focused on the idea of prediction which "discloses" or "reveals" a singular "most likely" future. Using sophisticated techniques of scientific analysis that have until recently reflected assumptions of the continuity of basic conditions between past, present and future, the calculation practice of prediction has flourished under the push for evidence in policy-making (Neylan 2010). As Tevis describes:

We call upon scenario planners to tell us the future and guide our way through it... We beg their help to somehow gain a more accurate (if such a thing is possible) view – often assigning our own, estimated probabilities – to identify what is going to happen and when. In almost all examples of scenario planning techniques, the future is out there somewhere awaiting our interaction—in most cases our very reaction (p. 338).

The 'predictive-empirical' approach to futures studies that Tevis implies is associated with the view of climate change adaptation as 'a passive 'fitting into' predetermined conditions' (Gidley et al 2009: 428). Strongly centred on the use of climate models, this positivist approach makes the future present through the production of epistemic objects such as trends and materialities such as reports and images, which can circulate in society in influential ways (Anderson 2010). The specific futures they make present therefore also 'circulate, [are] reflected on and take on an affective charge' (Anderson 2010: 8), and shade our vision of the future. The consequent "futures filtering" that occurs in our minds as well as institutions blinds us to both negative and positive possibilities and leads to different risks. Failure to consider 'non-conventional' threats, including those that involve significant discontinuities between the present and future, can lead to an unfounded degree of confidence. Failure to consider 'non-conventional' opportunities, again including those that involve significant discontinuities between the present and the future, can lead to an unfounded degree of fatalism and the paralysing affect of fear and hopelessness (Fritze et al 2008, Anderson 2006).

While the deterministic promise of prediction retains its appeal to those formally charged with governing the future, the impenetrable uncertainty created by climate change and, in particular, the potential for surprise, is increasingly acknowledged as a limit to the accuracy and thus utility of prediction (Dessai et al 2005). Indeed, given the tendency – as intended – for predictions to be used

as the basis for decisions, the reduced accuracy of prediction means that its continued use in the context of irreducible uncertainty is increasingly framed as a source of risk rather than risk reduction. Effort is growing to “wean” policy makers and other decision makers off a reliance on this mode of knowing the future. A broader range of tools, which represent an at least partial turn from ‘calculation practices’ to ‘imagination practices’ (Anderson 2010), are being developed and promoted, including scenario-based approaches.

Reflecting the way predictions are absorbed into our thinking, shaping and limiting our imaginings about the future (de Vries 2010), lack of imagination – that is, novelty - is a common limitation in our ability to think about the future (Rotmans et al 2007). This issue can be brought to the fore in scenario processes, with many imagination-based scenario exercises resulting in curiously narrow visions of the future. As Miller (2007) notes in his review of scenario approaches:

...narratives originate either in people’s current (usually unexamined) expectations and preferences or in the framework of predictive modelling familiar in the social sciences. As a result, non-conventional and transformative possibilities are under-represented.

According to Mulvihill and Kramkowschi (2010), the result is that ‘scenarios are not only too predictive, but also too predictable’, leading to the risks of futures filtering outlined above.

Scenarios are a means of developing and formalising alternative views of the future. Like predictions, they too create epistemic objects and materialities. They can also create alternative affective responses and attitudes to the future. They do this in part by actually demanding a different attitude to the future – by demanding an interpretation of the future as fundamentally open rather than closed. As Mulvihill and Kramkowschi (2010) argue, what is needed is a non-essentialist outlook that accepts ‘that *plausible* futures, no matter how improbably they may seem, could actually unfold... that there is little, if anything, that is pre-determined about the longer-term future’ (p. 2458).

Mulvihill and Kramkowschi (2010) write with the explicit goal of promoting the use of scenarios to help achieve ‘transformative change in more sustainable directions’ (p. 2458). As such, they demonstrate a growing move toward normative scenarios, which as opposed to the less directed practice of exploratory scenarios, use a ‘visionary mode of thinking’ to seek desirable futures⁶ (Carlsson-Kanyama et al 2008). Normative scenarios are an approach that ‘makes explicit the – often tacit – contextual and values dimension and this leads to a questioning of ‘business as usual’ (Gidley et al 2009: 429). By raising the issue of what is desired, providing a forum for discussion and exploration, and creating epistemic and material objects that can be used to develop shared understanding (and counter prevailing discourses), they help address and act on the question of what forms of life are valued, now and in the future.

The question for climate change adaptation is whether a shift in anticipatory epistemic practice from prediction to normative scenarios is associated with a shift in thinking and action on adaptation. As mentioned above, the presumptions about the world that underpin prediction are aligned with those that underpin an understanding of adaptation as a process of “fitting to” the environment. In both, human agency is believed to be strongly limited by a fundamental ‘hyperseparation’ between

⁶ Carlsson-Kanyama are referring here to normative techniques in general, and specifically to backcasting. In their definitions, they actually limit scenarios to being an exploratory technique. There is a large amount of such terminological variance in the futures literature.

humans and environment (*cf* Plumwood 1993) and the future is presented as a singular and purified object “out there” waiting to “happen to us”. Associated with a preparedness stance to adaptation that inherently accept “starting conditions” as they are, such a representation of the future and of limited human agency are frequently used to legitimate political and cultural constructs (such as neoliberal capitalism; see Gibson-Graham 1996) as inevitable and natural.

In scenario approaches, the future is refracted by uncertainty into multiple possibilities. In some readings, such as conceptualisations of climate change as closing the future and reducing human agency, this uncertainty serves as a further wedge between humans and environment. Alternatively, in other readings uncertainty serves as a platform for imagination that, at an epistemic level, automatically increases the agency of non-experts by granting authority to imagination. In the case of normative scenarios, there is also a radically different conceptualisation of humans as co-creators of the future and adaptation as an emergent phenomenon that can incorporate – indeed, presupposes – a pre-emptive (that is, both anticipatory and action-oriented) approach to the future. Critically, this brings to the fore the heavily political and cultural character of the adaptation project. Given this, it is not surprising that normative scenarios – or any scenarios – do not provide simple answers to the question ‘what type of world we want to live in and whose values count in deciding this?’ (Adger et al 2009: 8). They instead highlight that, as discussed above, belief in the human ability to shape the environment and thus future is common to groups with widely divergent ideas about what this future should look like under adaptation, and that work is needed to unpack and compare these visions. As a practice enlisted toward a highly political end, scenarios also highlight the importance and political character of process and, in particular, the question of whose values count via who participates.

The issue of who participates in constructing scenarios of the future brings us to their main limitation, underlined by the discussion of adaptation above. That is, while uncertainty about the future is used in scenarios as a route to debate about possible futures, the present (and past) are most often left as a singular, taken-for-granted starting point. Yet, just as – indeed, because – starting conditions strongly shape adaptation, so too do they shape visions of the future. A poor understanding of these starting conditions misleadingly casts uncertainty as something that only affects the future, not the present. Work is needed not only to perceive the multiplicity of the future, but the multiplicity of the present. This includes the array of conceptualisations about what adaptation is and is aiming for. Scenarios are a future-oriented practice but they are practiced in the present and demonstrate the way ‘the here and now is continuously assayed for the futures that may be incubating within it and emerge out of it’ (Anderson 2010: 6). Closer attention is needed to the different “here and nows” that people experience and perceive. A better understanding of the origins and meaning of the futures that are identified ‘within’ the present would be one result. The other would be to enhance the sense of human presence/present in the environment, which would be a further step towards acknowledging our integrated co-adaptive character and carefully negotiating the pitfalls of over-allocating agency in either direction.

Conclusion

Climate change adaptation is a Trojan horse of contested, ideological meanings under the guise of a largely technical and apolitical process. Failure to understand the different interpretations of adaptation is to fall prey to what Steve Cork (2010) calls ‘poor problem definition’. He writes:

‘Inadequate consideration of underlying influences’ results in poor problem definition, which leads in turn to ‘problems being defined in terms of symptoms rather than causes’ and strategies and actions being formulated that risk not only failing to solve the problem but making it worse (p. 137). The problem outlined by Cork is particularly pertinent to adaptation, given its path-dependency and risk of maladaptation. Addressing the problem involves more than expanding the conceptualisation of climate change impacts to include the mitigative and collective effects of adaptation actions. It also involves a careful analysis of what is going on when we use the term adaptation and, in particular, what specific futures are more or less likely to emerge as a result of the particular ways we frame the adaptation issue. As in other situations, inherently conservative outcomes are favoured by inadequate interrogation of the *status quo*.

This paper has tried to highlight the deeply cultural and political character of climate change adaptation by firstly describing the range of ways in which adaptation is conceived and, secondly, positing a view of adaptation as a governance project directed at ‘the problem of the future’. Using Ben Anderson’s concept of anticipatory logics, the contrast between a preparedness and pre-emptive approach to adaptation, and attendant beliefs about the future and human-environment relationship, has been stressed in order to illustrate the varied meanings given to and political implications of adaptation.

As an increasingly influential way of governing and coping with a future styled as surprise, adaptation involves often invisible decisions about which specific futures are possible and desirable and, therefore, which specific presents are of value. Scenarios, notably normative scenarios, hold great potential as a practice for making visible not only visions of the future but the decisions on which they are based. Work is needed to enhance their ability to refract the present as well as future in order to tease out and better understand the “starting conditions” of the future-creating project of climate change adaptation.

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