Emergency Ethics: Understanding Climate Change in the Lead Up to 2050

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A thesis submitted for the degree of Doctor of Philosophy

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Abstract

Is climate change a genuine emergency? If so, what, if any, are the implications for climate ethics and policy? Little consideration has been given to these topics thus far. This is surprising given that emergencies often license measures that subvert democratic decision making and legal procedure, and curtail and effect civil liberties. If climate change is a genuine emergency, do we need to abandon our hopes for a just transition, and prepare ourselves for extraordinary governmental responses as the climate emergency – and with it, the threat of climate damage – escalates?

"Emergency" and "climate emergency" are both deeply confused and poorly understood concepts. In order to understand the implications a genuine climate emergency may hold for climate ethics, policy, and action, it is necessary to have a deep understanding of the concept of emergency, whether extreme emergency measures are capable of being justified, as well as the critical concept of "climate emergency" itself. I intend to provide that solid foundation with this thesis.

This is an integrated thesis with three parts and four papers. In part one, I examine the philosophical underpinnings of emergencies, and emergency responses respectively. I argue for a revised definition of the concept as one that entails only two necessary conditions: (1) the threat of great harm to critical systems; and (2) the need for urgent action. With this in hand, I examine the relationship between emergencies and justice, and argue that extreme measures that undermine principles of justice and fairness are capable of being justified. I appeal to Rawls to make this argument, and do so on the basis of the circumstances of justice.

In part two, I turn my attention to climate change. I argue that climate change is a genuine emergency. Specifically I argue that it is a threshold emergency, and that it is inaccurate to refer to the situation as a crisis. Finally, in part three, I begin to use my combined arguments about emergencies, the justifiability of emergency measures, and climate change's emergency status to comment on climate ethics and policy. I have chosen the carbon tax as my first example of an area to apply this research to.

Keywords: climate change; emergency; climate emergency; crisis; disaster; climate ethics; climate justice; climate policy; carbon tax.

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Introduction: A Very Serious, Very Real Emergency

We are in the midst of a very real, very serious emergency.

The Intergovernmental Panel on Climate Change's (IPCC) *Special Report: Global Warming of 1.5°C* (SR1.5) outlined that warming beyond this level promises catastrophic impacts and harms [1]. Limiting warming to 1.5°C is essential, therefore, to prevent the worst climate damages. In order to limit warming to this level, emissions would have to decline by 45% from 2010 levels by 2030, and reach net zero around 2050. This where the 2050 net zero target comes from.

But, 2050 is a long time away. 26 years away in fact. This is almost as long as I have been alive, and that feels like a *long* time. Most emergencies we encounter have a short and abrupt time frame. If a wildfire or tsunami is hurtling towards my town, I must evacuate without delay. Every minute counts. But with climate change, we have time. The actions we take today, or even tomorrow, will have little bearing on whether we will make our net zero target. Unlike a simple evacuation, the changes we need to make to reach net zero are long, systemic, and gradual. While the issue is no doubt of extreme importance, it seems, at least in terms of the rapidity with which we must act, different in kind from the responses needed to typical, paradigmatic emergencies like floods, earthquakes, and terrorist attacks.

This forces the question: is it actually a real emergency? There are more reasons to hesitate. Since the wave of climate declarations that have been made since 2019, we have yet to see any emergency action or response. In the history of emergencies, this

is highly unusual. Moreover, there is good evidence that the term "climate emergency" is simply being used by most as a piece of political rhetoric to draw attention to the issue and ramp up awareness and commitments – a point itself supported by the lack of action and emergency response.

Motivating Questions and Approach

Two key questions motivate this integrated thesis:

(1) is climate change a *genuine* emergency?; and, if so,

(2) what are the implications of that for climate ethics, policy, and action?

In order to begin even attempting to answer these questions, philosophical rigour demands a thorough understanding of the concept of emergency. A solid answer requires a deep understanding of climate ethics and justice. And, a useful answer needs a comprehensive grasp of climate change and climate policy. These topics have guided the development and focus of each paper in this thesis. As a result, I have produced self-contained papers that I hope will add to and further each of these fields of enquiry, as well as provide a solid foundation for continued research in these questions.

A note on format: This is an integrated thesis. For ease, I refer to the papers as 'chapters'. While every chapter is strongly thematically connected, each is intended as a stand-alone paper that seeks to make its own contribution to the literature. As such, they are written without assuming prior knowledge. A consequence of this approach is that it requires a degree of repetition. When read side by side, as they will be here, this repetition can be cumbersome. For the purposes of this thesis, I have tried to keep that repetition to a minimum, and when appropriate, refer the reader to relevant chapters and sections.

Below, I provide an overview of each section and chapter, and include a quick introduction to climate change in order to kick things off. But first, let me specify my arguments, novel contributions, and conclusions:

My arguments, novel contributions, and conclusions

Throughout the chapters of this thesis, I put forth and develop several novel arguments and conclusions. Collectively, there are 7 main takeaways:

1. *Climate change is an emergency*

On this matter, I hope to leave no room for dithering, doubt, or denial. While the conclusion may appear simple, it is more difficult to establish than it appears. Why? Because both "climate emergency" and "emergency" are, as I go on to demonstrate in Chapters 1 and 3, poorly understood and confused concepts themselves. It is exceedingly difficult to establish whether something counts as an emergency if we're not sure what that means in the first place. A proper answer, therefore, requires significant conceptual heavy lifting.

Specifically, I argue that climate change is a threshold emergency. This is a category of emergency that I identify and develop in Chapter 1, and then further explore in Chapter 3. In short, it refers to a situation in which harm is already occurring, but in which a threshold point has been identified beyond which critical systems will be severely harmed. Urgent action is needed in order to avert that harm. Another comparable instance of a threshold emergency, I argue, is COVID-19.

2. *Climate change is not a crisis; not any more*

"Climate emergency" and "climate crisis" are often used interchangeably. Indeed, "climate crisis" is often used more frequently in academic contexts [2]. However, I argue that it is inaccurate to call climate change a crisis. It was one, but it has

now transitioned into an emergency, which is a distinct kind of event, and which has its own set of implications. I make this argument in Section 5, Chapter 3. This is a novel argument that does not, at present, exist outside of the realm of climate denialism. Unlike denialists, I only reject the term crisis, to go on to embrace a stronger formulation of the problem as an emergency. Moreover, I demonstrate how my account of threshold emergencies provides us with the tools to clearly and reliably distinguish between crises and emergencies.

3. *The concept of emergency contains only two necessary conditions*

I argue for a revised definition of emergency which requires only two necessary conditions be met in order for some situation or event to qualify. On my revised definition, an emergency is:

> A situation or event that is (1) causing, or threatening to cause, great harm to critical systems, and that (2) requires urgent action in order for that harm to be reduced or averted.

"Critical systems", briefly, refers to systems that are important for the functioning and stability of society, such as healthcare and food systems, but also geophysical and ecological systems like weather patterns. This argument is made in Chapter 1.

4. *Emergencies objectively exist*

I argue that emergencies exist independently of our subjective assessments. We can be right, and we can be wrong, when it comes to classifying a situation as an emergency. Trump, for instance, was very, very wrong when he said that the Border Wall constituted an emergency. I develop an objective account of emergencies, and with it, establish objective criteria by which we appeal to in order to help us reliably classify emergencies, in Chapter 1.

5. *Urgency is a function of badness, time, and uncertainty*

I develop what I call the "urgency equation" in Chapter 1. In short, I argue that the level of urgency in an emergency situation is determined by three factors: badness (the level of harm under threat to critical systems), time (the time remaining until harm occurs, as well as the time it would take to successfully respond in order to avert or reduce the harm involved), and uncertainty (the level of uncertainty involved in the situation). These three factors are combined in an equation that can help us to determine the level of urgency in a given emergency situation.

6. *Extreme emergency measures are not always the enemy of justice*

Emergency responses are often extraordinary and exceptional. They can result in measures that challenge the norms of democratic and legal procedures, as well as our ethical principles, civil liberties, and justice. In Chapter 2, I appeal to John Rawls's circumstances of justice to demonstrate that, in the context of genuine emergencies, it is possible to justify these measures in a way that is compatible with the realisation of justice.

7. *The Carbon Tax should be recast as a just emergency measure*

I argue that a carbon tax is one of the best emergency measures available to address climate change. This is the topic of Chapter 4.

Overview of Thesis Chapters

Each of the 7 key arguments outlined above are dispersed between the four papers contained in this thesis. I have organised the papers into three, conceptually distinct sections: (I) Understanding Emergency; (II) The Climate Emergency: The Conceptual Challenge; and (III) Emergency Ethics in Action:

(I) Understanding Emergency

This section of the thesis contains two papers that are exclusively concerned with the concept of emergency. I explore both what the concept entails, and whether extreme responses can ever be justified. Climate change does not get a mention in these chapters.

1 *What Are Emergencies, and Are They Real?*

This chapter explores the concept and definition of emergency. I argue that the concept is poorly understood, and develop an account of emergency that requires only two necessary conditions to be realised: (1) great harm to critical systems; and (2) the need for urgent action. Next, I argue for an objective account of the phenomenon in contrast to subjective accounts that are popular in the literature. My account makes two novel contributions. The first is that I anchor emergency harm to critical systems – systems necessary for the functioning of society, including physical planetary systems, as well as sociotechnical systems, such as functioning water, food, and health systems. This, I argue, provides a superior and intuitive explanation of emergencies. The second contribution concerns the definition of urgency. I introduce a more comprehensive account of what constitutes urgency than that found in the literature. I specifically introduce what I call the "urgency equation", where I stipulate that urgency is a function of three different variables: (i) badness (value); (ii) time; and (iii) uncertainty.

2 *Can We Ever Justify Extraordinary Emergency Responses?*

Responses to emergencies often disrupt 'normal rules': our everyday political, legal, and moral conventions. In war, soldiers can kill; during COVID-19, severe limitations were placed on individual liberties and greater powers granted to governments. In both examples, we see action and policy from governments that would not ordinarily be acceptable. Are these exceptional measures ever justifiable? In this chapter I

appeal to Rawls to argue that emergency responses can be justified on the basis of the threat they pose to the circumstances of justice – the circumstances necessary for the functioning of society and realisation of justice.

(II) The Climate Emergency: The Conceptual Challenge

This section of the thesis contains the chapter that examines whether or not climate change counts as a genuine emergency.

3 *Is Climate Change a Genuine Emergency*

This chapter examines the notion of the "climate emergency", and examines whether or not it constitutes a genuine emergency. Anyone who has read Chapter 1 of this thesis will be able to anticipate my arguments in Chapter 3. I argue that there is significant confusion about what a "climate emergency" means, as there is confusion over what "emergency" means. Arguments have been brought against climate being an emergency because it doesn't meet the standard definition. There is something to these arguments. However, I intend to show, as I have done in Chapter 1, that appealing to the standard definition of emergency will lead to confusion over whether climate change counts as a real emergency. Using my arguments developed in Chapter 1, I argue that climate change does qualify as an emergency, given the fact that it poses harm to critical systems, and requires urgent action in order for that harm to be averted or reduced. Specifically, I argue that it constitutes a threshold emergency. I reject the idea that climate change is better understood as a climate crisis.

(III) Emergency Ethics in Action

This final section includes a paper that begins to use my combined arguments about emergencies and climate change's emergency status to comment on climate ethics and policy. I have chosen the carbon tax as my first example of an area to apply this research to.

6 *Is a Carbon Tax an Emergency Measure?*

The chapter discusses the concept of a carbon tax. I argue that we ought to recast the tax as an emergency measure that can be used to address climate change. Moreover, I argue that it is one of the most just emergency responses we have available and at our disposal.

I believe emergency has significant ramifications for the way we ought to approach climate policy, climate ethics, climate justice, and climate action. With this thesis, I have developed a solid foundation upon which to explore the ramifications of emergencies in future work. I specify the possible direction of that future work in the conclusion of this thesis.

Finally, before we get started, let me provide some necessary context on climate change.

A Brief Introduction to Climate Change

Climate change is a topic that, in 2023, needs little introduction. So, let me keep it quick.

The issue in short: we're putting stuff into the atmosphere that we shouldn't be: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other fluorinated gases. These are collectively referred to as greenhouse gasses (GHGs). These gasses naturally

exist in the atmosphere. But we have injected well over that natural figure, with high levels of CO_2 being one of the main drivers. How did we do this? Predominantly through the burning of fossil fuels. However, significant amounts of emissions also arise from other sources, including land-use and agriculture.

The consequences: GHGs trap heat. So, global average temperatures have risen. That rise is changing the atmospheric conditions of Earth from one that is – or was – somewhat stable, reliable, and moderate – *just right* – to one that is extreme, unreliable, and harmful. As emissions continue, and the temperature increases, we can expect to see increasing rates of extreme weather events, shifting weather patterns, and rising sea levels, to name a few. These impacts are harmful. For us, for biodiversity, for ecosystems, for non-human animals. They have already tremendous caused harm: there is evidence that effects have already taken place in all 193 member countries of the UN [3].

The challenge: We must limit the rise to 1.5°C to ward off what is predicted to be catastrophic harms; we must stop climate change. There are three additional challenges: doing this in a just way; doing this in a quick way; and, it seems, doing anything at all.

The solution? Reduce and remove. To halt climate change, we *must* stop putting harmful emissions into the atmosphere. If we can't stop putting them up there in time to limit warming to 1.5°C, then we will need to remove them. It is a misconception that these solutions are either/or. They are not. Why? Because we won't be able to stop putting harmful emissions up into the atmosphere in time to limit warming to 1.5°C or even 2°C. But why not?! Two primary reasons: (1) Even if we switch to completely renewable sources of energy, there are hard-to-abate sectors which will

continue to rely on fossil fuel use. We need to remove and deal with these continued emissions. This says nothing about the likely continued emissions from sources like agriculture. (2) It seems very unlikely that we will be able to completely switch in time – for instance, there may be continued political delay; and technical difficulties with green and clean technologies, such as large-scale battery transportation and storage. This means we need to drastically cut our emissions, and switch to clean technologies. But, in order to reach net zero and limit warming to 1.5°C, or even 2°C, we will also need to remove and permanently store CO_2 [4].

Let me finish my putting the scale of the challenge into perspective. As a result of COVID-19 restrictions, which saw drastic reductions in travel and economic output, global emissions decreased by approximately 5% from 36.3GT CO_2 to 34.3GT CO_2 in 2020 [5]. This drop is unprecedented in *human history* [5]. As the International Energy Agency (IEA) illustrate, it is equivalent to removing all of the European Union's emissions from the global total [5]. However, in order to reach net zero, we would need to – in the words of Professor Myles Allen, Coordinating Lead Author of the IPCC's Special Report – see the COVID-19 retraction, "repeated year, on year, on year, for *20 years*" [6].

26 years is almost already too little time. We are cutting it fine.

Part I

UNDERSTANDING EMERGENCY

1

What Are Emergencies, and Are They Real?

Of course emergencies exist. We are tragically seeing one unfold before us in Gaza. We are recovering from COVID-19, as well as from the more recent Turkey-Syria Earthquakes, and megafires in Canada this year alone. And, past ones are deeply ingrained in our collective social memory, like the two World Wars, and the Terrorist Attacks of 9/11. They are a part of our everyday vernacular, and, unfortunately, an increasing part of everyday existence.[1]

Yet, despite the frequency with which we hear and use the term, there seems to be uncertainty, if not mystery, as to how we actually define it. To add to confusion, it is often used interchangeably with 'crisis' and 'disaster'. There is also tension in the literature about whether determinations of emergency are subjective, or whether they exist objectively, independent of individual interpretation. After all, assessments of potential emergency events may – and often *do* – vary from person to person, leader to leader, country to country. One need only recall the wavering and delay involved in different national emergency declarations of COVID-19 [8]. And yet, despite this,

[1] As far as Walter Benjamin was concerned, states of emergency are no longer "the exception", but "the rule" [7].

there is a strong intuition that certain events count – like explosions or floods in populated areas; and others *don't* – Trump's so-called border wall emergency. It feels like we can be right and wrong about their existence.

This paper has two agendas. The first: to provide a clearer definition of 'emergency' than that currently contained in the literature. In doing so, I identify only *two* necessary conditions of its make-up, and cast off a not insignificant amount of definitional dead-weight. I leave the reader with a simple account: an **emergency** is a situation or event that is (i) causing, or is threatening to cause, **great harm**, and that (ii) **requires urgent action** to reduce that harm or avoid it. I also identify and distinguish between three different types of emergencies: (i) explosive emergencies; (ii) time-bomb emergencies; and (iii) threshold emergencies.

The second: I argue that emergencies can **exist objectively**; their status, or 'realness', is independent of subjective judgement – it is intrinsic to the nature of an emergency itself. Carl Schmitt has been a driving force behind the idea that emergencies are subjectively determined [9]. The impact of this thought has not just been academic. A significant portion of legal acts, for instance, often leave emergency undefined, and the activation of emergency powers at the discretion of government leaders and bodies. Given the arsenal of emergency measures that emergency declarations can unlock – many of which are authoritarian in nature – the ability to conclusively determine their objective existence is important. It has great potential to direct, inform, and perhaps even sway, both public debate, public policy, and legal redress.

Finally, allow me to flag two novel contributions I wish to make. My definition of emergency is nothing new: great harm and urgency have long been noted as features of emergency. What is new, is that I anchor that harm to **critical systems** necessary for the functioning of society – this includes physical planetary systems, as well as

sociotechnical systems, such as functioning water, food, and health systems. There is common (mis)conception that public emergencies are simply ones that threaten harm to large numbers of people.[2] This makes a lot of sense – pandemics, hurricanes, and tsunamis endanger a lot of people. But it starts to crumble when we then consider that we often count some events as emergencies that only threaten harm to small groups – targeted terrorist attacks – or even one person alone – a president. And even more so, when we consider that there are, in fact, a whole host of events that cause enormous amounts of harm, but that we don't count as emergencies – poverty, cancer, and many more. Explaining harm in terms of damage to critical systems, I argue, provides the best explanation available. A particular selling point: it allows for a definition that is able to clearly track and explain our intuitive thinking as to what does and doesn't count.

The second contribution concerns the definition of urgency. In § 1.5, I introduce a more comprehensive account of what constitutes urgency than that found in the literature. I specifically introduce what I call the "urgency equation", where I stipulate that urgency is a function of three different variables: (i) badness (value); (ii) time; and (iii) uncertainty.

This paper has five sections. In § 1.1, I present the definition of emergency that emerges from a scouring of the literature. Next, I demonstrate that we need but two necessary conditions for a proper account of the concept (§ 1.2). In § 1.3 I outline the influence of subjective accounts of emergency and outline the challenge of producing an objective account. In § 1.4, I introduce the idea of critical systems and link them to the definition of emergency. Finally, in § 1.5, I outline my objective account of emergency; it is here that I expand upon urgency.

[2]Note: my interest lies in **public emergencies**, as opposed to personal emergencies. While I provide a short explanation of the distinction in § 1.1 of this paper, my focus will exclusively concern the former category.

1.1 "Emergency"?

So, how do we define it? Despite its intuitive simplicity, the term is deceptively complex and elusive. Below, I present the array of meanings that emerge in the literature. I start by quickly specifying a distinction between personal and public emergencies: we will be concerned with the latter (subsection 1.1.1). I then begin with a basic dictionary definition (subsection 1.1.2), and then turn to the literature in an attempt to isolate the defining features of the concept (subsection 1.1.3). I refer to the definitions presented in this section collectively as the 'common-sense' definition of emergency. Why? Because all of the features listed below *do* seem to be a matter of common-sense thinking about the term. They seem intuitively correct.

1.1.1 Public Emergencies vs. Personal Emergencies

We can distinguish between **personal emergencies** and **public emergencies**.[3] A personal emergency refers to a situation that threatens an individual in a private capacity: a heart attack, a car accident, etc. The risk or threat of harm in these cases is often only a risk for the person(s) involved, and urgent action is required by the individual, or on behalf of that individual. A public emergency, on the other hand, is defined by Tom Sorrell as one that faces "whole states or large numbers of people, and which are usually the responsibility of public agencies and their officials" [10, p. 22].[4] These can take place at multiple scales, be it local, regional, state-wide, international, or global. This paper is exclusively concerned with public emergencies.

[3]Sorell discusses this distinction at length, see [10].

[4]Much more could be said about how to accurately distinguish between these two kinds of emergencies – for example, exactly when an emergency transitions from a personal emergency into a public emergency. However, for the purposes of this paper, the above distinction will suffice. For more on this distinction, see [11].

1.1.2 A Common-sense Definition of Emergency

A basic dictionary definition explains it as, "a **serious**, **unexpected**, and often **dangerous situation** requiring **immediate action**" [12]. This common-sense definition is echoed throughout the literature. For example, Tom Sorrell defines it as,

> "a situation, often **unforeseen**, in which there is a **risk of great harm or loss** and a **need to act immediately** or decisively if the loss or harm is to be averted or minimised" [10].[5]

The emergency status of some events are uncontroversial. Paradigmatic examples include pandemics, terrorist attacks, wildfires, earthquakes, floods, and tsunamis.

1.1.3 Defining Features

However, as A. M. Viens and Michael Selgelid note, it is often unclear what — beyond the loose definition offered above, and reference to classic examples — the concept entails. In their words: "while there is often consensus regarding which events constitute emergencies, it may not (always) be entirely clear what are the defining features of emergencies" [13, p. xii]. To this end, an analysis of the literature provides us with a set of recurring terms and features that are helpful in generating a more rigorous understanding of the notion. I break these up into the following three categories:

1. The nature of the emergency event

In addition to the widespread emphasis on unforeseeabilty, unexpectedness, and risk of great harm, we also see the following adjectives commonly used to refer to the nature of the emergency event: **unpredictable**, **high risk**, **acute**, and **sudden**

[5] François Tanguay-Renaud adopts the same definition, with the exception of his use of 'significant' rather than 'great' harm, see [11, p. 31]. A similar definition is also used by A. M. Viens and Michael Selgelid, the Editors of a compendium on "Emergency Ethics" [13]; as well as by Nils Markusson et. al. [14]; Lucy McHugh et. al. [15]; and Charles Corbett [16], as well as within the National Emergency Powers Congressional Research Services Report, [17, p. 3] among others.

and **short-term** [16], [18], [19], [20], [21]. In regards to their short term, temporary nature, Ayn Rand writes, "by its nature, an emergency situation is temporary; if it were to last, men would perish" [22]. Moreover, harm is described as being either **already occurring** or **imminent**.

Furthermore, the relevant emergency event is usually marked out as a single, discernible event or situation, such as a given tsunami, or a particular hurricane. It is this event that generates harm. Even in the case of pandemics, which one might argue contain multiple events of transmission, we are able to group this under one situational umbrella — under a category of specific type of infection or transmission. For example, we refer to the widespread transmission of COVID-19 as the COVID-19 pandemic: a singular emergency and contained event (at least in terms of its categorisation). The same is true of war, where we group all attacks and events under one header (such as World War Two, or the Russia-Ukraine War) and a given series of coordinated terrorist attacks (such as the 2008 Mumbai attacks, and 9/11, both of which involved attacks on multiple locations). Note, sometimes distinct but closely connected emergency events can be grouped together, such as the Fukushima Daiichi Nuclear Power Plant industrial emergency in Japan in 2011. This emergency was triggered by a tsunami, which in turn was triggered by an earthquake. The three are often collectively referred to as the 2011 Tōhoku disaster.

2. The nature of the emergency response

In addition to the need for immediate action, responses and intervention are also described as needing to be **urgent**, **rapid**, **temporary**, **time-sensitive**, and as a matter of **necessity** [20].

3. Contextual status

Finally, emergencies are usually contrasted against 'normal' conditions and contexts;

they are seen to be **out of the ordinary**, **exceptional**, **extraordinary**, or **abnormal** [18], [19], [20], [21], [23]. Ben Anderson, for example, takes it for granted that this contrast between normality and emergency is built into the very definition of term [24, p. 15]. Craig Calhoun provides a nice image of how emergencies are usually thought of in this regard:

> It is as though there were a well-oiled, smoothly functioning "normal" system of global processes, in which business and politics and the weather all interacted properly. Occasionally, though, there emerge special cases where something goes wrong – a build up of plaque in the global arteries causes a stroke, there is a little too much pressure in one of the global boiler rooms – and quick action is needed to compensate [21, p. 376].

In sum, these three categories earmark a handful of distinguishable features of emergencies as they appear throughout the literature.[6] They all seem pretty intuitive. However, it is noticeable that their use is inconsistent. What may be discussed by one author as a definitive feature, is absent in another. Moreover, these definitions are often introduced rapidly, with no substantive analysis or backing. This leaves us with a confused, piecemeal collection of features that seem important, but are not consistently invoked or justified. This indicates a lacking and poor conceptual understanding of the term.

Poor definitions carry consequences. For one, it makes consistent analysis of topics concerning emergency challenging. For example, how is one to properly assess climate change's status as an emergency, if the definition itself is so confused? Arguments have been made that the issue does not count as an emergency, because it does not possess some of the hallmark traits of emergencies, such as unpredictability and unforeseeability [18, p. 621]. And yet, these are two traits that are themselves

[6] They also closely accord with the set of somewhat agreed upon features of national emergencies in US law and Congress. Terms that have been used to describe these emergencies in various legal settings, including Congress and various judgements, include "unforeseen", "sudden", of "unknown duration", "imminent danger" [18, p. 620]; "relative infrequency of occurrence" [18, p. 624]; "threatening [to] the life of the nation" and to "the continued stable operation of [the] political and social order" [16, p. 204-5], [25].

inconsistently employed in discussion of the concept's definition, and lack justification.

Lastly, it is worth noting that 'emergency' is often used interchangeably with 'disaster', 'catastrophe' and 'crisis' – a further muddying of the waters.[7] There is little agreement as to the exact definition of these categories of terms beyond their mutual reference to threatening events that are "beyond the norm" [26], [27], [28], [29]. Climate change provides a good example of their mixed use, where we often hear "climate crisis" and "climate emergency" side by side [30]. 'Crisis' is also frequently used at the policy level, with emergency planning and policy often being categorised under the header of 'crisis management' [26].

1.2 Simplifying the Definition

Allow me to show that a definition of emergency only needs two things: (i) great harm; and (ii) urgency. I first isolate these two features as the necessary conditions of the term (subsection 1.2.1). I then dismiss the remaining features as unnecessary (subsection 1.2.2). Next, I identify and distinguish between three distinct types of emergencies: (1) explosive emergencies, (2) time-bomb emergencies, and (3) threshold emergencies (subsection 1.2.3). I close the section by presenting my revised definition of emergency: a situation or event that is causing, or threatening to cause, great harm, and that requires urgent action in order for that harm to be reduced or averted (subsection 1.2.4).

[7]Note: I believe these terms are distinct; however, I do not have the space, here, to explore those differences. I return to the distinction between emergency and crisis in more depth in Chapter 3.

1.2.1 Great Harm; Great Urgency: Two Necessary Conditions

Recall the typical words surrounding the definition scattered across the literature: risk of great harm or loss; unforeseen; unpredictable; acute; sudden; short-term; imminent; out of the ordinary; exceptional; extraordinary; abnormal; and the need for immediate, urgent, rapid, time-sensitive, decisive action, as a matter of necessity. Out of this panoply of features, there are only two that are necessary to its definition:

> **(i) Risk of great harm**: Emergencies must be already causing or threatening to cause great harm. An earthquake on an isolated, uninhabited island – or better yet, an uninhabited planet – would not count as an emergency. It is the coupling of that event with the level of harm it threatens to *us* that transforms it into an emergency.

However, risk of harm is not sufficient. There also needs to be:

> **(ii) Need for urgent action** ('urgency' for short): the event or situation that threatens harm must be such that it can only be prevented or alleviated by immediate action. Action, therefore, is a matter of urgency and necessity. An important clarification: we do not need to actually respond to a situation in order for it to count as an emergency. It need only *require* an urgent response. This detail may seem obvious, but it is a subtlety worth noting. One important implication is that it means situations do not require emergency declarations or the invocation of emergency powers in order to count as emergencies. Successful action may well mean we must use those powers, but that is a different matter, distinct from the concept's definition.

Definitions across the academic literature, as well as standard dictionary definitions, consistently converge on these two features [10], [13], [14], [15], [16]. They are core to any common-sense understanding, and are evident in all paradigmatic cases – tsunamis, floods, fires, terrorist attacks, etc.

That harm and urgency are both essential components is easy enough to demonstrate. Consider an event or situation that is very urgent, but poses no risk of harm. Suppose, you find out that tickets have just been released for a famous singer with

huge demand; unless you act quickly, they may sell out.[8] There are countless other examples: time-sensitive negotiations and business deals that present gains, but no harms (i.e., you might have 24 hours to decide to go ahead with the purchase of a property, lest it go to another interested party); a last minute award nomination or grant application, etc. These situations all exhibit urgency, but none could be rightfully described as emergencies.

Conversely, there are situations that cause great harm, but are not regarded as urgent. Medical conditions provide an array of examples. Chronic conditions like diabetes and heart disease can cause extensive harm. However, these are not generally treated as urgent, given their slow progression and chronic nature. We seem to treat large scale systemic issues, like poverty and income inequality, in the same way. To be sure, they are still serious concerns that demand action, but that action is not seen to be urgent in the same way as responses to natural disasters or attacks need to be.

So, great harm and great urgency are necessary to the definition of emergency.

1.2.2 Non-Essential Features of Emergencies

But what of the many other features? I suggest that these are all inessential. Some of these terms are merely descriptive adjectives for 'harm'. 'Acute', for example, may be used as a synonym for 'great' – both serve to illustrate that the harm threatened by emergencies is severe in degree. 'Immediate', 'rapid', and 'time-sensitive', on the other hand, are interchangeable with 'urgent' in regard to the kind of action needed.

Others features may be common to emergency situations, but are certainly not necessary. Take 'unforeseeability'. This frequently crops up in discussions of emergencies. But, it is easy to see why this can be dismissed as non-essential. Floods, for example. There are certain geographical areas that we know are prone to these

[8]Fans of the South Korean band, EXO, would have had to act with a severe level of urgency – one of their shows is claimed to have sold out in 0.2 seconds.

disasters. An area with low-lying land, close proximity to bodies of water, high rainfall patterns, and a history of flooding, allow us to anticipate that further flooding events in that area are likely. We foresee them, perhaps even seasonally. 'Unpredictable' is another closely related, if not synonymous, term used. While it is not (yet) possible to predict some disasters, like specific earthquakes, it is however possible to predict others. We can predict the arrival time of tsunamis, for example, with "very good accuracy" [31]. Yet, it does not seem right to say that the foreseeability of a flood or predictability of a tsunami lessens their status as emergencies. An asteroid scenario is another case in point. Suppose we would foresee, with good accuracy, exactly when an asteroid headed to Earth would impact, ascertained from its speed of travel, distance from Earth and trajectory, etc. The foreseeability of this event would in no way affect its emergency status. We can therefore safely dismiss these two as defining characteristics.

'Abnormal', 'exceptional', and 'out of the ordinary' are all terms that indicate a given situation is uncommon or atypical. However, certain kinds of emergencies *can* be common. On the personal scale, medical emergencies, like strokes, heart attacks and accidents are, unfortunately, an everyday occurrence. In Australia, there is an estimated 155 heart attacks per day [32]; in the UK, one every 5 minutes [33]. On a public scale, natural disasters, again, are exceedingly common and regularly occurring [34, p. 298]. In the US alone, there were a total of 363 weather related natural disasters between 1980-2020 [35]; on a global scale they cause approximately 45,000 deaths a year [36]. That's pretty common! Emergencies, in general, are also increasingly frequent. Between the 1980s and mid-1990 'complex humanitarian emergencies' – multidimensional man-made emergencies that involve war, as well as other harm-inducing factors such as displacement, forced migration, hunger, disease, and mass violence [37] – increased from an average of 20-25 to 65-70 per year [38, p. vi]. While a total of 72 national emergencies have been declared under the 1976 National Emergencies Act (NEA) since its inception; 44 since 2000; and 8 under Biden

alone since February 11, 2021.[9] 42 of these are still listed as active.

One might object here, and say that, while things like heart attacks and natural disasters may be not uncommon occurrences in general, they are abnormal for a single individual, or location, or community. And so, emergencies are uncommon or abnormal on a case-by-case basis. But, again, we can show that abnormality is not essential. Suppose I were prone to heart attacks, or had an unfortunate knack for getting into bad accidents. Each heart attack or bad accident I had would not count less as an emergency, just because they were common to my (miraculously continued) existence. We can of course be prepared for events, and plan to minimise their impacts so that they don't elevate into emergencies. We see this with flood planning, and heart monitors. It is why we wear seatbelts, and helmets. But sometimes, these precautions do not prove sufficient. I would certainly hope that I would be rushed to hospital, as a matter of urgency, each time these events occurred, and my preparations proved insufficient. And so, we can dispense with abnormality, out of the ordinary, and exceptional as requirements.

Often emergencies and their responses are thought of as inherently 'short-term' or 'temporary'. However, the nature of responses, apart from their urgent need, are irrelevant to the definition of emergency. This is because, as noted, something would still be an emergency, even if we didn't respond to it at all. Second, even if the nature of responses were relevant, it is not the case that all emergency responses are temporary. For example, 9/11 resulted in the rapid implementation of security measures that remain permanently in place at airports, public spaces, and government buildings. These included increased surveillance, and travel regulations, such as only permitting ticketed passengers into certain areas of airports, randomised secondary screening tests, and increased checks on air cargo [39].

[9] See Nevitt, 2021, p.593-4.

I have shown that the above features are not necessary components of the definition of emergency. However, it is not right to say that all of these characteristics, like 'unforeseeable' and 'exceptional' are merely additional, sufficient conditions – non-essential components that may or may not be present in a given situation. Rather, the work they're doing in describing emergencies can, I argue, be explained wholly in terms of harm and urgency.

If an event is unforeseen, unpredictable, or sudden it will most likely increase the urgency with which we have to respond. A sudden terrorist attack or earthquake will mean that we need to instantaneously react, without any warning. Likewise, if an event is not anticipated, there might not be resources or plans in place to address it. This in turn may lead to a heightened sense of urgency. A wildfire in the middle of fire season is not unpredictable. Often, we have plans and services in place to deal with a fire in case of outbreak, thereby reducing, but by no means eradicating, the urgency of the situation.

In the same manner, if an event is abnormal, exceptional, or unusual, we may have limited tools or options available for addressing the situation. This in turns increases the urgency of a response, as it will make preventing or alleviating the harm more difficult. Take COVID-19. If vaccines were already readily available in the early stages of the pandemic, the urgency of containment and spread would not, perhaps, have been so severe. This demonstrates that these terms collectively serve to express the harm and urgency of a situation. Moreover, it demonstrates that urgency can come in degrees, meaning different events may necessitate different levels of immediacy.

1.2.3 Three Kinds of Emergencies

It is, in fact, possible to distinguish three distinct kinds of emergencies on the basis of time. I label these as follows: (1) explosive emergencies (2) time-bomb emergencies; (3) threshold emergencies. These will demonstrate more clearly how different factors,

like unexpectedness, function in emergencies, all while being contained within the two necessary conditions. I have mapped these emergencies according to badness, which indicates the level of harm, and time, which influences urgency. I unpack each in turn.

(1) Explosive Emergencies (see Figure 1.1)

An unexpected, sudden event occurs, such as an unforeseen earthquake, or terrorist attack. These events *immediately* cause harm, and urgent action is needed in order to prevent that harm from escalating and reduce it. The longer that harm is left unattended, or inadequately addressed and resolved, the more likely it is to increase and have negative cascading effects on critical systems. These are the most common and recognisable kinds of emergencies.

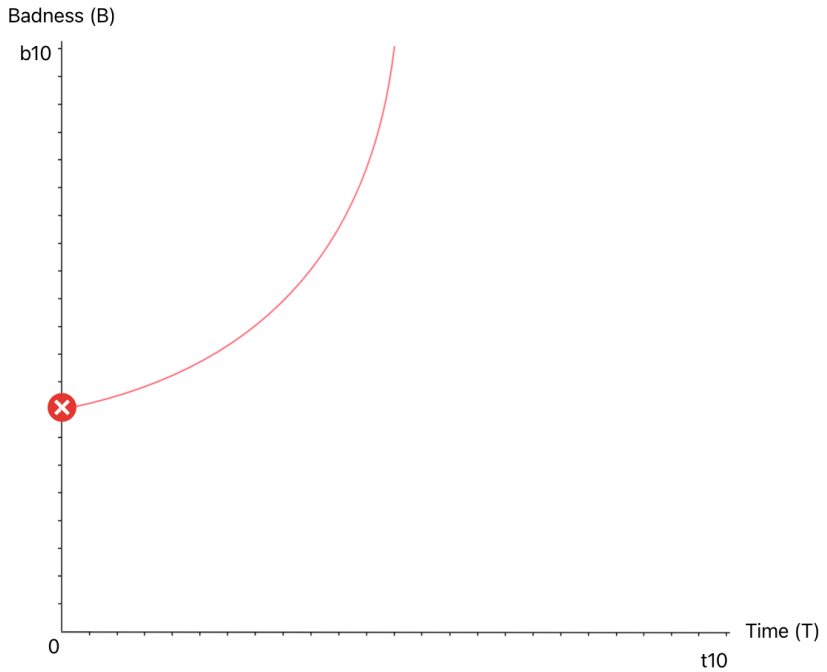


FIGURE 1.1: Explosive Emergency

(2) Time-bomb Emergencies (see Figure 1.2)

We learn that an event will take place that will cause a given amount of harm at a future date. These events *threaten* harm. Urgent action needs to be taken in order to avert that harm. If that harm is not or cannot be averted, urgent action will be needed in order to prevent that harm from escalating and reduce it. Examples include forecasted comet impacts, and events like hurricanes and tsunamis whose impact time can be estimated with high levels of accuracy. As we saw with Hurricane Katrina, its approach was identified ahead of time, leaving 56 hours for evacuation.

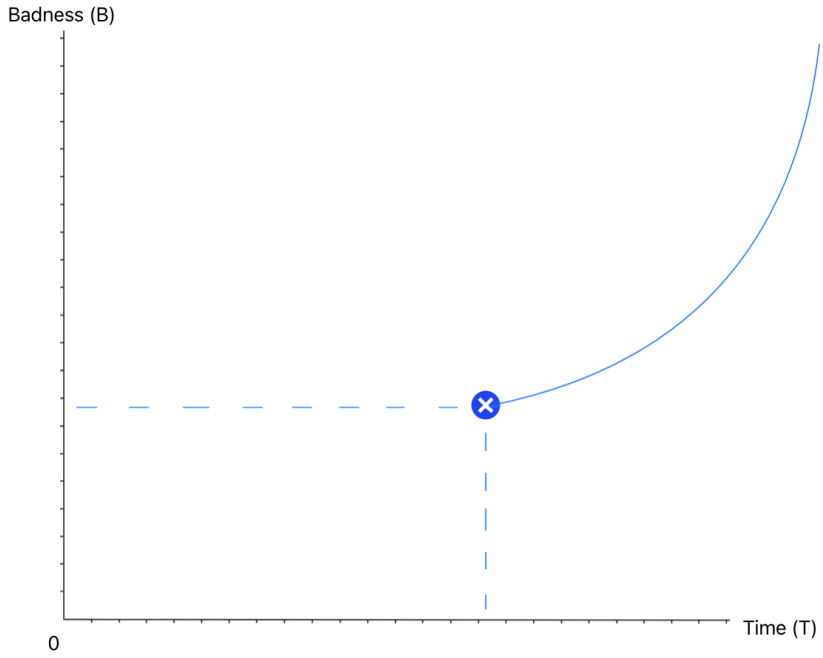


FIGURE 1.2: Time-Bomb Emergency

(3) Threshold Emergencies (see Figure 1.3)

We learn that harm is already taking place. This harm is small or gradual at first, but, left unattended, has the potential to cause exponential harm to critical systems. We have identified a threshold, or turning point, at which point the situation

will threaten or cause great harm to critical systems.[10] Urgent action is needed in order to prevent that harm reaching that threshold. Covid-19, for example, started slowly with small infection rates, and then increased exponentially. Key thresholds, such as hospital capacity, were set as key turning points, beyond which critical systems would be harmed.

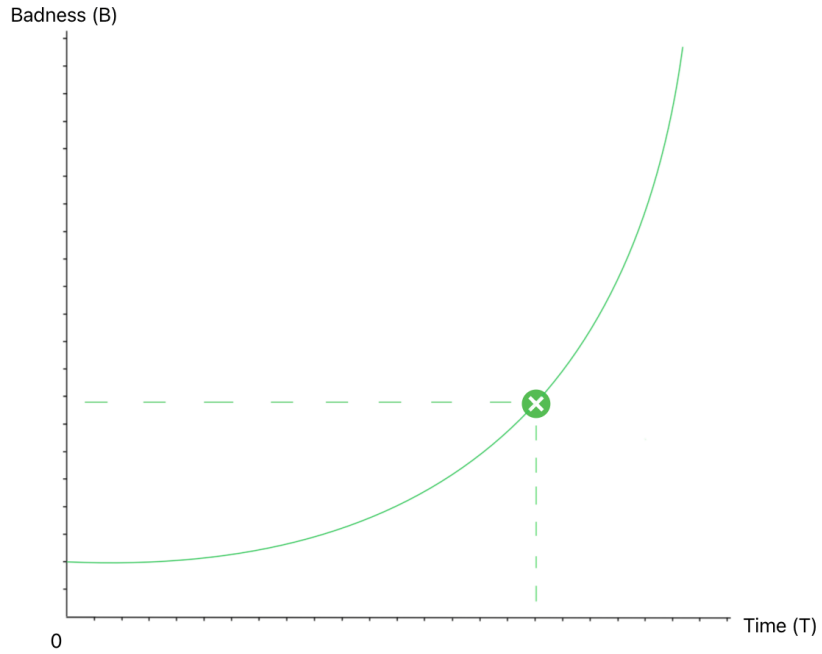


FIGURE 1.3: Threshold Emergency

A note on figures 1.1-1.3: I have placed each emergency event at an arbitrary level on the badness axis. This is merely illustrative. The specific degree of badness, as well as the shape of the curve of harm, and, for figures 1.2 and 1.3, the time of its occurrence, will change according to the facts surrounding any given emergency case.

[10]This kind of emergency is related to "creeping crises". I do not have the space here to specify the distinction and relationship between these two concepts. However, I suggest that there is a point at which creeping crises turn into acute crises, or threshold emergencies as I have defined them. This is a topic for future research. For a discussion of creeping crises, see [40].

1.2.4 A Revised Definition

And so, I propose the revised, simplified definition:

> **Emergency**: a situation or event that is causing, or threatening to cause, great harm, and that requires urgent action in order for that harm to be reduced or averted.

From here on, this is what I will mean by 'emergency'. These emergencies may take the form of explosive, time-bomb, and, or, threshold emergencies.

1.3 An Objective Phenomenon or Subjective Affair?

If these two necessary conditions – great harm and urgency – are met then, we have ourselves an emergency. Objectively so. This is my argument.

There is a hurdle. I have not yet said anything about *what* constitutes harm, or *what* makes something urgent? In other words, how do we tell when the two conditions have been met? This is the crux. The difficulty of clear answers has, I believe, propelled the idea that emergency determinations are subjective affairs. That the answer to what counts can vary from one nation, society, culture, and individual, to the next.

If we want to be able to say objectively whether something counts as an emergency, it seems the challenge will be establishing objective criteria for what counts as harm, and what makes addressing that harm urgent. This must be able to be applied across different contexts, regardless of diverging opinion. By 'objective criteria', I mean specific, quantifiable, or otherwise measurable standards, markers, or principles, that we can appeal to in order to assess whether a given situation would count as an emergency – whether the necessary conditions of the definition are being met.

In this section, I introduce the subjective account of emergencies, and demonstrate its influence on the concept of emergency in the literature and beyond (subsection 1.3.1). In subsection 1.3.2, I then outline why a subjective account is unsatisfactory, and motivate the importance of an objective account. Finally, in subsection 1.3.3, I expand upon the challenge of developing objective criteria to establish emergencies in subsection 1.3.2. Possible candidates include the scale and type of harm – but I demonstrate why these fail to provide objective criteria for assessing emergencies. In the following section, I present my response to the challenge, and argument for an objective account of emergency § 1.4.

1.3.1 Subjective Emergencies: The Sovereign Decides

For Carl Schmitt, it is the 'Sovereign' who determines what events constitute an emergency; of what counts as great harm, and urgency. He states, "the sovereign is he who decides on the exception" [9]. This remark has been described as, "one of the most well-known and often quoted lines in academic discussion of emergencies" [13, p. xiv].

'Exception', here, refers to a situation in which emergency measures are needed to address a great threat to the nation; to an emergency. According to Schmitt, this exception is:

> ... not codified in the existing legal order, can at best be characterized as a case of extreme peril, a danger to the existence of the state, or the like. But it cannot be circumscribed factually and made to conform to a preformed law [9].

Schmitt is essentially casting doubt on the idea that emergencies are objectively existing phenomena. Rather, the claim is that emergencies come into existence through their declarations, and that declarations are at the subjective assessment and discretion of government and their leaders.

Below, I briefly discuss the impact and influence of the subjective account of emergencies, and then outline its counter-intuitive nature, and motivate the need

for an objective account.

Impact and Influence

The subjective account of emergencies has been heavily influential in discussion of emergency power in political theory and legal discourse. Good examples can be found in the emergency frameworks of the US, as well as discussions surrounding the climate emergency:

i. US and Emergency Frameworks

In the US, the 1976 National Emergencies Act (NEA) is the primary legal framework for declaring a national emergency [18], [41]. Another is the Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act), which provides a legal avenue for declaring emergencies in the wake of natural disasters [18, p. 621-2].

Neither act provides a definition of emergency [41]. Rather, as Mark Nevitt explains, the NEA, "effectively [grants] the President wide discretion in making any emergency determination to address a wide variety of threats" [18, p. 620]. In other words, if the leader of the nation says it's an emergency, it's an emergency – a high-stakes game of Simon Says. The Stafford Act likewise makes the determination of an emergency as a matter of presidential discretion. Under the Act, an emergency is defined as "any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States" [42], reproduced in [18, p. 622].

ii. The Climate Emergency

The subjective account also seems to have been influential in academic discourse surrounding the existence of a climate emergency. This is evident in the work of Jana

Sillmann et. al., for example. Writing on climate emergencies in the context of geoengineering, they state,

> "an emergency can only be 'declared' rather than be 'discovered'. Whether a given phenomenon is regarded as an emergency is ultimately based on shared societal understandings of what constitutes an emergency and when it is appropriate and legitimate to declare one. Emergencies are not just pure facts, but a combination of facts and values, perceptions, and interests. This socio-political character of a climate emergency leads ultimately to a number of critical questions such as who will be affected, at what scale, and who is authorized to declare the emergency... it may not be possible to recognise a climate emergency before it takes the form of a declared socio-economic and political emergency [19, p. 292].

This is a very Schmittian take on emergency. The view is reiterated by others, including Mike Hulme [43, p. 134-5]; Joshua Horton [20, p.148]; and Patrick Hodder and Brian Martin [44, p. 59]. The ultimate conclusion and subtext is that these authors think that the determination of a climate emergency is contingent upon social and political assessments, not objectively ascertainable facts and criteria.

1.3.2 A Counter-Intuitive Account

The thought that the existence of emergencies is ultimately a subjective determination is unsatisfying, not to mention counter-intuitive.

As Adrian Viens and Michael Selgelid note, the main implication of the subjective position is that "it may end up excluding some of the events that we would ordinarily consider to be emergencies or, conversely, including events that we may think are not rightly classified as emergencies" [13, p. xii]. Trump's 2019 declaration of a national emergency concerning the Southern Border – *the border wall* – under the NEA is a case in point [45].[11]

Trump argued that "the southern border is a major entry point for criminals, gang members, and illicit narcotics" [45]. This, together with "large-scale" illegal migration,

[11]For an excellent discussion of the border wall emergency declaration, see [23, p. 1149-54].

he insisted, posed a national security threat and national emergency. However, the declaration was widely regarded as a farce, and certainly not as a legitimate or real emergency. Rather, it was seen as a strategic attempt – "a purely political ploy" – to re-purpose funds for the construction of the wall his election campaign promised [23], [46].

I think we can be mistaken about classifying an event as an emergency when it isn't one, and vice versa. In other words, I think there is room for error; that *we can get it wrong.* Emergencies can exist objectively, regardless of subjective opinion. Our intuition about Trump and the wall feels right: it wasn't an emergency, even if it counted as one under the NEA; Trump was *wrong.* On the other hand, it is hard to imagine a situation in which the Terrorist Attacks of 9/11, the Turkey-Syria Earthquakes, or the Ukraine War would not qualify as genuine emergencies, even if no one thought so. Failing to call them emergencies just seems incorrect. The satirical movie "*Don't Look Up*" – a commentary on climate change – made this point clear [47]. In the film, two scientists attempt to alert the world to an imminent comet collision. No one, however, takes them or the threat seriously for what it is – a fatal mistake. The question is: how do we explain this intuition? We will need an objective account.

1.3.3 The Objective Criteria Challenge

If we want to be able to say objectively whether something counts as an emergency, and justify our intuitions about certain cases, it seems the challenge will be establishing objective criteria for what counts as harm, and what makes addressing that harm urgent. This must be able to be applied across different contexts, regardless of diverging opinion.

It is a difficult challenge. Especially so, given that harm and urgency in emergencies seem to fluctuate. For instance, two obvious candidates for explaining what constitutes great harm in public emergencies are the **scale** and **type** of harm. However, neither of these remain consistent across different emergencies:

The Limitations of Harm Scale

Consider the scale. A heart attack might pose an extreme risk of harm, but it would not count as the kind of emergency we're interested in. Why not? Recall Sorell's definition: because public, as opposed to personal, emergencies typically threaten large numbers of people or whole states, not just one [13, p. xii]. So, it looks the harm in public emergencies must be large in scale.

But, there is a problem. Sometimes harm to one person *can* constitute a public emergency: the death of a president or political candidate, for example. Indeed, as recently as 10 August 2023, Ecuador declared a 60-day state of emergency after the killing of Fernando Villavicencio, a presidential candidate, at a campaign event in the capital, Quito [48].

Yet, another problem: there are some large-scale harms that take place that we *don't* consider to count as emergencies. In 2020, there were over *10 million* cancer-related deaths [49]; 9/11, in contrast, only had a total death toll of 2,977 people [50]. And yet, the latter was an indisputable emergency; the former, is not.

So, large-scale harm is not a reliable marker of public emergencies. Perhaps type is a better indicator?

The Limitations of Harm Type

Type of harm also seems an unreliable metric. Suppose the entire population of a nation was under the risk of stubbing their toe. Even though it would affect a great number of people, it does not seem like the kind of harm that would constitute an emergency. Harm type seems important: it must be harm that is more deadly, more severe. However, this again doesn't seem consistent. Again, there are two reasons:

First, there are many other deadly things that affect masses of people that we do not categorise as emergencies. Issues like cancer, again, are foremost among

these. Poverty is another. How is it possible that these issues which are deadly and severe in their type of harm, and affect masses of people, are not considered urgent matters, and emergency situations?

Second, the above examples have been discussing physical harm as the relevant type of harm, but there are also emergencies that occur that don't involve any physical harm. A widespread power outage, the destruction of multiple bridges in a city, or the large-scale hacking of government servers, would count as emergencies, even in the absence of physical harm.[12] Type of harm, and especially physical harm, are thus likewise unreliable markers.

And so, even though some events can possess similar types and scales of harm, they can be treated with varying degrees of urgency, and can fail to constitute emergency scenarios. Type and scale of harm, therefore, do not seem capable of providing objective criteria for assessing the existence of emergencies. But, then, what could it be that distinguishes them? We come back, again, to the idea that emergencies seem to be simply subjective determinations. That, we, as a society, have just decided that some harms are urgent, whereas others are not. Terrorist attacks and natural disasters count; poverty and cancer do not. I find this position unsatisfying.

1.4 Critical Emergencies: The Object of Harm

I think emergencies objectively exist, regardless of subjective belief or opinion.

In this section, I begin to make my case for this objective account of emergencies. I present an account that will, I argue, effectively establish objective criteria that will enable us to determine if some event or situation, x, constitutes an emergency;

[12]Of course, let us assume no harm does occur. Hospitals, for instance would be running no back-up generators, etc.

that will be able to explain what counts as harm, and what makes a situation urgent without falling back upon subjective assessments. I argue that it is the *object* of emergency harm – as opposed to type or scale – that enables us to establish objective criteria by which to assess them. This object, I argue, is '**critical systems**'.

I will first introduce a definition of critical systems (subsection 1.4.1). I then demonstrate how anchoring emergency harm to critical systems is able to successfully explain our intuitions about what does and doesn't count as emergencies, as well as explain what it is that makes preventing or reducing this harm urgent – it holds great explanatory power (subsection 1.4.2). I conclude by providing a second version of my revised definition of emergency, which links critical systems to the harm component (subsection 1.4.3). In § 1.5, I continue to develop my account and establish objective criteria by which we can assess the existence of emergencies.

1.4.1 Critical Systems?

In short, by 'critical systems', I refer to systems that are important for the functioning and stability of society. Below, I introduce a definition, outline their interconnected nature, their importance to the functioning of society, and the relationship between these systems and basic needs; and demonstrate their objective importance in the functioning of society.

A Borrowed Definition: Lessons from Planetary Boundaries and Global Catastrophic Risk

I borrow the idea of critical systems from Shahar Avin et. al. [51]. The authors discuss these systems in the context of 'severe global catastrophic risk'(GCR): scenarios that could, "take the lives of a significant portion of the human population, and may leave survivors at enhanced risk by undermining global resilience systems" [51, p. 20]. I

leave aside the notion of GCR, and limit my discussion to emergencies.[13]

In the context of severe GCR, Avin et. al. define critical systems as, "any system or process that, if disturbed beyond a certain limit or scale, could trigger a significant reduction in humanity's ability to survive in its current form" [51, p. 21]. Building on research concerning planetary boundaries [52], [53], the authors identify several critical systems and processes essential to human ability to survive *(see Figure 1.4)*. These include life-supporting systems, planetary boundaries (the "environmental limits within which humanity can safely operate"[53][14]), as well as ecological and sociotechnical systems. Sociotechnological systems are specified to include climate control, food, health, resource extraction, security, shelter, and utilities. Note, these systems are not necessarily exhaustive.

Interconnected Systems

Avin et. al. emphasise that these systems are interconnected, and often overlap. Moreover, they are layered, in the sense that there are co-dependent "lower" and "higher" level systems. Lower levels concern immediate individual human survival. This survival is dependent upon "functioning anatomical systems, which in turn relies on cellular systems", etc, [51, p. 22] (i.e., all your organs and important bodily systems need to function and be intact, as they are critical for your survival). Higher levels concern the survival of societies. These include ecological and sociotechnological systems, like the technology-enabled food and health systems, which "help maintain the human population at its current size, and provide resilience" [51, p. 22].

Significant disruption to higher level systems can have knock on effects. For example, extensive disruption of essential utility networks (i.e. water and electricity)

[13]Emergencies may certainly include, but are by no means limited to, situations posing catastrophic risk.

[14]Nine planetary boundaries have been identified, and are grouped under the following headings: (1) climate change; (2) changes in biosphere intensity; (3) stratospheric ozone depletion; (4) ocean acidification; (5) biogeochemical flows; (6) land-system change; (7) freshwater use; (8) atmospheric aerosol loading; and (9) introduction of novel entities, see [53].

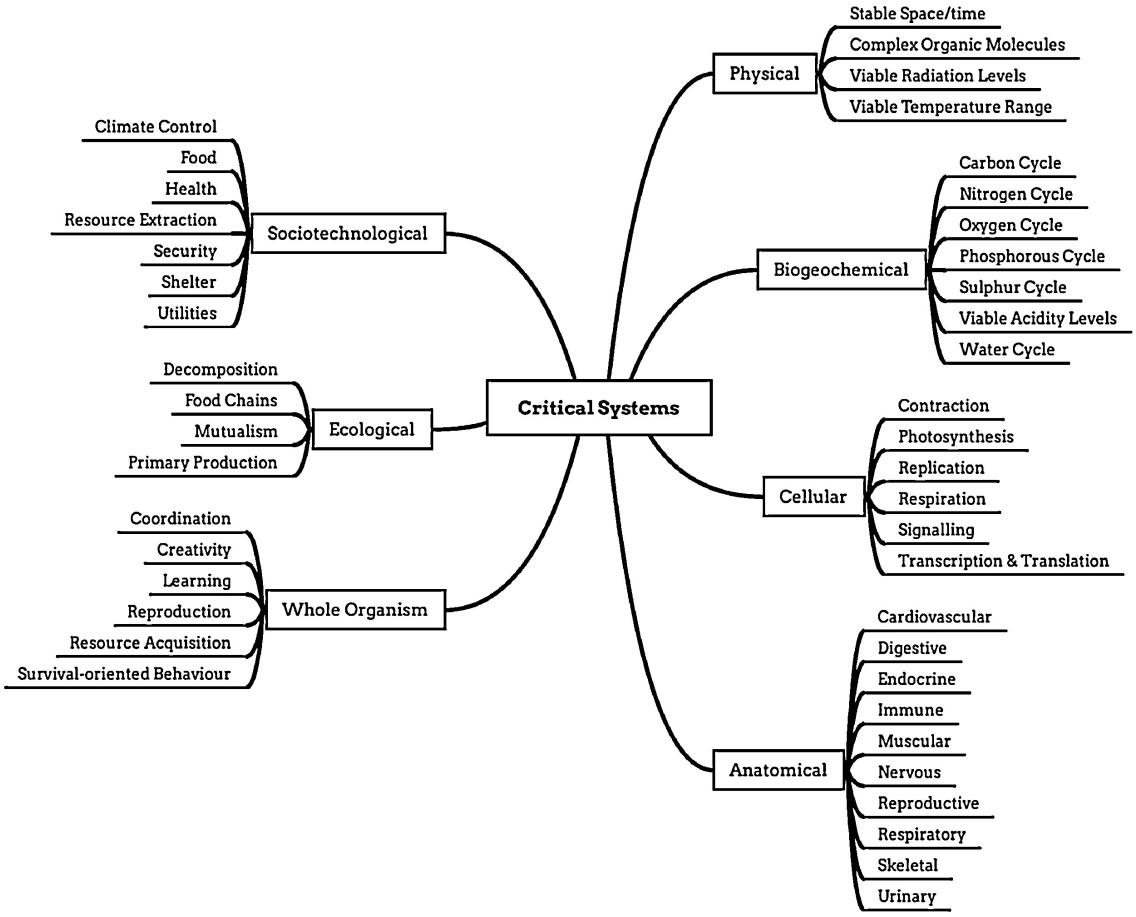


FIGURE 1.4: Classification of Critical Systems, reproduced from Avan et. al. [p.21][51]

could affect security, food, as well as human survival and their anatomical systems (in simple language: severe disruption to water and electricity networks can cause individual harm, suffering, and even death, as well as impact other critical systems) [51, p. 22]. A good example of can be found in the aftermath of Hurricane Katrina, and its impact on energy infrastructure and clean water supply:

> Without electricity, water pumps and wastewater treatment plants cannot function. To make matters worse, flood waters can overload the sewage system contaminating flooded areas. Schwab says a lack of drinking water, poor sanitation and the close quarters offered in many emergencies shelters create ripe conditions for spreading many communicable diseases, such as cholera, E. coli and noroviruses [54].

Another example can be found in the severe disruption that has resulted in the wake of the Hamas attack on 7 October 2023. 17 days after, the healthcare system in

Gaza was described as "completely out of service" [55]; 22 days after, civil order was "starting to breakdown" [56]; 32 days after, the World Health Organization issued a warning concerning the increased risk of disease as a result of impacted health, water, and sanitation systems [57].

It is easy to see how damage to one system or element can rapidly carry effects for others, and society at large.

Critical Systems and the Functioning of Society

An event that causes the loss and severe disruption of any one of these systems can impact on humanity's ability to survive. However, less severe disruption and damage to these systems, while maybe not constituting a GCR, would also impact the functioning and stability of society, and would also constitute an emergency.

While all systems are essential for the functioning of society, including the physical and biochemical systems, sociotechnological systems are perhaps the easiest to understand in relation to the functioning of society. These systems were specified to include climate control, food, health, resource extraction, security, shelter, and utilities. We can flesh out these components as including elements such as energy infrastructure; water supply; sanitation; transport networks; healthcare systems; communication systems; government and governance structures, which are important for providing public services and maintaining law and order; financial systems; food and agricultural systems; environmental systems; and national security and defence systems.

Critical Systems and Basic Needs

There is a strong, bidirectional relationship between basic needs and critical systems. Critical systems, especially siotechnological, but also ecological and biogeochemical, are important in ensuring the provision of basic needs, such as access to food and shelter. However, it is also critical to ensure basic needs are met, in order to ensure

the maintenance and smooth functioning of sociotechnological systems. For example, widespread food and water shortages will interfere with the smooth functioning and running of these systems. We saw this evidence of this in the above example about water during Hurricane Katrina.

Critical Systems are Objectively Important

Critical systems are objectively important.[15] That food, shelter, health, resources, stable climates, and security are all critical to basic human survival and functioning societies is widely accepted. As H. L. A. Hart wonderfully writes in his discussion of social institutions and legal systems, "our concern is with social arrangements for continued existence, not with those of a suicide club" [58, p. 192]. Hart emphasises that the importance of basic needs and our survival is not simply a subjectively held belief, but is fundamental to human experience and living:

> It is not merely that an overwhelming majority of men do wish to live, even at the cost of hideous misery, but that this is reflected in whole structures of our thought and language, in terms of which we describe the world and each other. We could not subtract the general wish to live and leave intact concepts like danger and safety, harm and benefit, need and function, disease and cure; for these are ways of simultaneously describing and appraising things by reference to the contribution they make to survival which is accepted as an aim [58, p. 192].

The importance of these systems and needs are also backed with solid evidence. For example, the presence of liquid water, and certain temperature ranges[16], among other features of the physical and biogeochemical systems that make up Earth, are scientifically proven as essential requirements for life-supporting planets [59]. For human survival, a constant body temperature of approximately 37°C must be maintained [60]. The importance of the cardiovascular, digestive, and other anatomical systems, as well as food, water, shelter, etc, for humans has also been extensively

[15] This is especially evident in the work on planetary boundaries, see [53].

[16] Life can grow and reproduce from temperatures spanning -15°C to 122°C, see [59, p. 12628].

studied, documented, and is well supported. In short, the role of these systems in the survival of societies and individual human survival are objectively important; harm to them, objectively bad.

What's more, it is possible for us to be wrong in thinking that these systems are not important. I can think that a heart is not essential to a functioning human body – I would be wrong. I can think that the process of photosynthesis or decomposition are not essential processes that support functioning ecological systems. Again, I would be wrong. There is good scientific evidence for this. The same applies to the importance of security, shelter, health, and utilities.

1.4.2 The Explanatory Power of Critical Systems

It is the combination of great harm to critical systems, and the need for urgent action to avoid or reduce that harm, that, I argue, explains emergencies. In other words, I argue that it is the object of harm (critical systems) – rather than scale or type of harm – that is doing the explanatory work.

Explaining Harm with Critical Systems

Let's look at harm first. On an individual level, severe disruption to human anatomical systems would constitute a **personal emergency** (given, of course, that it is also coupled with the need for urgent action). For instance, a sudden and complete blockage of a coronary artery – a blood vessel which supplies oxygen and nutrients to the heart – would typically result in a heart attack. This is a disruption to the cardiovascular system that would constitute a medical emergency.

It is disruption to the other systems, especially including higher level systems like the sociotechnical, ecological, as well as the biogeochemical system, that is what constitutes a **public emergency** (again, given that it is accompanied by the need for urgent action). Disruption to these systems would include, but is not limited to,

disruptions to food, health, security, utilities, shelter, and other systems that our societies and well-being rely upon for survival.

The Object of Harm vs. Scale and Type

Explaining emergency harm in terms of critical systems provides a more nuanced and robust account of public emergencies than that found in the literature. As shown, existing accounts often simply define them as "emergencies facing whole states or large number of people" [10, p. 22], [11]. Public emergencies certainly can involve large numbers of people, and the whole state. But they need not. Recall that national emergencies can be declared on the basis of harm to one person, as was done in Ecuador following the assassination of the presidential candidate. One might argue that this situation does affect the whole state. But what does that mean? It does not mean that everyone in the state is physically harmed. Nor does it mean that everyone in the state, including those in different cities and remote areas, would have their daily lives significantly affected. Rather, the harm can be better explained in terms of its disruption to governance and the country's democratic procedure. Indeed, Guillermo Lasso, the Ecuadorian President, described the event as a "political crime", and "sabotage [of] the electoral process" [61]. Although governance is not explicitly mentioned by Avin et. al., we can include it as a critical system, given the importance of functioning governance in ensuring the continued operation of sociotechnological systems within society.[17]

What about public emergencies that do involve harm to large groups of people? As shown, we cannot locate the criteria behind emergency harm simply in the scale or type of harm. Recall the unsatisfactorily answered question of why other events and situations that often cause even higher amounts of harm, like cancer, do not

[17]Even when government itself does not directly provide services, like utilities and healthcare, due to privatisation, it plays an important role in enabling service provision, such as by means of effective regulation.

constitute emergencies. Understanding harm in terms of critical systems provides a clean, intuitive answer. Take health. Why does cancer not count as an emergency when COVID-19 did? Approximately 167,000 people die of cancer per year in the UK [62]. However, when COVID-19 was declared an emergency in the UK and the Coronavirus Act 2020 was given royal assent on 25 March, there were only 17,583 cases, and 299 deaths [63]. Three years on, COVID-19 has resulted in fewer total deaths (229,272 in the UK as of 4 August 2023) than those related to cancer [64]. Numbers don't explain this. But critical systems *do*.

Continuing with the UK context, the health system in the country has integrated cancer care within its structure: it is equipped to handle cancer prevention and treatment alongside many other medical conditions and diseases. The system is by no means perfect.[18] But it is operational, and able provide a good standard of care across the board. Patients can be systematically treated for a myriad of diseases, and as of 2017, can expect a cancer survival rate of over 70% [65]. The UK health system was not, however, equipped to deal with the outbreak of COVID-19. It was predominantly hospital capacity and resilience that was referenced as the key factor in the emergency. As Richard Horton writes,

> the evening of March 13 was the moment Downing Street realised that the NHS would be overwhelmed if it continued to pursue a policy of mitigation (herd immunity). Only now did the principals have NHS data showing that hospitalisations were rising faster than models predicted [66].

As early as 23 March 2020, there were shortages of personal protective equipment (PPE)[67], hospital beds [68], and ventilators [69]. Health-care services were severely disrupted due to the redirection of resources towards COVID-19 [70]. As a consequence, many non-COVID-19 related medical diseases and conditions suffered, experiencing limited and delayed prevention, treatment and care [70], [71]. Cancer in particular, suffered delayed diagnoses and treatment provision. For instance, there was a

[18]Cancer treatment and outcomes in the UK are, for example, lower than those in other comparable countries including Canada and Australia, see [65].

15.3–16.6% increase in deaths from colorectal cancer reported in the first six months of the pandemic [72], and, as of November 2021, a 48% increase in stage 4 breast cancer diagnoses as a result of delayed diagnoses during the pandemic [73]. The effect of COVID-19 on the health system thus provides a good and clear answer as to why it, as opposed to other, more harmful diseases, counted as an emergency.[19] Moreover, that COVID-19 did do harm to the health system is indisputable, evidenced by extensive research and empirical indicators, such as the shortages of PPE.

Similarly, it is often argued that we should regard poverty as an emergency. Elizabeth Ashford, for example, argues that it constitutes an "unjust emergency" [74, p. 104]. It does so, she contends, because it poses an "ongoing threat to the basic interests of a particular group of individuals, who from the outset face drastically stunted lives and likely premature death unless they are helped" [74, p. 144]. And, as with cancer, it likewise affects an enormous amount of people. In the UK alone, around 17% of the population are in "absolute poverty" [75].[20] That is approximately *11 million* people. In her argument, Ashford does recognise that poverty is a 'persistent' issue, and as such differs from "standard emergencies" which she understands as "random, rare, and episodic" [74, p. 143]. However, she maintains it counts as one, nevertheless.

Ashford's argument is built upon an ill-defined and, as shown above, mistaken conception of emergency. I share Ashford's view that poverty is "utterly gratuitous", especially given it is preventable at a relatively small cost [74, p. 144]. There is no doubt it is a significant issue that must be addressed and resolved. It may even constitute a crisis.[21] However, in its current form, it does not constitute an emergency.

[19]Note, the effect of COVID-19 on the health system was one of its immediate effects. It also had indirect knock-on effects for a wide range of other critical systems. I leave discussion of these aside for now.

[20]"Absolute poverty" is defined in the UK as people living in households with income below 60% of median income in a base year. This is different from the international poverty line, defined as, "the percentage of the population living on less than $1.90 a day at 2011 international prices" [76]. As of 2020, the UK has approximately 0.5% of its population (336,650 people) under the international poverty line [77]. This is still a significant number. As such, the difference between the two definitions does not affect my argument.

[21]This is not an assessment I have the space to undertake here.

The harm from poverty is not such that it undermines critical systems in the UK, such as health, food, security, or governance, in a way that demands urgent response. To be sure, poverty can place pressure upon these systems. For example, poverty indirectly places a strain on the UK health system, in virtue of poor housing, lack of quality employment, and low incomes all being contributors to poor health [78]. However, this pressure is not comparable to the severe disruptions caused by COVID-19; it does not threaten to severely disrupt the system in its current form. Indeed, the health system, as well as other critical sociotechnical systems, have continued to function in spite of poverty levels. It may be that poverty could swell to such proportions that it may pose great risk to critical systems. If it does so in such a way that also commands urgent action, then it would classify as an emergency. Bear in mind, I have been discussing the UK context as an example. My arguments, are, however, universally applicable.[22]

To sum up the harm criteria: explaining emergency harm in terms of critical systems provides a clear explanation of why we classify some events as emergencies. Moreover, harm to critical systems is objectively bad.

Urgency and Critical Systems

Now on to urgency. Urgency – or the need for urgent action – as we've seen, is the second critical component of emergency. What is it that makes something urgent? Why isn't poverty treated as urgently as we treated COVID-19? Part of the answer, I argue, lies in critical systems.

Urgency is a function of value – specifically, *badness* – and time.[23] In short, the less time you have to respond to something to avoid a bad outcome, the more urgent

[22]Though of course, different circumstances in different nations may mean that what is an emergency for one, is not for another. For example, malaria: in countries and regions where malaria is endemic, there are typically established healthcare systems in place to prevent, manage and control the disease [79]. An outbreak in the UK, however, where malaria is not currently transmitted, may pose a threat to the health system, in that it could strain medical resources, and lead to serious consequences if it were not controlled.

[23]In the final section of this paper, I also suggest that we should include a third variable in the make-up of urgency: uncertainty.

it becomes. Let us focus, here, on value. I expand upon the definition of urgency, and circle back to the time component of the definition, in the next section.

Urgency can sometimes be subjective. I may consider something to be urgent because it is important to me. For example, suppose I were residing in a different country to my family. If a family member were to fall ill, I would consider it a matter of urgency to travel home and visit them, whereas another relative who lives only 20 minutes away may not view the situation with the same degree of urgency. Or, more still, suppose I have a callous stepbrother. Upon hearing the news, he couldn't care less, and finds no urgency whatsoever in travelling home – he may not even travel at all! The point is that urgency can vary depending upon one's values and priorities. This is true of individuals; it is true of different cultures and societies. For example, members of liberal democracies may view issues such as the recognition of transgender rights, or equal pay, as urgent issues to address; other, more conservative societies, or cultures, may not.

Tying harm in emergencies to critical systems provides an objectively important benchmark for urgency. The more a critical system is under threat, the more urgent the matter becomes. Why? Because of the importance of protecting those systems from harm and damage, given their importance in maintaining a stable society.

1.4.3 A Revised Definition of Emergency: Version 2

I have demonstrated the ability of critical systems to explain our intuitions about what constitutes harm and generates urgency in emergencies. Let me therefore propose the following edit to my definition of emergency:

> **Emergency (Version 2)**: a situation or event that is causing, or threatening to cause, great harm to **critical systems**, and that requires urgent action in order for that harm to be reduced or averted.

Two Objections

There are two objections that could be brought against my revised definition. Let me quickly address them here, before moving on to my defence of an objective account of emergencies in § 1.5.

Objection 1: Harm to Critical Systems is not Novel

The first objection charges me of fraud: that there is nothing original or novel about noting that emergencies threaten harm to critical systems. Emergencies have, for a long time, been understood as "threatening [to] the life of the nation", and to "the continued stable operation of [the] political and social order" [16, p. 204-5] [25]. Michael Walzer, in his discussion of supreme emergencies likewise notes that these events threaten our "deepest values and collective survival" [80, p. 6].[24] The destruction of society would, surely, refer to and include the destruction of critical systems. Indeed, A. Boin et. al. even explicitly mention critical systems, albeit in regards to crises. They state, "an objective definition views crisis as an empirical phenomenon—a real threat—that has the potential to cause serious damage to critical values or systems" [40, p. 4]. While their conversation pertains to crises, their particular meaning of crisis in this discussion seems to be synonymous with emergency. So, let us be generous and view their remark as one that bears on the nature of emergencies.

I stand my ground. It is true that these authors mention and seem to refer to critical systems. It is a fairly obvious thing, after all, that emergencies threaten critical systems. However my account differs in three important respects. (1) I provide a more thorough explanation of critical systems than that offered in the emergency literature. (2) I think emergency harm can be explained *solely* in terms of harm to critical systems. Other accounts in the literature do not limit their definitions in this way, often defining harm in regards to large numbers of people, or infrastructure, or

[24]Walzer sees 'supreme emergencies', presumably, as distinct, and more severe than standard emergencies.

shared social values. (3) My isolation of critical systems as the *object of harm* of emergencies, and my argument that it is this object that is doing the explanatory work behind emergency *is* novel. I have not come across this position in the literature.

Objection 2: Not all Emergencies Harm Critical Systems

The second objection attacks my definition, and is the polar opposite of the first objection: that it is simply not the case that all emergencies *do* cause or threaten harm to critical systems. Take a smaller-scale wildfire. Fires are paradigmatic examples of emergencies. However, in what way could it be said that a smaller-scale fire threatens harm to critical systems? Consider, too, that we are often well prepared to deal with fires, evidenced through national fire services, monitoring systems and preventative measures, such as back-burning, etc. In light of this ability to respond quickly as well as the small-scale, it is hard to see how such a fire could be said to threaten harm to critical systems even though it would still count as an emergency. The same might be said of a terrorist attack. While it might be a damaging event and attack, with high numbers of casualties and damage to some infrastructure, it seems a stretch to say that an attack in one city, would threaten the critical systems of the nation. What bearing would an explosion of, say, two city buildings, have on the transport, food systems, healthcare, and other systems of the country?

I have two responses to this objection. They are based upon the two necessary conditions within my definition. (i) Let's look at urgency first, and run with the smaller-scale wildfire example. The fact that we can respond quickly is irrelevant. The objection is not that the fire wouldn't count as an emergency, and so therefore require urgent action. It is that the small-scale fire emergency doesn't harm or threaten harm to critical systems. The work the point on being able to respond quicky was doing was indicating that we would be able to quickly avert any escalation of harm, and therefore it is unlikely, and hard to see, how such a fire could reasonably be said to run the risk

of harming critical systems. However, this point is distinct from the urgency and speed with which we need and should respond to emergencies. So, let us dismiss this point.

(ii) Moving on to harm: emergencies are events or situations that are already causing great harm, or risk great harm to critical systems. So, while it is true that a smaller-scale fire may not, in its present form, harm critical systems, its escalation *would*. Even if we are well-prepared to respond to fires, certain conditions, such as heat, wind, dry conditions, and remote locations can overwhelm response capabilities. We know too well how wildfires can turn into megafires, such as the 2019-2020 Australian Black Summer Fires, and recent 2023 Canadian wildfires, which burnt 24, and 18.4 million hectares respectively [81], [82]. So, while it is true that not all emergencies do cause harm to critical systems, it is true that they *threaten* harm to them. Consider the damage of the Australian fires. These caused harm to critical infrastructure, including homes, power lines, and telecommunication networks and mobile towers – approximately 1,406 communication facilities were damaged both directly and indirectly from the fires [83]; water systems [84]; ecosystems [84]; food systems – there was total loss of 8% to agricultural GDP as a result of the fires [85], and $4-5 billion in losses to the food system [86]; and public health – during the time Canberra was reported to have the worst air quality index of any major city in the world [84]. And yet, these fires, as all fires do, started with a spark.

The objection mentioned attacks as another example. So perhaps fires threaten harm to critical systems, but other types of emergencies don't? However, my claim is that all emergencies pose this risk. We need only look at the situation in Gaza to see the devastating consequences attacks can set in motion – recall the examples concerning Gaza from the above (see § 1.4).

And so, we can safely dispense with these objections, and confirm the revision: emergencies are situations or events cause, or are threatening to cause, great harm

to critical systems, and that require urgent action in order for that harm to be reduced or averted.

1.5 An Objective Account of Emergency

In this final section, I outline how critical systems allow for the creation of objective criteria by which we can determine the existence of emergencies in a way that is not dependent upon subjective opinion.

To repeat, my overall argument is that emergencies can exist, even if no one were to think so; that we can be wrong about them. I have shown how critical systems hold objective importance, provide a clean explanation for our intuitions about what does and doesn't count as an emergency, and how their value generates urgency when they are under threat. As such, I have linked critical systems to the necessary condition of harm in my updated definition of emergency. However, it is also possible to establish a set of objective criteria that can help us establish if a certain event constitutes an emergency.

A reminder: by objective criteria, I mean specific, quantifiable, or otherwise measurable standards, and markers that we can appeal to in order to assess whether a given situation would count as an emergency; whether the necessary conditions of the definition are being met. We might refer to this as "factual data" or "information" about a situation [87, p. 263]. These criteria will help generate greater consistency and reliability in our determinations of emergencies.

It is important to note that these criteria, or data, differ from the *interpretation* of that criteria or data. The latter lies in epistemic territory. As such, there can be disagreement over whether certain indicators reveal that a critical system is under threat, or requires urgent action. *We can get it wrong.*

I first look at harm, and then turn to urgency.

1.5.1 Measurable Harm

Objective Measures of Harm

Different data exists that can indicate how much harm a given event or situation can threaten, or be causing, to a critical system. We can collect this data using various tools, including vulnerability assessments, economic modelling, meteorological modelling, and seismic modelling. These tools can be used to ascertain and track risk of harm, or actual harm.

In anticipation of emergencies, tools like vulnerability assessments can be used to assess weaknesses in critical infrastructure, and help in preparation and emergency management. During emergencies, we can appeal to various sources of information to gauge harm and risk of escalation being done to critical systems. For example, during COVID-19, extensive modelling was being done to assess the infection and transmission rate of the virus. Likewise, factors like hospital admission rates, infection rates, and levels of PPE were being evaluated against known vulnerabilities and system limits, (i.e., the amount of available beds and PPE), to ascertain critical thresholds for the system.

In the onset of natural disasters like hurricanes and tsunamis, it is possible to model and predict the path and intensity of these events, and the threat they pose for critical infrastructure. These are important for enabling early warning systems and evacuation planning. For example, modelling done by the National Hurricane Center predicted the central Gulf Coast, including the New Orleans metropolitan area, would be directly affected by Hurricane Katrina as a major hurricane about 56 hours before landfall [88, p. ii]. This path mapping was able to estimate severe disruption on critical infrastructure in the New Orleans Area, and was essential in providing early evacuation warnings. In the event of an unexpected volcanic eruption, we may be

able to quickly ascertain how much harm has taken place. Consider the underwater volcanic eruption that impacted Tonga on 15 January 2022. Due to their geographical proximity to Tonga, Australia and New Zealand were able to swiftly deploy aerial reconnaissance resources to determine the extent of the damage [89].

These tools and metrics allow us to evaluate how much harm is done to or threatened to be done to critical systems, if at all, in a way that is objective. They therefore serve as important tools in helping assess whether the first necessary condition of emergencies are being met.

They also enable us to determine when critical systems are not under threat. Let us return to Trump's border wall emergency as our example. The Trump administration argued that the wall was necessary to curb illegal immigration and drug trafficking. However, it is possible to use these objective markers to assess the veracity of his claims that it was impacting on illegal immigration, and in turn putting pressure on the US. Trump claimed that illegal immigration led to higher crime rates – but the claim that illegal immigrants were more likely to commit crimes was unsubstantiated [90], and immigrant crime rates are, generally, lower than US citizen rates [46]. Trump claimed the situation had "worsened" – but the number of border apprehensions – a metric used to assess illegal immigration numbers – at that time had declined by 76% from peak levels in 2000 [91]. It was not an event or situation that was threatening harm to critical systems in the US.

In other words, these measures and markers can demonstrate that harm was not taking place – critical systems were not at risk. As such, it did not meet the first necessary condition of the emergency definition.

Room for Error

Again, it is important to reinforce that this data that can be used to measure objective levels of harm is distinct from interpretation of that data. We can get it wrong. There are several different reasons why we might falter:

(i) Differing interpretation: two meteorologists, for example, might interpret the same data about the trajectory and intensity of a hurricane and come to different conclusions. The first may say it is of such intensity that it will cause harm, and is heading for a major city. The other may say that it is not that intense, and disagree about trajectory.

(ii) Differing risk tolerance: The former meteorologist might be particularly risk averse, whereas the other is more cavalier, and this might inform their interpretation of the data about what constitutes great harm to a critical system.

(iii) Flawed tools: our modelling systems might not be advanced enough to include all relevant data points and indicators. For example, it is hard to calculate the impact of stratocumulus clouds on atmospheric conditions, given the difficulty in modelling and replicating them in computer programs [92].

(iv) Epistemic uncertainty: we may have incomplete knowledge and information about a situation.

(v) Misinterpretation and inaccurate use of data: an unqualified and biased individual might pick and choose from a series of data to construct a scenario. We have seen this play out in the form of fake news and denialism. For instance, during COVID-19, a well-known example of misinformation was the potential link of the MMR vaccine with autism and gastroenteritis in children [87, p. 263]. Caceres Ferreira et. al.,

however, point out that this claim, which caused great confusion and negative health consequences, was grounded on misinformation from published findings stemming from a 1998 published paper [87, p. 263].

In sum, there are objective criteria to determine whether a situation would threaten, or is causing, great harm. There are ways to tell if the first necessary condition of the definition of emergency is being met. Though, we may of course, get it wrong.

1.5.2 Measurable Urgency

In the same way, there are objective criteria that can indicate whether the second necessary condition is being met – whether a situation is urgent.

I said that urgency was a function of value – specifically, *badness* – and time; that the less time you have to respond to something to avoid a bad outcome, the more urgent it becomes. Let me now unpack the time dimension of this definition.

The Urgency Equation

In order to understand the time aspect of urgency, I think it will be helpful, and aid clarity, if we rewrite the definition of urgency (U) as an equation, with two variables: badness (B), and time (T). Urgency is a function (f) of those two variables. So,

$$\textit{Urgency Equation}\text{: } U = f(B, T)$$

Note, I have deliberately left the relationship between each variable vague, and continue to do so in further iterations. I merely wish to identify each variable as a component that influences urgency.[25]

[25]However, if I were to attempt to establish their relationship, I would posit that Urgency would be equal to Badness divided by Time (U=(B/T). So, if some event had extreme badness of, say 10, and a small amount of time, say, 0.1, there would be absolute urgency of 100: 10/0.1 = 100. In reverse, if there was a small amount of badness, 0.1, and a large amount of time, 10, then there would be next to no urgency: 0.1/10=0.01.

Time Variables

Time is a complex variable. It is possible to identify at least two different sub-variables (we might call these components or factors) that influence how much time there is, and, so in turn, how urgent a situation is. These include: time until harm (T1), and response time (T2). So,

Urgency Equation: U = f(B, (T1, T2)).

We can define these variables as follows:

Time Until Harm (T1): the time available before harm occurs. This measures the duration between a given time (such as the present) and the time at which an emergency event will occur. The shorter the time until harm, the more urgent the situation will be. Why? because there will be less time to respond to avert or reduce that harm.

Response Time (T2): the time required to respond effectively in order to avoid or reduce harm. The longer it takes to respond, the more urgent the situation will be. Response time, itself, is influenced by several different factors, or sub-variables. These include, but are not limited to: (a) preparedness; (b) reaction time; (c) availability of solutions and resources; (d) situation complexity; (e) solution implementation rate; and (f) solution speed and success rate.

Allow me to demonstrate the role of these sub-variables in influencing response time, and thereby urgency: (a) ***preparedness***: if I'm well prepared for a situation, the less time I will need to respond upon notification of an emergency. Fire evacuation drills are a good example: they familiarise us with the procedure and instructions, and reduce the amount of time it will take for a real evacuation – we will know

where to go, what to do, etc.

(b) ***reaction time***: Reaction time influences how long it will take us to initiate a response to a situation. If I'm driving in a car and see a person step out onto the road ahead, I will need to react to the situation and slam on the brakes. The average reaction time of a driver is 1.5 seconds [93]. If I take longer than average or fail to react, I will have less time to brake, or not be able to brake in time at all. Vice versa, if I'm faster to react, I will have more time to brake.

(c) ***Availability of solutions and resources***: if there are already solutions and resources available to deal with a situation, it will take less time to respond, and will be less urgent. For example, if COVID-19 mRNA vaccines were already developed and widely available, we would have been able to respond to COVID-19 more rapidly, and the situation would have been less urgent.

(d) ***Situation complexity***: the more complex a situation is, the more time it will take to effectively respond, and vice versa. Situations may be more complex because of the nature of the problem (i.e., a fire is more simple to address than a pandemic), because of the moving parts involved in a solution (i.e., putting out a fire in one jurisdiction of a country does not require as much coordination as maintaining the spread of COVID-19 across the country, which requires extensive coordination between different sectors, populations and services), or because of issues like complex political ramifications (i.e., the implications of NATO involvement in the Ukraine-Russia War have made the situation difficult and more timely to respond to).

(e) ***Solution implementation rate***: solution implementation rate refers to the length of time it will take for a solution to be adopted or implemented. For instance, in order to implement various measures in order to respond to COVID-19, the UK had to pass the Coronavirus Act into Law. This process took 22 days, and was itself essential for granting emergency powers and tools for England, Scotland, Wales, and Northern Ireland to effectively respond to the emergency, enabling them to act swiftly

in order to respond to fast moving events [94]. Had this process been able to happen faster, then solutions including border closures, work at home orders, could have been implemented more rapidly. Vice versa, had it taken longer, it would have dramatically increased our overall response time, making the situation more urgent.

(f) ***Solution speed and success rate***: finally, this refers to the length of time it will take for a solution to be deployed and for it to work. A solution may be able to be rapidly deployed and met with rapid success. A fire next to a fire station would be able (one hopes) to be addressed quickly and effectively. However, a solution may be able to be rapidly deployed, but slow to work. We may be able to implement a global carbon tax overnight, but this would take a long time to drive emissions down to net zero and have the desired effect. A solution may also take a long time to be deployed, and therefore a long time to come into effect. For instance, address a situation. For example, it took us nearly a year to develop a COVID-19 vaccine, and longer still for it to come into effect.

Time until harm (T1) and response time (T2) both play a significant role in determining the time dimension of urgency. They are both crucial. Suppose we identified an event that would cause harm to critical systems. Perhaps we discover that a previous generation implemented a risky energy policy which will result in large-scale radiation poisoning from buried nuclear waste [95]. However, we also discover evidence that this poisoning event will not take place for another two centuries. This is a lot of time until the impact of harm. Even though the damage (badness) would be severe, it does not seem right to regard this situation as urgent. In addition, suppose we had already developed an effective one-pill cure for radiation poisoning, that was widely and readily available. Even if the radiation event were around the corner, this would drastically reduce the urgency of the situation in virtue of the effective cure, thereby lowering our response time. However, suppose we knew that we could develop

a cure for radiation poisoning, but that it is likely to take 250 years to develop at current estimates. If the radiation event is 200 years away, then we have less time until harm as opposed to the time we need to respond. This would drastically increase the urgency of the situation, and our need to develop that cure!

And so, the shorter the time available until harm and the longer the time required to respond, the greater the urgency of the situation. It is important to note that, if harm is already occurring (so there is no time until harm), then, regardless of how rapid response time can be, the situation will still require urgent action.

Objective Measures of Time

Just as there is data that can indicate how harmful an event will be to critical systems, there is data – objective criteria – that can indicate how much time there is until harm, and response time. There are, in other words, objective criteria that can help in assessing whether a situation is urgent.

In certain situations it is possible to quantify and measure the time until harm. Recall that Hurricane Katrina was predicted 56 hours before impact. Likewise, it may also be possible to measure response time. Consider the braking distance of a car. We can say, with a fair degree of certainty how long it will take a car to come to a stop. Assuming dry conditions, an average car with a deceleration ability of $7\,\mathrm{m/s^2}$, and an average reaction time of 1.5 seconds, the braking distance of a vehicle travelling at 100km/h would be 98m [93]. If the car in question was approaching a stop sign 98m ahead, and travelling at 100km/h, it would have to brake immediately. Any delay in reaction, such as braking 80m or 70m before the sign would mean that the car would not be able to stop in time. Yet another example of being able to objectively determine response time: following the Tonga volcanic eruption and earthquake, we would be able to know that it would take approximately 8 hours to transport air supplies from Sydney to Tonga by flight – that is a distance and flight time we can calculate.

What this shows is that, in some cases, the amount of time left before a bad outcome eventuates, and the amount of time a response will take can be ascertained with great precision. In the car example, it is necessarily the case that the car will have to brake immediately in order to stop at the sign as a matter of physics.

Room for Error

Yet again, it is important to remember that this data that can be used to measure objective levels of urgency is distinct from the interpretation of that data. The same reasons – differing interpretation, differing risk tolerance, flawed tools, epistemic uncertainty, and misinterpretation and inaccurate use of data – mean that we can be wrong about how urgent a situation is. But, nonetheless, it is something that can be objectively determined.

However, T1 and T2 are not the sole determiners. There is also another sub-variable of time: uncertainty.

A Third Variable: Uncertainty

There is a third variable that it seems important to add: uncertainty (Uc). So,

Urgency Equation (Version 2): U = f(B, (T1, T2), Uc).[26]

Let me demonstrate uncertainty's role and importance in establishing urgency: suppose you are in a car accident and get injured. Let's say that you have exactly one hour to get to the hospital *or else* – perhaps you are bleeding out at a rate the will cause death in an hour unless you get to the hospital on time. Now, suppose the hospital is only 10

[26]Note, again, I have deliberately left the relationship between each variable vague, merely wishing to identify uncertainty as another variable. However, if I were to attempt to establish their relationship, I would posit that Urgency (U) would equal to Badness (B) divided by Time (T), divided by Uncertainty (Uc). So, U=(B/T)/Uc). Here, the value of Uc would lie between 0 and 1, with 0 being 0% certainty (complete uncertainty), and 1 being 100% certainty.

minutes away. In this case, our response time is significantly shorter than the time until harm. Indeed, it gives us 50 minutes to play around with! However, no one in their right mind would consider waiting around for a bit, and then getting to the hospital on the hour. We would still act with great urgency. Why? Because of uncertainty.

Even though the hospital is objectively 10 minutes away, uncertainty means that we should act without delay; it increases urgency. There may be unforeseen complications in getting to the hospital – there may be traffic, the ambulance might not arrive in time, I might get involved in another accident, there may be unforeseen worsening of my injuries and complications, once I arrive at the hospital there may be a delay in receiving treatment, etc. Because of the uncertainty, together with the badness involved (life-threatening harm), urgency is high, even if there may be ample time until harm (T1) given response time (T2). We can see, then, that badness and time are not the only variables that influence urgency; uncertainty is also key.

It is important to note that uncertainty typically increases urgency; but it also stands to diminish it. If you knew with 100% certainty that you had an hour to get to the hospital before a bad outcome, and that you could get to the hospital in 10 minutes and be fine, this would lower the urgency of the situation. You might still act with urgency, if, perhaps, you were very risk averse.[27]

A Better Account of Urgency

The account I have provided here of urgency – where U = f(B, (T1, T2), Uc) – is, I argue, a better explanation of the concept than that found in the literature. In their definition of emergency, Timothy Lenton et. al., for example, define urgency as: "reaction time to an alert (τ) divided by intervention time left to avoid a bad outcome (T)" [96]. This definition is confusing. Reaction time, for instance, could mean (i) the time it would take for us to successfully avert the situation; or (ii) the

[27]Risk aversion may be yet another variable to add into the equation, but I leave this consideration for another time.

time it would take for to implement a solution; or (iii) even the time it takes for us to realise we must respond. Let us suppose the authors meant (i) – time to successfully respond. As it is stipulated, this does not acknowledge the different variables that can influence that response time. As shown, the variables I have identified above, play a key role in generating urgency. Finally, Lenton et. al.'s definition also fails to take into account the importance of value (badness) and uncertainty in generating urgency. My definition has the benefit of incorporating their meaning, while adding needed complexity.

In summary, the urgency of an emergency is determined by the intersection of the time remaining until harm and the time needed for an effective response, as well as uncertainty and badness. When the time until harm is short and the response time is long, the situation is generally more urgent. Conversely, when the time until harm is long and the response time is short, the situation is generally not considered as urgent. Urgency is usually increased by the presence of uncertainty, as well as the badness of a given event or situation.[28] This distinction helps in assessing and prioritizing actions in response to different types of emergencies.

Final Remarks:

And so, what are emergencies, and are they real? My answer in short:

1. Emergencies are situations or events that are causing, or threatening to cause, great harm to critical systems, and that require urgent action in order for that harm to be reduced or averted. The definition requires only those two necessary conditions to be met.

[28]Given the value of an item (in our case critical systems) it may be important to act to avert risk of harm, even if we have time to act. But there is a difference between risk management and urgency.

2. Yes, they are real. By 'real emergency', I mean that we can be right or wrong about whether something qualifies as an emergency; it is not just a matter of subjective determination. Arguing against a subjective account, I sought to provide objective criteria for defining emergencies. I demonstrated the problem in using conventional indicators, such as the scale and type of harm, to establish objectivity in emergency definitions. As an alternative, I proposed we tie emergencies to critical systems. This, I argued, enables us to establish objective criteria by which we can assess emergency situations. With it, we are able to measure harm, and measure urgency.

Why does defining emergency, and proving they exist matter? Emergencies carry consequences, both for policy and for ethics. Declaring emergencies can unleash authoritarian and undemocratic measures, and responses that interfere with civil rights and liberties. It is important that we be able to recognise when a situation does not count as a genuine emergency, like Trump's wall, to prevent misuse of power. However, it is also essential that we are able to recognise when a situation *does* count as an emergency. We need to be able to identify situations in a consistent manner, and ensure that we respond appropriately. I hope my assessment here will be able to inform that analysis, decision making, and response.

2

Can We Ever Justify Extraordinary Emergency Responses?

Emergencies are peculiar – they represent one area of life where normal rules can seemingly be circumvented or overridden; they are *exceptional*. We can, briefly, understand 'emergencies' as referring to situations or events that are (1) causing, or threatening to cause, great harm to critical systems, and that (2) require urgent action in order for that harm to be reduced or averted.[1] Responses to these emergency situations often disrupt 'normal rules': our everyday political, legal, and moral conventions. In war, soldiers can kill; during COVID-19, severe limitations were placed on individual liberties and greater powers granted to governments. In both examples, we see action and policy from governments that would not ordinarily be acceptable. In what follows, I explore what, if anything, would be capable of justifying these exceptional responses.

Some clarifications before we begin: First, the arguments I make in what follows are intended to apply to nation states (governments, governmental representatives,

[1] See Chapter 1.

and agents), as opposed to institutions; sub-national entities; enterprises, including corporations, firms, organisations, and companies; and private individuals. It may be that my analysis here has bearings on these different non-governmental agents. However, these types of agents are not my concern and fall outside the scope of this paper.

This paper has three sections. In § 2.1, I outline the kind of extraordinary responses emergencies elicit. In § 2.2 I begin to look at how we might justify extraordinary emergency responses. I demonstrate that we are geared towards treating emergencies differently and granting them special treatment, and show that it is possible to excuse these responses, even if we cannot justify them. In § 2.3 I seek to explain what might justify these responses if anything. I argue that we can justify extraordinary emergency measures on the basis of securing and protecting Rawls's circumstances of justice. Here, I demonstrate the important link between the critical systems of justice and critical systems which are the subject of harm in emergencies.

2.1 Extraordinary Hallmarks of Emergency Responses

A dedicated literature on emergency is starting to appear in the context of policy, law, and ethics. Despite longstanding interest in the nature of emergencies,[2] the topic had little treatment prior to the terrorist attacks of 9/11 in 2001 [98, p.539]. The topic remains one that requires more extensive examination from a range of fields, including political science and behavioural psychology, as well as continued explorations in law, policy, and ethics. Of particular interest have been the extraordinary responses that emergencies elicit [13], [98]. By this, I mean the fact that emergency responses

[2]Notable contributions include [9], [22], [80], [97].

tend to diverge from, and often directly undercut, everyday practices and rules. In particular, they often transgress civil liberties. A great deal of attention has been given to whether these exceptions can ever be justified [26], [98].

In addition to the features that define emergency – great harm to critical systems and the need for urgent action – we can also point out certain recurring and unusual features of the responses we see in times of emergency. We can refer to these as the common 'hallmarks' of emergency responses. These features seem to be largely generated by a combination of time pressure, and high levels of risk and uncertainty that often colour emergency situations.

Below, I draw out some of the unusual features or 'hallmarks' that seem to surround emergencies and responses to them. For ease, I refer to them collectively throughout as the 'exceptional responses' emergencies tend to elicit.

2.1.1 Suspension of normal parliamentary and legal procedures

Inter arma silent leges – in times of war law is silent [99, p.273].

Various measures and mechanisms exist in our contemporary political and legal institutions that are designed to safeguard democratic decision making, protect civil rights and liberties, and keep the exercise of governmental authority and power in check [100, p. 210]. Emergencies disrupt this framework.

The suspension of normal politics and laws are common during emergencies. Normal parliamentary and legal procedures are often a hurdle to rapid action: "when the public safety is seriously threatened, there may be need for quick and decisive action that cannot, perhaps, wait for the deliberate pace of ordinary constitutional rule" [100, p. 210]. We often hear, therefore, of 'states of exception', 'extraordinary powers', 'emergency powers' and 'martial law' being implemented or appealed to

during these situations in order for governments to act so as to avoid or reduce the threat of harm [9], [11, p. 50, fn. 86]. These terms are largely used synonymously. As a result of these extraordinary powers or exceptional emergency laws, rapid decisions can be made and implemented; more power is given to government and, with it, less accountability; and civil liberties may suffer – I expand on this last consequence below. These measures and exemptions are usually temporary, though there is concern that such exceptions will become normalised [99].

We can see an example of normal political and legal conventions being disrupted by emergency in the UK government's Coronavirus action plan, which was rapidly given Royal Assent on 25 March 2020 and became law as the Coronavirus Act 2020 with a two-year life span. The Act gave England, Scotland, Wales and Northern Ireland powers and tools to effectively respond to the emergency, enabling them to act swiftly in order to respond to fast moving events [101]. Many of the measures that the Government went on to implement, such as lockdowns and physical distancing, were brought in and changed swiftly – in some cases, overnight – and were seen to challenge standard democratic decision-making. Indeed, some have described these measures as a "trade-off between public health and fundamental democratic principles" [102].

2.1.2 Minimal deliberation

The need for rapid action means that there is often little time for consultation and deliberation before that action – whatever it may be – is implemented. COVID-19 once again illustrates this feature of emergency. The UK government's Scientific Advisory Group for Emergencies (SAGE), which was responsible for the government's policy responses, was comprised of just 23 individuals [103, p. 5] The group was primarily made up of medics and biomedical researchers, as well as several statisticians, behavioural scientists, and two Downing Street political advisors [103, p. 5]. This limited and niche group of experts failed to include diverse perspectives. Alexander

Bird emphasises this point: “when the direction of the UK COVID policy was being set, there was no-one involved who could speak to the consequences of the proposed policies for any aspect of life other than the disease itself” [103, p. 5]. As a result, the government has been criticised for failing to consider impacts on pre-existing medical conditions, mental health, and education, as well as the provision of regular medical and non-medical services [103, p. 4-5], [104].

2.1.3 Hard choices

We often see hard choices having to be made about who should be allocated scarce resources. These hard choices can be between which groups suffer a greater share of burdens, casualties, and uncompensated losses; they can be between life and death [105]. During COVID-19, we saw examples of this in Italy, where hospitals were reported to have been forced to decide whether treatment should be limited to those under the age of 60 [105]; we saw it in the UK where hospitals were forced to provide an “unpalatable rationing of care” in order to cope with increasing COVID-19 infections, reducing their amount of non-COVID treatment; [106]; we are seeing it in Gaza, where, amidst severe shortages of medicine, water, food, and fuel following weeks of Israeli bombings, medical workers "face the hardest choices" [107]. One doctor from a hospital in Gaza has said “we choose who gets ventilation by deciding who has the best chance of survival” [107]. COVID-19 offered ample examples of these types of choices, including decisions in the UK about implementing lockdowns and furlough schemes which assisted most of the population, but which disproportionately impacted poor and low-income communities, as well as decisions about which patients should be offered treatment amidst severe shortages of ventilators [105], [108].

2.1.4 Restrictions and limitations on Civil Liberties

Likewise, emergency responses often undermine and violate established civil liberties.[3] Civil liberties, in short, refer to the freedoms and guarantees provided by government to its citizens and which are enshrined in legal doctrines, such as political speech, etc. We often see restrictions and limitations placed on these liberties, such as restrictions on freedom of movement, travel, and association in times of emergency. As Mark Tushnet notes, emergencies often result in actions "that would, absent the emergency, be unjustified intrusions on civil liberties", and that often during these times, "people cannot get from the government some of what they previously thought important" [99, p. 281, 279].

COVID-19, again, offers ample examples of extraordinary measures that impinged upon liberties: nation-wide lockdowns, border closures, enforced business closures, work-from-home orders, purchase restrictions, travel restrictions, enforced mask wearing and physical distancing, and in some instances, mandatory vaccinations. In the war in Ukraine, we see civilians being called up to assist the Ukrainian army in fighting and defending itself against Russian troops. Men between the ages of 18-60 have been banned, following the declaration of martial law in the country, from leaving Ukrainian borders in order that they take up arms. In addition to the killing of others that this situation demands, the ban in particular subverts ordinary liberties of movement and to conscientious objections of those who do not wish to kill and harm others. The ban has consequently been criticised for violating human rights and humanitarian norms [110].

It is not that the principles that generate these liberties are abandoned. As Tushnet suggests, "a nation's commitment to principles of free expression persists undiminished no matter what the circumstances" [99, p. 281]. Rather, as with the suspension of

[3]Some, however, have made the argument that on some emergency occasions such as war, some civil liberties may in fact be advanced, see [109].

normal parliamentary and legal procedures, the honouring of civil liberties is often a barrier to implementing the action required to address a given emergency. And so, they are bypassed. As Justice Holmes puts it, "when a nation is at war many things that might be said in time of peace are such a hindrance to its effort that their utterance will not be endured so long as men fight" [111].

The suspension of normal parliamentary and legal procedures, hard choices, minimal deliberation, and restrictions and limitations of civil liberties are some of the features that regularly colour emergency situations. These exceptional features are by no means exhaustive, but they provide a good account of the types of unusual and exceptional responses undertaken by governments in emergencies; responses that, as evidenced by these features, compromise the normal political, legal, and ethical frameworks of contemporary society. They are extraordinary. Are they justifiable?

2.2 Can We Justify Emergency Exceptions?

What justifies, if anything, the extraordinary string of responses emergencies elicit, and which challenge the norms of our parliamentary, legal procedures and ethical principles? Are they simply wrong and unjustifiable, or is there some basis by which we can not only excuse, but justify such exceptional action?

2.2.1 Simply Wrong

One option is to say that these exceptional emergency responses are simply wrong; that it is never OK for the norms of our society to be stomped on, violated, and bypassed. Emergency action from governments has been subject to extensive criticism. As with the criticisms against the Ukrainian ban on men exiting the country, many of the COVID-19 regulations that were introduced have been criticised as unjust violations

of individual liberty – mandatory vaccinations and mask wearing were, in particular, the focus of loud debate [112]. Alexander Bird, in his Tanner Lecture, *Counting the Costs of Controlling COVID*, is concerned with determining whether or not COVID-19 measures promoted or hindered justice. His conclusion is that such measures were not "conducive to social and distributive justice" [103]. History is full of like criticisms against emergency responses that violate standard operations and principles: the internment of Japanese-American citizens in an attempt to prevent espionage and sabotage during World War II was a "disaster" [113, p.273], and an "odious, gravely injurious racial classification" [114, p. 249]; the prosecution of the US Communist Party in response to the threat of Soviet espionage was "badly designed policy" [99, p. 287].

Exceptional responses and violations of civil liberties in emergencies are not just subject to contemporary criticism as unjust; retrospective criticism is also common. Such criticism often has two components: (i) a claim that the threat was exaggerated; and (ii) a claim that the responses, as a result of that exaggeration, were excessive [99, p. 287], [103].[4] Such claims are made in light of the full facts afforded to us by hindsight. As Justice Brennan states, "after each perceived security crisis has ended, the United States has remorsefully realized that the abrogation of civil liberties was unnecessary" [116]. David Cole makes a similar point: "there is reason to think that as a general matter in times of crisis, we will overestimate our security needs and discount the value of liberty" [117, p.955].[5]

However, it is not so easy to simply dismiss exceptional emergency responses – and those that violate civil liberties in particular – as wrong, and unjustified. There are several reasons that stifle such a claim: (i) these exceptional responses are often

[4]Understatement, however, can likewise be dangerous. Richard Posner makes this point. He states, "it is because officials have repeatedly and disastrously underestimated these dangers that our history is as violent as it is" [115, p. 4-5], [99, p. 275]. Posner gives the underestimation of Soviet espionage in the 1940s which accelerated the Soviet Union's acquisition of nuclear weapons, and the 1979 Iranian revolution and the taking of American diplomats as hostage as two examples.

[5]Also see [99, p. 295].

intuitively called for and expected (subsection 2.2.2); (ii) even if they are deemed to be wrong, such actions can often be excused (subsection 2.2.3); finally, (iii) it seems that such responses *are* justifiable (§ 2.3). I unpack each of these points below.

2.2.2 Intuition Favours Emergency Exception

Despite arguments that exceptional governmental responses are wrong, excessive, or exaggerated, it does, at least on some level, seem intuitively right to say that in the face of extreme or emergency circumstances, the normal rules can be bent. Consider Per Sandin's comment: "torture, for instance, is usually thought to be absolutely prohibited in the ordinary course of things. However, many people think that in certain extreme circumstances, it may be justified" [118, p. 153]. The example he asks us to consider is the case of a terrorist who has placed bombs over large cities across the UK, and the only way to disarm them is via torture. Sandin's point is that we may be inclined to accept such a response given the extremity of the situation, despite its violation of civil liberty and standard principles of morality [119].[6]

The intuition about the acceptability of torture is not something everyone will share.[7] However, we are, in many other ways, used to giving emergencies special treatment. As Jonathan Wolff notes, "emergency priority setting is a matter of routine"; we are geared towards it [105, p. 69]. Upon hearing a siren on the highway, we automatically move out of the way to let the police car or ambulance pass – they are in a hurry! In the midst of an emergency, action and behaviour that is not ordinarily appropriate is suddenly given the green light. War is another example. It is a commonly held belief that, in times of war, soldiers are permitted to kill – this thought seems to hold true even if we think that the war itself is unjust.[8] Accident and Emergency

[6]For criticism of this view, see [120].

[7]The use of torture interrogation techniques in the aftermath of the 9/11 attacks is something that is still highly contested [121].

[8]For a discussion of this topic, see [122].

(A&E) hospital procedure is another case in point.[9] In emergency situations where a patient needs urgent medical care, it is procedure to treat that patient and sort out payment afterwards. This is not the case in ordinary, non-urgent cases. And yet, it seems not only right, but necessary that this 'act now, pay later' system be honoured in emergency cases given the need for urgent action – critical surgery cannot be delayed; there is no time to work out payment details if a patient is bleeding out. Medical debt in the U.S. is evidence that this system is well established [123]. This is not to say that the American healthcare system should be endorsed. Rather, it is to stress that, in emergencies, we are used to normal rules being circumvented.

Not only do we think that some ordinarily reprehensible actions may be appropriate in emergency situations, but we also think that they may be worthy of praise. We celebrate politicians who are able to show strong leadership and make 'tough calls' during emergencies – Winston Churchill, who sanctioned the UK's responses to World War Two and the Nazi regime, is a prime example.

I have suggested that the idea that emergencies require out-of-the-ordinary responses is something we are used to. However, this thought only goes so far, and it certainly does not *justify* exceptional emergency action. It merely suggests that, contrary to arguments that such responses are outright wrong, the issue is more complicated and nuanced. There is also a strong tension that exists between the intuition that some extraordinary action is acceptable in the emergency setting, and the thought that civil liberties, as well as democratic and legal principles, should never violated.

[9] A&E emergencies differ from the type of emergencies we have been discussing in that they, for the most part, pertain to private as opposed to public emergencies – however the point I make here is transferable. For the distinction between these emergencies, see [10, p. 22].

2.2.3 Excusable

The difference, in short, between a justification and an excuse for an action lies in whether or not we think that action is morally right or wrong [124, p. 239]. If an act is justifiable, then that act is not wrong or impermissible, and, consequently, not blameworthy.[10] If we say instead that an act is excusable, we are saying or admitting that the act is wrong, but denying that it is blameworthy because of some mitigating reason or factor. Perhaps the agent was coerced, nudged, or it was accidental, unintentional, incidental, etc [124, p. 239].[11]

Are exceptional emergency responses excusable? If they are, this would allow us to understand such action while maintaining that their contravention of political, legal, and ethical principles are still wrong in themselves; while maintaining that transgressions of civil liberties are not justifiable. There are two ways in which exceptional responses, and especially those that undermine civil liberties, may be excused: on the grounds of (a) pragmatism, and (b) risk and uncertainty:

(a) Pragmatism

As we saw above, the suspension of normal parliamentary and legal procedures, minimal deliberation, hard choices, and restrictions and limitations on civil liberties, are, on the whole, loosely explained on the basis that, were those actions not taken and were those decisions not made as they were, the responses that emergency situations require would not be possible; they are simply too much of a hurdle and too time consuming – a luxury we cannot afford. In order for responses to successfully avoid or reduce the harm threatened by the emergency, normal rules must be broken. We might

[10] Of such acts, we might say that they were: "a good thing", "right", "sensible", "permissible" — "in general or at least in the special circumstances of the occasion" [124, p. 239] – these terms are often used interchangeably, though their likeness may be contested.

[11] We can speak in terms of blame and/or in terms responsibility when it comes to this distinction. If an act is justifiable, an agent can accept responsibility for that act with no consequences. If an act was wrong, but excusable, an agent is, in essence, denying – or at least seeking to deny – responsibility for that act and seeking to avoid punishment.

use this then as an excuse for exceptional responses. Regardless of their rightness or wrongness, it is the necessity and nature of emergencies – their need for urgent action and significant time pressure – that explains why their responses often break these norms of society. They provide a reasonable excuse.

(b) Risk & Uncertainty

Another excuse may be provided in the form of the risk and uncertainty that underpins emergency situations. Recall the retrospective criticisms of emergency responses given above: that in hindsight, responses that violated civil liberties were unnecessary; that threats were often exaggerated; and that responses to those exaggerated threats often excessive. Such criticisms, however, do not take into account that these violations are performed in times of uncertainty, when governments do not know how the situation will unfold. Tushnet puts this point nicely:

> Policymakers were acting in real time, when they did not know that the United States would win the war and, even more, when they could not be sure of the size of the threats they were dealing with or of the effectiveness of various strategies to respond to these threats of uncertain size [99, p. 109].

As with the consideration of pragmatism, the degree of risk and uncertainty prevalent in emergency situations seems capable of at least excusing violations of liberties and subversions of standard political and legal procedure, even if they do not justify them.

2.3 Can We Justify It?

We have seen how we might excuse exceptional emergency responses. Can we justify them? I am particularly concerned with whether or not exceptional responses that compromise, limit, and restrict civil liberties and rights, and democratic procedures are ever justifiable in the emergency context.

2.3.1 Moral and Legal Approaches to Justification: Exception or the Rule?

There is significant overlap between the philosophical and legal approach to this issue. In both, two key questions emerge: (i) does morality, as well as our civil liberties and rights, remain consistent, or do they change according to certain conditions and circumstances? And, (ii) if they remain consistent, can emergency exceptions be accommodated within that set of rules and moral framework, or is it the case that emergency exceptions will always threaten to contravene those consistent civil liberties and ethical principles?[12] If the latter is true, is justification of emergency exceptions possible? In short, can we justify emergency exceptions by accommodating them within our pre-existing ethical and legal frameworks? If we cannot, do we need to accept that they are not justifiable, or can we look to some other justification? I expand on the respective philosophical and legal debates in turn:

The Philosophical Debate: A Moral Exception?

In discussions of the morality of war, we see the question arise of whether there is a separate ethics for war, or whether we can explain things, such as killings in war, within our normal ethical frameworks. This is the key debate between the respective traditionalist and revisionist camps of contemporary just war theory [127].

Henry Shue is a proponent of the first, traditionalist line of thinking. He argues that the acts of killing we see in war, while wrong in ordinary life, are justified by a separate ethics for war. Shue makes a division between what he calls "ordinary life", and the circumstances of war [125, p. 87]. Acts committed in war are, generally, "utterly impermissible in ordinary life" [125, p. 87]. In war, however, we see a bending of the ordinary rules [125, p. 87]. The idea here is that war is "governed by altogether different moral principles from those that govern other areas of life" [126, p. 15].

[12] For a legal discussion of this issue, see [99]; for an ethical discussion, see [125], [126].

What gives rise to the intuition that there is a separate domain of ethics for war? By its nature, war entails acts of killing, harm, and destruction. The thinking goes, therefore, that the moral rules governing war must be "radically different in content from the specific standards for conduct in ordinary life" [125, p. 87][13]. Under Shue's view, it seems that it would be possible to say that actions (or at least some actions) in extreme situations such as killing in war are justifiable. War operates on a different set of ethics as the one that dictates everyday life, and some actions in war may be justifiable whereas those same actions would not be justifiable outside of war.

Jeff McMahan, a revisionist, thinks the above argument is mistaken. Rather, McMahan argues that the same ethical rules that govern everyday life also govern acts of war. He states, "the revisionist approach treats war as morally continuous with other forms of violent conflict and therefore rejects the idea that a different morality comes into effect in conditions of war" [128]. Thus, on McMahan's account, acts of killing in war are not right, just as it is not right to kill in ordinary circumstances. They are not, therefore, justifiable acts. This is not to say, however, that those acts are not excusable [128].

The Legal Debate: A Legal Exception?

We often see the same kind of debate echoed in legal discussions surrounding the limits of the constitution in the US.[14] The question is whether emergencies can and should be governed by law, or whether they will inevitably "be the occasion for the development of states of exceptions and the assertion of extralegal powers" [98, p. vxiii-xix]. In other words, are normal legal procedures undermined by emergency exceptions, or are those procedures upheld in virtue of being able to accommodate emergency exception within normal legal frameworks?

The thought is that, if emergency powers can be accommodated for within the

[13]Shue, p.87

[14]For an overview of this discussion, see [98], [99], [100], [129].

parameters of the constitution, then this will constrain the limits of those emergency powers [99]. However, the worry is that if the constitution is seen to include emergency exceptions within its framework, then the exceptional will be made normal in virtue of trying to explain it within the context of rules defined for other circumstances – for ordinary, everyday circumstances; for everyday ethics and laws. As a result, the concern is that this will open the flood gates for emergency exceptions: that "the temporary will be made permanent, threatening civil liberties well beyond the period of the emergency" [99, p. 304][15]; that it will "provide executive officials with a fig-leaf of legal justification for expansive use of sheer power" [99, p. 303-4].

This issue is aptly captured by Justice Robert Jackson's decision in *Korematsu v. United States*, relating to the internment of Japanese American citizens in WWII:

> Much is said of the danger to liberty from the Army program for deporting and detaining these citizens of Japanese extraction. But a judicial construction of the due process clause that will sustain this order is a far more subtle blow to liberty than the promulgation of the order itself. A military order, however unconstitutional, is not apt to last longer than the military emergency. Even during that period a succeeding commander may revoke it all. But once a judicial opinion rationalizes such an order to show that it conforms to the Constitution, or rather rationalizes the Constitution to show that the Constitution sanctions such an order, the Court for all time has validated the principle of racial discrimination in criminal procedure and of transplanting American citizens. The principle then lies about like a loaded weapon ready for the hand of any authority that can bring forward a plausible claim of an urgent need. Every repetition embeds that principle more deeply in our law and thinking and expands it to new purposes.[16]

Given the long-term risk to liberty that could result from a normalisation of emergency powers, some advocate that emergency powers remain extraconstitutional: that they not be incorporated within its framework. Tushnet is an advocate of this position. He states, "it is better to have emergency powers exercised in an extraconstitutional way, so that everyone understands that the actions are extraordinary, than to have the actions rationalized away as consistent with the Constitution and thereby normalised"

[15] Also see [130, p. 304]

[16] See Korematsu v the United States [131], quoted in [129, p. 522].

[99, p. 306]. An additional point to stress here is that, by being extraconstitutional, emergency powers are expected to end as soon as the threat has passed, legal norms be reinstated, and that reparations be made [99, p. 307].

The strong parallels between the legal and philosophical approaches to the issue of emergency exception are clear. The ultimate question is how we might justify emergency exception. Are emergency violations of civil liberties and moral principles an exception to the rule or are they able to be accommodated within our standard moral and legal frameworks?

I am sympathetic to Shue's approach – that there exists a separate ethics of war, or what we might appropriate as 'emergency ethics'. My sympathy comes from the fact that the idea which underpins this conclusion – that emergency situations are typically drastically different from everyday life and whose responses therefore diverge from everyday ethics – seems intuitively right. This view is somewhat paramount to the idea that emergency powers are extraconstitutional – they are distinct and separate for normal, constitutional legal norms. However, Shue's attempt to explain these divergent actions via a separate and distinct 'ethics' seems to present an attempt to 'constitutionalise' emergency responses within a dualistic ethical framework. His argument, after all, is not that these emergency actions are 'extramoral' – that they are outside of morality, or amoral. As with the concern over constitutionalising emergency powers, I worry that any attempt to constrain emergency action within its own separate morality will likewise run the risk of normalisation.

2.3.2 Negative Consequentialism and Harm Reduction

There exists a different route we might take to justify emergency exception, and in particular, the violation of liberties and moral principles. Let us concentrate on *harm*.

Emergencies threaten great harm, and require urgent action in order for that harm

to be reduced and/or averted. The natural thought, then, is that justification for exceptional emergency responses, especially those that undermine civil liberties, must be driven by a form of negative consequentialism to minimise that harm. The idea that harm prevention or reduction may justify limiting civil liberties is expressed by J. S. Mill. He states, "the only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others" [132, p. 18]. In responding to emergencies, the key question then becomes, as Jonathan Wolff puts it, "what do we need to put in place to minimise the most serious harms and to give us the breathing space to put in place more considered measures?" [105]. Once the risk of immediate harm has passed, we are then able to revert to standard practices and deliberative processes.

An appeal to negative consequentialism – appearing under the 'utilitarianism' header – in emergency settings is made by Michael Walzer. He argues for the following state of affairs: a "rights normality, utilitarian extremity" [80, p. 11]. The thought here is that ordinary morality operates on absolutism in regards to rights, rather than utilitarianism in ordinary settings. However, when emergency situations threaten the foundations upon which our rights operate, utilitarianism comes into play. Though, as Walzer sees it, the limits of those utilitarian measures are also constrained by rights — i.e. 'don't do the unthinkable', 'don't kill innocent civilians'. For Walzer, while moral rules are never "suspended", there are, in his words, "moments when the rules can be and perhaps have to be overridden" [80, p. 6]. This position is reminiscent of the extraconstitutional position outlined above.

Walzer seems to comfortably circle back and forth between rights absolutism and utilitarianism at a rate that is convenient for his argument. According to his position, when an emergency appears, we can overrule rights absolutism for utilitarian measures to reduce harm, but in order to avoid uncomfortable conclusions and responses utilitarianism may license, such as the killing of civilians, rights absolutism makes an

unexpected but favourable reappearance.[17] [18] So, a negative consequentialist take on harm reduction – or at least, Walzer's take – allows us to violate some civil liberties but not others. If it is the case that harm minimisation justifies violating certain liberties, it is unclear why it suddenly does not justify violating others, such as the killing of innocent civilians to prevent the loss of many. Why is a line suddenly being drawn and from where did it come? This is not to say that there are some principles and liberties we should never compromise – rather, it is unclear how to accommodate that thought within the confines of a negative consequentialist argument.[19]

Minimising and averting harm is a fundamental goal – if not *the* goal – of emergency response. However, I do not think an appeal to harm reduction alone can explain why it might be justifiable to stomp on civil liberties, and suspend normal parliamentary and legal processes to achieve that goal.

First, harm is not unique to emergencies. We encounter harms, as a society, all the time: from cancers, diseases, workplace accidents, road accidents, poor living conditions, sexual violence, etc. And yet, when dealing with these harms, normal parliamentary and legal processes remain intact; civil liberties remain uncompromised. Why would it be the case that harms arising from emergencies justify special treatment and the limitation of civil liberties when harms that occur outside of that emergency context do not? Why shouldn't it be the case that we can restrict civil liberties and embrace emergency exceptions to deal with a single murder or rape case? Could it be because of scale? That the scale of harm threatened by emergencies is greater? The terrorist attack on 9/11 in 2001 was a devastating emergency. In total, 2977 people were killed [134]. And yet, malaria, in the same year, killed 913,038 [135]. In 2020, the malaria death toll was 627,000 [136]. Unlike the responses we saw to 9/11 in 2001

[17] Walzer exclusively discusses 'supreme emergencies' and extreme situations.
[18] For additional critique of Walzer's position, see [133].
[19] Though I suppose rule utilitarianism might do the trick.

and COVID-19 in 2020, malaria which afflicts an enormous amount of harm, was not given special treatment. The justification, then, does not seem to lie in scale.

Perhaps we can put the justification down to harm reduction in times of emergency simply being one of the key roles of government.[20] Regardless, this position seems to run into trouble in explaining how and why harm reduction during emergencies can justify the trampling of civil liberties – especially given that the upholding of civil liberties is likewise often seen as a key role of government.[21] This is especially true when confronted with a more Rawlsian view on the role of government. Such a role is nicely surmised by Arthur Ripstein: to "protect important liberties and opportunities, and also to set up and enforce important schemes of social cooperation that are prerequisite to an acceptable life for all" [138, p. 757].

Second, if minimising harm is our goal, there might be more efficient ways to achieve that than minimising the harm caused by an emergency. This seems especially true given the high degree of uncertainty surrounding how much harm an emergency could cause in the first place. Suppose we estimated that an earthquake, terrorist attack, or civil unrest in one part of a country would cause x amount of harm, and that y amount of resources would have to be spent in order to reduce or avert that harm. But suppose we also knew that that same level of resources could be used to prevent x x 2 (or x 3, or x 4... or x 10!) elsewhere, such as by investing in research to create a cure for some disease, or an investment in education, etc. If reducing harm is our goal, then it would seem contrary to that goal to spend those resources on the emergency response as opposed to those alternative endeavours. What's more, given that the emergency measures would additionally threaten to undermine civil liberties in the process, it seems not only that harm minimisation would not justify the violation of

[20] A somewhat Machiavellian way of thinking about the role of government, see [137, p. 50].

[21] The role of government is a highly controversial topic in political philosophy. Answers as to their role range from them having no more role than to protecting its citizens against fraud and force; some suggest the government's role is to go above and beyond in order to improve society, see [11, p. 41].

liberties, but that it would not justify taking emergency responses in the first place.

Third, emergency responses may cause more harm than they prevent. Let us take COVID-19 responses in the UK as an example. As of 2 February 2022, an estimated 156,000 died from COVID-19.[22] Had no action been taken, this figure is estimated to have been as high as 510,000 [103], [139]. A lot of COVID-19 related deaths were therefore prevented due to the UK's emergency measures, which included severe limitations on civil liberties as well as normal democratic and legal procedures, and governmental services. However, although direct harm from COVID-19 may have been alleviated and prevented as a result of emergency measures, the UK has come under criticism for causing significantly more harm elsewhere as an indirect result of its emergency measures. Bird presses this point, citing sharp rises in mental health problems, domestic abuse, and inequality, as well as severe reduction in the treatment of non-COVID-19 related health issues [103, p. 3-4]. If emergency responses create more harm than they prevent, then the argument that harm prevention in emergency situations is what warrants exceptional responses and licenses restrictions on liberties seems deeply problematic.

However, it may be argued that this last point is not a fair criticism. We are, for the most part, only in a position to judge whether or not more harm than good was done by a particular emergency response in *hindsight*. As we saw, emergency responses have been subject to heavy retrospective criticism. Yet, we are interested in whether or not emergency responses are justified *at the time they are taken*. Given the high degree of risk and uncertainty both regarding the threat posed by the emergency as well as whether or not the response taken will be successful at reducing that harm – or indeed indirectly causing additional harm elsewhere – the argument that harm prevention does not justify the suspension of civil liberties in emergency cases does not seem appropriate. This is especially true, given that it is not guaranteed that

[22] I take this figure from Bird; it represents people who died within 28 days of a positive test [103, p. 2].

emergency measures will in fact prevent more harm than they create.

Reliance on harm reduction as a justification alone is problematic. Above and beyond a consequentialist appeal to reduce the most amount of harm possible, there seems to be little to say about what would justify emergency exceptions and restrictions on civil liberties. So, what, if anything, would?

2.3.3 A Threat to the Circumstances of Justice

Let me try a different tack. I want to propose that it is the threat that emergencies pose to the conditions necessary for liberty and a functioning society that justify the emergency exception, including transgressions of the very liberties our societies seek to protect. Appeal to this reason as justification is by no means novel. We can see it in Walzer when he suggests that emergencies threaten our "deepest values and collective survival".[23] What is novel, is the way I seek to explain it and the brunt of the work I consider it to be doing. Elsewhere I have discussed the importance of critical systems to the definition of emergency.[24] Here, I demonstrate that it is those same systems that are marked out by the circumstances of justice as important, and whose protection can serve as a justification for extreme emergency responses.

What do I mean by 'conditions necessary for liberty'? Let us take Rawls as our starting point. Few give as much precedence and priority to liberties and justice as Rawls. If we can explain how emergency exceptions and transgressions of liberties are compatible with his account, we will be doing pretty well.

Rawls proposes a theory of *justice as fairness* [140].[25] The theory contains two

[23]Walzer is discussing 'supreme emergencies' which he defines as those that threaten those values and our survival. For now, I leave aside the differences between general emergencies and what he defines as supreme ones, [80, p. 6].

[24]See Chapter 1.

[25]The theory pertains to the justice of institutions, and ones operating within an egalitarian

principles of justice [140, p. 60]:

> **First Principle**: Each person is to have an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all [(equal) liberty principle];
>
> **Second Principle**: Social and economic inequalities are to be arranged so that they are both:
>
> (a) to the greatest benefit of the least advantaged, consistent with the just savings principle [the difference principle], and
>
> (b) attached to offices and positions open to all under conditions of fair equality of opportunity [equal opportunity principle] [140, p.302].

In short, these principles are intended to provide a basic structure for society and apply to institutions. In Rawls's words: "they are to govern the assignment of rights and duties and to regulate the distribution of social and economic advantages" [140, p. 61]. The first principle defines and secures equal liberties for all citizens. These liberties include, for example, "political liberty (the right to vote and to be eligible for public office) together with freedom of speech and assembly; liberty of conscience and freedom of thought; freedom of the person along with the right to hold (personal) property; and freedom from arbitrary arrest and seizure as defined by the concept of the rule of law" [140, p. 61]. The second principle outlines and sets up social and economic inequalities [140, p. 61].

Important to note is that Rawls adopts a *lexical ordering* of these principles.[26] The first principle of liberty always has 'lexical priority' over the second – meaning, it always comes first, no matter what. An important implication of this ordering is that liberty cannot be compromised in favour of the second principle. What this means is that distribution of social and economic inequalities cannot be done in a

economic system at that, primarily constitutional democracies [140, p. 195].

[26]Rawls's lexical ordering of the principles and the "valuations that this ordering implies" – the level of importance of the contents of each principle – forms a part of an ideal theory of justice. In non-ideal theory and cases, they are intended to serve as a guide for priority, see [140, p. 303].

way that interferes with the equal liberties of citizens: it "forbids exchanges between basic liberties and economic and social benefits" [140, p. 151]. This is true even if interference with equal liberties might lead to a reduction in inequalities and economic growth [140, p. 62-3, §11]. Rather, "liberty can be restricted only for the sake of liberty" [140, p. 302, §42]. The only reason for restricting liberties and rights is that the exercise of these rights and liberties may interfere with the realisation of each other [140, p. 64, §11].[27]

One of the intended uses of Rawls's theory of justice is to give us the tools to judge the justice of legislation and public policies [140, p. 195, §31]. Consider the emergency exceptions – the 'hallmarks' of emergency response – outlined earlier in § 2.1. We can appeal to Rawls's principles of justice to argue that those emergency exceptions are *unjust*. Emergency response and the invocation of emergency powers have been shown to give rise to social policies that undermine liberties; that unfairly and unequally distribute burdens to the detriment of the worst off.[28] Responses which violate these principles cannot be justified.

On the contrary, some have tried to appeal to Rawls to explain both emergency exceptions as well as climate justice. Arthur Ripstein and François Tanguay-Renaud, for example, have sought to explain emergency exceptions in reference to the securing and provision of primary goods as one of the key roles of a Rawlsian government [11, p. 40], [138, p. 756-8]. The distribution of primary goods is, on Rawls view, seen to be a part of the basic structure of society [140, p. 62, §11]. They are loosely defined as "things that every rational man is presumed to want" [140, p. 62, §11]. Within these, Rawls locates the "chief" primary goods to be distributed as rights and liberties, powers

[27]Rawls later goes on to suggest there are only two ways in which liberty could be restricted for the sake of liberty: "(a) a less extensive liberty must strengthen the total system of liberty shared by all; (b) a less than equal liberty must be acceptable to those with the lesser liberty" [140, p. 302, §42].

[28]For an example of appeal to social justice to explain the unjust nature of the UK's COVID-19 response, see [103, p. 10].

and opportunity, and income and wealth [140, p. 62, §11]. The distribution of these are under the direction of the two principles. Primary 'natural' goods, such as health and intelligence, are less directly able to be governed by the principles [140, p. 62, §11].

The thought is that response to emergencies simply falls into the government's role of securing and providing "(economic) primary goods", and, if emergencies require different measures in order to secure and provide those goods, so be it [11, p. 39]; "all liberals accept that it is part of a government's general role to exercise its powers of regulation and taxation to provide these goods", and/or to ensure they can provided privately, [11, p. 40].[29] In reference to emergency, public goods are taken to include "national defence, police and fire protection, social order, public health and sanitation, highways, street lighting, ports and canals, water and sewer works, and education" [11, p. 40]. Emergencies may threaten the provision of these goods. In order to ensure their provision, therefore, a government may be permitted to take exceptional, out of the ordinary action. As Tanguay-Renaud puts it, "an emergency may require a government to go to greater lengths than usual and take extraordinary avenues to fulfill its role"; "[they] may be under a duty to resort to different, sometimes much more radical or extraordinarily preventive, means to respond" [11, p. 40].[30]

Tanguay-Renaud argues that this argument provides a "highly plausible explanation" for why we think it is the government's role to ensure that the public goods listed above are taken care of, and that when emergencies threaten these, why governments may act to safeguard them [11, p. 40]. However, the above argument is not convincing. Even if it is true that governments are beholden to provide certain public goods, it does not explain why they ought to be able to restrict liberties or unequally distribute burdens to the least advantaged in the process; it does not justify

[29] Also see, [141, p. 119-20]; [142, p. 45-6].

[30] A similar argument is put forth by Russ Manning regarding climate concerns. Manning argues that climate change concerns environmental security, which concerns health. As health is a primary good, environmental security should also be taken as a public good, and action concerning climate change can be justified on this basis see [143]; see also [144, p. 132-3].

emergency exceptions.[31] Furthermore, most of these goods would constitute social and economic goods. Their distribution is therefore under the guidance of the second principle. Given the lexical priority of the first principle, rights and liberties may not be restricted in order for improvement in these goods.[32]

The Circumstances of Justice Explained

Rather than relying on the government's role in securing and providing certain public goods, I want to argue that emergency exceptions may be justified by appeal to the *circumstances of justice*.

Rawls defines the circumstances of justice as the "normal conditions under which human cooperation is both possible and necessary" [140, p. 126, §22]. They concern what generates and necessitates the need for a social arrangement that will distribute benefits. Rawls suggests there are two main types of conditions which must both be met in order for the circumstances of justice to obtain: (a) objective conditions; and (b) subjective conditions [140, p. 126-7, §22]. Objective conditions include the co-existence of large amounts of people on a definite geographical territory; comparable capacities, such that no one individual or subgroup dominate the others in virtue of physical or mental capacity; vulnerability to attack; and *moderate scarcity*.[33] Rawls places particular emphasis on this last condition of moderate scarcity [140, p. 126, §22]. The condition means, simply, that resources should neither be too plentiful, nor too scarce: "natural and other resources are not so abundant that schemes of cooperation become superfluous, *nor are conditions so harsh that fruitful ventures must inevitably break down*" [140, p. 127, §22]. Finally, subjective conditions refer to the needs and interests of individuals. Rawls suggests that individuals ought to be mutually disinterested in

[31] Tanguay-Renaud is aware of this flaw. He states, "it does not necessarily follow that governments may ever justifiably commit immoralities in the process, and looks to a Walzer-like solution, see [11, p. 45].

[32] Some may also argue that these specific goods stretch the definition of public goods too far, see [144, p. 133].

[33] This condition is a particular focus of Rawls [140, p. 128, §22].

each other and that each have their own plans of life. The circumstances of justice obtain when these two kinds of subjective and objective conditions are met: "whenever mutually disinterested persons put forward conflicting claims to the division of social advantages under conditions of moderate scarcity" [140, p. 128, §22].

Throughout the formulation of the theory of justice, Rawls explicitly states that he takes for granted that the circumstances of justice have been met [140, p. 128, §22]. In short, his theory presumes *'normal'* conditions – an everyday normality. As Leif Wenar notes, Rawls supposes that the liberal society under discussion exists under reasonably favourable conditions; "that there are enough resources for it to be possible for everyone's basic needs to be met" [145]. In other words, that there is moderate scarcity of resources.

Implications for Justice

Despite the swift treatment the circumstances of justice receive by Rawls, they have crucial implications for the two principles of justice. Rawls's lexical ordering of justice works in tandem with the circumstances of justice. The lexical priority of the two principles is only activated once the circumstances of justice are in place. Without the circumstances of justice in place, Rawls's theory of justice would not come into operation: "there would be no occasion for the virtue of justice" [145]. Consider the following passage:

> The denial of equal liberty can be defended only if it is *necessary to raise the level of civilization so that in due course these freedoms can be enjoyed.* Thus in adopting a serial order we are in effect making a special assumption in the original position, namely, that the parties know that the conditions of their society, whatever they are, admit the *effective realization of the equal liberties.* The serial ordering of the two principles of justice eventually comes to be reasonable if the general conception is consistently followed. This lexical ranking is the long-run tendency of the general view. For the most part I shall assume that the requisite circumstances for the serial order obtain.[34]

[34]My emphasis, [140, p. 151, §26].

Rawls's account of the circumstances of justice is heavily influenced and guided by both Hume and H. L. A. Hart.[35] There are also traces of the same idea in Mill.[36] Hart, for example, discusses the 'minimum content of natural law' [147, p. 189-95]. We can understand this as referring to the bare minimum of things a legal system must possess in order for it to be viable – in order for it to function. In other words, the conditions it must meet and secure. This is very similar to the circumstances of justice that must be met and without which the principles of justice could not function. The similarity is not coincidental – Rawls is explicit that he draws on Hart's discussion here [140, p. 126, fn. 3, §22].

Hart locates human survival – "a wish to continue in existence" – as the condition which legal systems, at a bare minimum, must ensure [147, p. 191].[37] "Our concern

[35]Rawls [140, p. 126, fn. 3, §22] specifically points to the sections of these texts by Hume [146, bk. III, pt.II, sec.ii], and Hart [147, p. 189-95], as well as J. R. Lucas [148, p. 1-10] that have informed his argument.

[36]Mill has a different formulation of justice and liberty from Rawls. In short, liberty for Mill refers to limitation of power of governments over their citizens – rights and liberties are an important part of this; their violation is breach of governmental power [132, p. 8]. For Mill, there are two conditions that justify the suspension and/or violation of individual liberty: (i) society does not exist in a state that is capable of benefiting from liberty; and (ii) for the security of others [132, p. 19-20]. Mill's explanation of (i) is strikingly similar to Rawls's circumstances of justice. Like Rawls's, whose principles of justice fail to come into operation when the circumstances of justice are not met, for Mill "Liberty, as a principle, has no application to any state of things anterior to the time when mankind have become capable of being improved by free and equal discussion" [132, p. 19]. Next comes Mill's contentious passage concerning 'barbarians':

> Those who are still in a state to require being taken care of by others, must be protected against their own actions as well as against external injury. For the same reason, we may leave out of consideration those backward states of society in which the race itself may be considered as in its nonage. *The early difficulties in the way of spontaneous progress are so great, that there is seldom any choice of means for overcoming them*; and a ruler full of the spirit of improvement is warranted in the use of any expedients that will attain an end, perhaps otherwise unattainable. Despotism is a legitimate mode of government in dealing with barbarians, provided the end be their improvement, and the means justified by actually effecting that end [132, p. 19].

As with Rawls's assumption of normal conditions, Mill asserts that all the societies that he is concerned with have "long since" attained the conditions of (i). [132, p. 20]. Both however stress the conditionality of liberty on stable circumstances that allow for the virtues and benefits of liberty to be realised.

[37]Hart appeals to a teleological argument to stress that the end goal of mankind is survival, see [147, p. 189-92]. He states, "It is not merely that an overwhelming majority of men do wish to live,

is with social arrangements for continued existence, not with those of a suicide club" [147, p. 192]. In order to ensure this, basic human needs crucial for survival must be met: "unless certain physical, psychological, or economic conditions are satisfied... no system of laws or code of morals can be established" [147, p. 193-4]; "reflections on some very obvious generalisations – indeed truisms – concerning human nature and the world in which men live, show that as long as these hold good, there are certain rules of conduct which any social organisation must contain if it is to be viable" [147, p. 192-3]. Amongst these needs we can include, among others, food, clothes, and shelter [147, p. 196]. The realisation of these needs is crucial for functioning political and legal systems. As Hart states, they are required "in order to create a minimum form of confidence in the future behaviour of others, and to ensure the predictability necessary for cooperation" [147, p. 197].

It is not a stretch to locate these same minimum conditions as one of the objective conditions that make up Rawls's circumstances of justice. Rawls and Hart are both describing features that make political and legal systems, and justice, possible and without which justice and the rule of law cannot come into practice.[38]

Emergencies threaten the Circumstances of Justice

What's the relevance of all this to our topic – the justification of emergency exceptions? I argue that we can appeal to the circumstances of justice to explain why emergency exceptions, including the suspension of normal parliamentary and legal procedure, the restriction of liberties, and the unequal distribution of burdens to the worst off,

even at the cost of hideous misery, but that this is reflected in whole structures of our thought and language, in terms of which we describe the world and each other. We could not subtract the general wish to live and leave intact concepts like danger and safety, harm and benefit, need and function, disease and cure; for these are ways of simultaneously describing and appraising things by reference to the contribution they make to survival which is accepted as an aim [147, p. 192].

[38]The inclusion of basic needs as prior to the two principles of justice has been disputed – however, this criticism is directed towards basic needs envisioned as a as a prior principle to the two principles of justice rather than constitutive of the circumstances of justice, see [144, p. 133]; for an account that supports the necessity of basic needs, see [149].

may sometimes be justified. My argument is based on the idea that emergencies pose a threat to these circumstances – to the features that make justice and normal political/legal systems possible. Elsewhere I introduced the notion of critical systems.[39] We can understand these critical systems along the lines of the circumstances of justice. It is these systems that are necessary for the functioning of society, that enable cooperation, and which provide a setting and conditions in which justice can be realised. Justification lies in the attempt of emergency responses to secure these circumstances; to secure the conditions we need in order to effectively realise the principles of justice and a functioning, viable legal and political system.

Above, we saw several features that make up the circumstances of justice. Among them were moderate scarcity of resources and the fulfilment of basic human needs, including sufficient food, shelter, and clothing. Note, the moderate availability of these need-fulfilling items (food, shelter, and the like) can arguably also be grouped under the header of moderate scarcity or resources. Emergencies threaten these. With it, they threaten to undermine human cooperation. They threaten the survival of individuals; and, in virtue of the threat they pose to the circumstances of justice, they threaten the survival of our societies and their functioning political, legal, and liberal systems.

Tom Sorell emphasises the disruptions emergencies cause to cooperation, normal conventions, and operations of society. He argues that in times of emergencies, individuals may cope by acting in selfish, duplicitous, and brutal ways [10]. He states,

> "when public disorder is widespread [following emergencies such as civil war] and lasts more than a few hours or a few days, there are big movements of people to places unable to feed, shelter or care medically for them... displaced people become stranded in a no man's land. Economic arrangements are disrupted... [people] find themselves pitted against one another in a competition for scarce food, water, or shelter"[10, p. 31-2]

There are endless examples of the destructive power of emergencies and their threat to the features that constitute the circumstances of justice. Hurricane Katrina (2005)

[39] See Chapter 1.

is a prime example. It has been described as "an extraordinarily powerful and deadly hurricane that carved a wide swath of catastrophic damage and inflicted large loss of life" [150].[40] In total, 1,833 people were killed and millions were left homeless across New Orleans and along the Gulf Coast of Louisiana, Mississippi, and Alabama [152]. The hurricane saw severe shortages of food, water, shelter, electricity, and access to medical support. The event led to masses of people breaking into stores and homes in order to procure food and water – action that is, in normal conditions, unacceptable, but that is, to quote Sandin and Wester, "indicative of a need to satisfy basic needs in times of crisis" [151, p. 296]. In response 72,000 troops were sent to assist with the allocation of these crucial resources – the highest level of troops that had been dispatched in response to a natural disaster in the U.S. to that date [153, p. 72], [151, p. 296].

War is another example of emergency that readily demonstrates this point. 100 days after Russia's invasion of Ukraine, at 3 June 2022, there had been "tens of thousands" killed, with 21,000 civilian deaths reported in Mariupol alone [154]. 6.2 million have fled the country since 24 February 2022 [155]. It has destroyed approximately 38,000 residential buildings, leaving an estimate of 220,000 people homeless; crucial infrastructure has been damaged, including the loss and damage to 500 hospitals, as well as 300 car and 50 rail bridges, and 1900 educational facilities [155]. Ukraine's GDP has decreased by 35%, with direct losses exceeding $600 billion [155].

The destruction waged by emergencies is very real. The two examples above speak to their devastating capacity. They epitomise the degree of harm emergencies threaten to, and the havoc they can wreak on, the circumstances of justice; on the availability of resources and the security of basic human needs required for survival.

My argument is that it is this risk that emergencies pose to the circumstances of justice that would justify exceptional emergency responses – responses that would ordinarily, in normal circumstances, be unjustifiable. We might refer to these as

[40] Also see, [151, p. 295].

'*justifiable injustices*'. The aim of the emergency response is crucial here. In order for responses to qualify as justifiable, they *must* be dispatched with the aim of averting and/or reducing the harm threatened by a given emergency. Importantly, 'harm' here is understood as harm to the conditions that make up the circumstances of justice. The aim of emergency response, therefore, must be to stabilise and secure the circumstances; to avert and reduce the damage that a given emergency is threatening to inflict upon them.

At this point we can cue the interjection that I have radically misconceived the meaning of 'harm' in regards to the definition of emergency.[41] Recall the arguments regarding negative consequentialism and harm reduction. Although not explicitly stated at the time, the harm being discussed there – and indeed in most conversations about emergency – is primarily in regards to bodily injury.[42] Less immediately, it is in regards to injury to one's interests, including one's interests in facilities, infrastructure, economies, etc. It is talking about harm to people, to citizens of a country. It is not talking about harm to the necessary foundations of our liberal democratic societies – to the very foundations upon which justice and legal norms are built upon and require for their effective realisation. My formulation would seem to miss the mark. It is not an intuitive way to think about the kind of harm threatened by emergencies. Bodily injury is the much more natural go-to. What's more, my conception of emergency harm may not only seem counterintuitive, it may even seem callous. The idea that a government is responding to an emergency, not in order to save and help people, but in order to safeguard the circumstances of justice is cold and unfeeling. This idea is touched on in criticism by Kathleen Tierney *et. al.* that responses to Hurricane Katrina and emergency provision distribution were largely carried out in order to prevent looting and crime rather than to save lives – the idea being that the motivation of the

[41] Recall the definition: a situation that threatens great harm and requires urgent action in order for that harm to be avoided and/or reduced.

[42] This is a standard and typical definition of harm see [156].

emergency response was to prevent actions that break down the normal functioning of societies rather than saving lives [153], [151, p. 296].[43]

I do not deny that avoiding and reducing bodily harm, as well as harm to one's interests, are important goals of emergency response. It is of *crucial* importance. Rather, I think it is the case that this kind of harm is encompassed by harm to the circumstances of justice. The circumstances of justice demand first and foremost that the group of people to which justice is to be applied are living. It also, as we have seen, necessitates survival and the provision of basic human needs. These needs are crucial because, if they are not met, survival is compromised. And what compromises survival if not bodily harm and harm to one's crucial interests (aka. interest in survival; in continued existence)? To quote Hart, "it is latent in our identification of certain things as human *needs* which it is *good* to satisfy and of certain things done to or suffered *by* human beings as *harm* or *injury*.[44]

I concede, however, that it is not the reduction of harm *alone* that is the goal of emergency response. It is only a goal in so far as it reduces and averts harm to the circumstances of justice. This may sound alarming. However, recall the problems facing the negative consequentialist argument regarding harm minimisation as the justification of emergency exceptions. Harm alone (conceived, as we now know, predominantly as bodily harm as well as harm to one's interests) was not sufficient to justify emergency exceptions. This was because harm is not unique to emergencies – if we cannot undermine normal political and legal procedure, and civil liberties to reduce harm in non-emergency situations, there is no reason why it should then be justified in the emergency setting. Nor was the sheer scale of harm promised by emergencies

[43]Sandin and Wester argue that emergency exceptions are never justifiable in order to prevent looting and other unethical behaviour. However, I think my argument here outlines how we might reinterpret this situation: rather it is the breakdown of society that is doing the justificatory work – looting is merely an indicator that normal systems and cooperation are breaking or have been broken down, see [151, p. 291-301].

[44]Original emphasis, [147, p. 190].

sufficient – there are many other large scale harms taking place, such as malaria, that do not receive emergency exception; likewise, some emergencies that cause comparably less bodily harm, such as 9/11, nonetheless present extreme emergency cases and exceptions. What's more, not only do emergency responses stand to generate more harm than they reduce, but also if the reduction of harm in the shape of bodily injury was our goal, there seem to be better ways to achieve that goal that do not involve responding to emergencies, such as investing in a host of life-saving drugs.

The above arguments present a host of reasons why focus on harm reduction concerning bodily injury, and injury to one's interest alone, is problematic and insufficient when it comes to justifying emergency exceptions. Rather, it is the risk that emergencies pose to our society – the foundations of our political, legal, and justice systems – that is key. The goal is to protect the circumstances of justice, which, as we have seen, includes the reduction of bodily injury. On this approach, we can see why COVID-19 would warrant such a significant emergency status and emergency exceptions, while harms generated by other afflictions and circumstances, such as poverty, do not [157]. It is because COVID-19 posed a significant threat of harm, not only to citizens in terms of bodily injury, but also to the circumstances of justice – to the impact it would have on the moderate scarcity of resources, including healthcare and food supplies. The uncertainty surrounding the level and degree of risk of the virus and its knock-on effects bolstered its emergency status. Whereas, although malaria, global poverty, and other great causes of harm, lead to significant bodily injury and death, they do not, in their current forms, at the same time threaten the circumstances of justice. We know how to handle malaria (at its current level) within our pre-existing societal framework. It does not disrupt the functioning of our society or the realisation of liberties. The circumstances of justice do not promise or demand an ideal world with no suffering – recall that resources must likewise not be too abundant: "natural and other resources are not so abundant that schemes of

cooperation become superfluous" [140, p. 127].

Appeal to the threat emergencies pose to our society as justification for emergency exceptions is by no means novel. We can see it in Walzer when he suggests that emergencies threaten our "deepest values and collective survival".[45] We can see it in Daniel Statman, who argues that self-defence justifies such exceptions.[46] We can see it in given justifications for wars where those in conflict share fundamentally different political views: "in wars against enemies with anti-egalitarian ideologies, political leaders can justify domestic sacrifices by asserting that the war is one to advance American values, including racial equality" [99, p. 278].[47]

What is novel is the way I seek to explain it and the brunt of the work I consider it to be doing. The kinds of accounts provided by Walzer, Stateman, et. al., fail, as I see it, to provide a satisfactory reason why, even given the risk posed to society, this would justify the restrictions of civil liberties, the unequal, detrimental distribution of resources, and other emergency exceptions. What does provide a satisfactory account, I argue, is appeal to the circumstances of justice, specifically, and the threat emergencies pose to them.

Recall that the circumstances of justice are necessary for the principles of justice to come into effect. One of the implications, consequently, is that action that would ordinarily violate the mandates of the two principles – equal liberty, equal opportunity, and just distribution of burdens – would seem permissible if the circumstances have not been met – without the circumstances of justice in place equal liberties would not be able to be effectively realised. If the goal of emergency responses is to secure these circumstances and enable the realisation of justice, then those exceptions are justifiable

[45]Walzer is discussing 'supreme emergencies' which he defines as those that threaten those values and our survival. For now, leave aside the differences between general emergencies and what he defines as supreme ones, see [80, p. 6].

[46]Statman's examples pertain exclusively to wars, in situations where it is "us or them", see [133, p. 79].

[47]Also see, [109].

even if they violate content expressed in the principles of liberty. This point is explicitly made by Rawls: "the denial of equal liberty can be defended only if it is *necessary to raise the level of civilization so that in due course these freedoms can be enjoyed*".[48]

Interestingly, Rawls's point here is exceedingly close to the utilitarian idea that the ends justify the means. It is interesting that both Rawls and Mill share similar views on the circumstances of justice and the circumstances in which liberties can be compromised. Mill likewise thinks that liberties can be suspended or violated if society does not exist in a state that is capable of benefiting from liberty [132, p. 19-20]. The idea is, essentially, that in order to arrive at a *'just destination'* – a situation where the circumstances of justice have been met, and the principles of justice can therefore be realised and enjoyed – we may have to resort to what would ordinarily be seen as unjust measures to get there. In a case like this, emergency exceptions would be not only justifiable but also necessary and even desirable to bring the circumstances about; to aid us in being able to get to a state where we can secure and enjoy liberty.

Consider the reverse: if no exceptions were justifiable, and if we were to attempt to secure the circumstances of justice via means that perfectly aligned with the principles of justice. It may be that such a route is perfectly possible. If that is the case, it is most fortuitous. However, if a solution that both adheres to the principles of justice and successfully secures the circumstances of justice is not possible, blindly adhering to action that is justifiable according to the principles of justice may present a serious threat of compromising our societies and the long-term realisation of justice. Consider COVID-19. Suppose we took no measures to counteract the virus. The early stages of the UK's response is an unfortunate but illustrative example here. There were no restrictions on liberties at the beginning – no lockdowns, or border closures. The

[48]My emphasis, [140, p. 151, §26]; now, the critic might say that this part of Rawls's theory is undeveloped and too sparse. Consequently, any attempt to unpack it further may therefore compromise his original account and move away from the theory of justice as he argues it, see Gardiner for such an argument in regards to a related matter [144]. However, Rawls's treatment of this issue, while swift, is clear.

effect was disastrous and resulted in the loss of thousands of lives [158]. Indeed, the UK COVID-19 Inquiry has recently "proven that many, if not most, of over 230 000 deaths were preventable" [66]. This response has since been labelled as one of the UK's "worst public health failures" [158], and "a story of complete government breakdown" [66]. Importantly, one of the consequences of the UK's slow initial response is the imposition of harsher limitations of civil liberty later on, with more extensive and strict lockdowns, than elsewhere in the world, such as New Zealand.

Without resorting to measures that would ordinarily be unjustifiable when we need to in emergency situations, we run the risk of escalating damage to the circumstances of justice. Basic human needs and the requisite conditions for the circumstances justice are often already taken care of in our societies – as with Rawls, they are assumed and taken for granted, just as 'normal' or 'ordinary' conditions are likewise assumed. Emergencies disrupt this. When this happens, we may, if our goal is to secure the circumstances of justice, be allowed to take measures to protect those circumstances that we wouldn't ordinarily be justified in doing.

There are, of course, limitations. The goal of securing the circumstances of justice surely cannot justify every and any response. The Chimú civilization practiced child sacrifice in response to catastrophic weather – weather events we might equate with hurricanes and floods, and which we often categorize as emergencies. Archaeologists have found the remains of 140 children and over 200 animals dating from the 1400s which are thought to have been sacrificed in response to devastating weather [159]. We cannot say that this exceptional response, which is a clear violation of morality and contemporary liberties – even if it is not contradictory to the laws of the time and civilisation – are justified. But why not? In this case, it seems like causation will get us off the hook. We can say that such a response is not justified because we now know that there is no causal relation between the emergency and the solution in the Chimú case. It must be, then, that a given emergency response must have a

reasonable chance of succeeding. Though this argument is difficult, too, given the high degree of uncertainty not only surrounding the threat of harm in an emergency situation but also regarding whether or not a given approach will succeed in averting or reducing that threat of harm.

What about the killing of innocent civilians? What about killing the whole population so long as it meant also killing the enemy? Where do we draw the line? The difference between these two cases at least seems to lie somewhere between effectiveness, cost/benefit analysis and deep-seated moral 'unthinkables'. I don't have the specific answer – but this seems about right. I can issue my apologies for the harsh criticisms I levelled against Walzer's circular appeal between absolutism and utilitarianism. It is true that the argument is problematic. But it can be forgiven given the complexity and the level of difficulty involved in deciphering what exactly is going on and doing the brunt of the justificatory work. I cannot hope to arrive at a conclusion in this paper on this front.

I have argued that it is the threat that emergencies pose to the circumstances of justice that can justify exceptional emergency responses, given that those responses seek to reduce and or avert that threat of harm. Let us turn now to some possible counterarguments:

#1: Emergencies don't really threaten the circumstances of justice

How much of a threat are emergencies to our societies and the circumstances of justice, really? It might be argued that emergencies do not come close to destabilising our society in a way that would impede human cooperation and disrupt the realisation of liberty along with the viability of our political/legal systems. To think that any one of these emergencies could unravel our society is a stretch of the imagination.

This position is reinforced by the benefit of hindsight. Recall the criticism that (i)

emergency threats are often deemed to have been exaggerated, and (ii) that responses, in light of that exaggeration, are often deemed excessive. Recall Justice Brennan's observation: "after each perceived security crisis has ended, the United States has remorsefully realized that the abrogation of civil liberties was unnecessary" [116, p. 11].[49] Recall Cole's similar point: "there is reason to think that as a general matter in times of crisis, we will overestimate our security needs and discount the value of liberty" [117, p.955].[50]

Furthermore, even if we were to concede that some emergencies *might* be able to threaten the circumstances of justice, this would only be the smallest handful of rarely occurring emergencies: not all emergencies, just 'supreme emergencies' that, by definition, "[exist] when our deepest values and our collective survival are in imminent danger" [80, p. 33]. Walzer sees these, presumably, as distinct, and more severe than standard emergencies. He offers the British government's bombing of civilian Germany in 1940-1 as an example – a situation where, given the threat the Nazi regime posed to British ways of life and values, and given the lack of alternatives, the British government had no choice but to engage in extraordinary responses. So, while it might be admitted that at least some 'supreme' emergencies threaten to genuinely undermine the circumstances of justice, many of the emergencies I have been discussing and gesturing to, such as Hurricane Katrina, do not. Any exceptional emergency responses to these 'lesser' emergencies would not be justifiable, therefore, on account of securing the circumstances of justice.

First, we need to make an important clarification: not all emergencies require exceptional emergency responses. There are certain smaller scale emergencies that not only do not pose a threat to the circumstances of justice, but that also do not require any exceptional emergency responses or restrictions of liberties to reduce

[49] see also, [99, p. 95].
[50] Also see [99, p. 95].

and avert the threat of harm from that emergency. For example, a small-medium scale wildfire may not require an exceptional response – fires (at least on a certain scale, the Australian 2020 bushfires excluded) are, on the whole, a type of emergency that we are already prepared to deal with (fire services, etc). So it is true that not all emergencies stand to threaten the circumstances of justice. But *some* do. The intention of this paper is to discover what would justify emergency exceptions in cases that *do* threaten the circumstances of justice.

While the supreme emergencies referred to above undoubtedly stand to threaten the circumstances of justice, it has been my position throughout that lesser ones, on the scale of Hurricane Katrina and COVID-19, can also pose a valid threat. This is true both in terms of the direct effects of a given emergency, as well as the indirect knock-on effects they generate. I have demonstrated the pressures they place upon resources, often changing their status from moderate scarcity to scarcity; I have demonstrated the threat they pose to survival, and the threat they pose to the procurement of basic human needs. Were they left unattended, it is my claim that the circumstances of justice would be drastically damaged and human cooperation in such circumstances – cooperation necessary for a theory of justice – would be compromised. In such a state, equal liberty would not be capable of being realised.

#2: Preventative emergency responses are not justifiable

An opponent, at this point, might cede alongside Rawls, Mill, Hart, and Hume (what good company they would be in!) that certain conditions and circumstances of justice are necessary for the realisation of liberty and political/legal systems. But they might argue that emergencies only *threaten* these conditions. They don't eradicate them. As long as the conditions are still intact, liberties cannot be undermined, for the realisation of liberty and the viability of our political and legal systems have not as yet been undermined. Appeal to the 'protection' and 'security' of the

circumstances of justice in order to justify emergency exceptions is not, therefore, valid.

First, that argument is not entirely accurate. Some emergency responses take place following a harmful event – hurricane response, etc – when resources are already compromised. It may be argued that resources can simply be taken and redirected from elsewhere; however I am doubtful that it is that simple. What's more, emergency exceptions may be required in order to put that measure into operation.

Second, it is my argument that emergency exceptions can be preventative to ensure that the circumstances of justice continue to be realised. Risk and uncertainty are important here. These features do not just lend themselves to the excuse of emergency responses, they can also underpin the justification of those responses. If it is thought that an emergency poses a valid risk or threat to the circumstances of justice, this is a good reason to act on that. Richard Posner stresses the dangers of underestimation of the threats of emergencies. He states, "it is because officials have repeatedly and disastrously underestimated these dangers that our history is as violent as it is" [115, p. 4-5].[51] Posner gives the underestimation of Soviet espionage in the 1940s which accelerated the Soviet Union's acquisition of nuclear weapons, and the 1979 Iranian revolution and the taking of American diplomats as hostages as two examples.

#3: The Loaded Weapon Argument

How do we discern when something meets the right conditions to warrant justified emergency exceptions? If it is merely that we think the circumstances of justice stand to be threatened, some governments may find any excuse to make this argument in order to implement emergency exceptions for their own gain. To borrow the words of Justice Robert Jackson, the justification I have sought to provide here may "[lie] about like a loaded weapon ready for the hand of any authority that can bring forward

[51] Also see [99, p. 275].

a plausible claim for urgent need".[52] One need only proclaim that an emergency situation will threaten our resources, survival, and cooperation. This speaks to concerns about authoritarian rule persisting.

This is a difficult challenge for the justification of emergency exceptions. The question of how we distinguish between the two is a difficult one, and not one that I can hope to succeed in answering here. Despite that, and as flippant as it may sound, we can say that there are some emergencies that genuinely threaten the circumstances of justice and whose exceptional responses are therefore justifiable, just as we can clearly see, at the other extreme, that there are some that are not.

Before wrapping up, I wish to briefly stress several points. **One**: emergency exceptions should only be employed, and are only justifiable *when absolutely necessary*. **Two**: the protection of the circumstances of justice does not license any and every kind of exceptional response: there is good reason to think there are some lines we can't cross – though I have not provided good arguments to this effect. Risk and uncertainty make this difficult, but even if those measures were later found to be unjustified and excessive, they can perhaps still be excused. **Three**: emergency exceptions should only be implemented for a short a time as necessary. **Four**: If possible, reparations should be made for damage done to the impairment of liberties during the lifespan of a particular emergency exceptions [99].

Finally, I end with a comment on where my argument falls in the constitutional v. extraconstitutional/ethical v. 'extraethical' debate. The position I have advocated is, perplexingly, almost both. It precedes our normal arrangements. The fact that emergency exceptions are elicited in order to protect and secure the circumstances of justice and the minimum content of natural law may explain why emergency exceptions at once seen distinct from normal legal, political, and ethical systems –

[52] Justice Robert Jackson, quoted in [99, p. 305].

extraconstitutional. But rather than trying to explain them within the parameters of existing legal systems and ethical principles, or as completely distinct, we can, on my approach, envision them, almost, as preconditions – as foundational. They are different and distinct from everyday, 'normal' systems and processes, though they make those possible. It explains why, once the circumstances have been met, exceptions must cease – once they have been met, the principles of justice and legal norms can once again be realised.

Conclusion

I have argued that exceptional emergency responses – ones that undercut parliamentary and legal procedures, as well as civil liberties – are capable of being intuitively called for, excusable, justifiable, and, at times, necessary and even desirable. Rawls, in assuming the circumstances of justice, assumes a non-emergency state of existence. But, emergencies present extraordinary circumstances – they threaten the normal conditions and everyday normality our liberal, democratic societies usually enjoy. They threaten and bring about harsh conditions that break down ordinary structures and services of society. They can be terribly disruptive. Terribly devastating.

Some have attempted to justify extraordinary emergency responses and exceptions by appealing to harm reduction, or the role of government. I have demonstrated that those approaches, alone, lend insufficient justification. Rather, I have argued, by appeal to Rawls and Hart, that emergency exceptions may be justified when the circumstances of justice are under threat, and those same emergency exceptions seek to avert and or reduce harm to those circumstances that make justice and our political and legal systems possible.

Part II

THE CLIMATE EMERGENCY: THE CONCEPTUAL CHALLENGE

3

The Conceptual Challenge: Is Climate Change a Genuine Emergency?

'Biden's Manufactured Climate Emergency' was the title of an article published in the conservative news outlet, the *National Review*, on 22 July 2022. In the article, the authors state:

> There is no climate emergency. The Biden administration knows this, which is why the president has — so far — declined to declare a state of emergency regarding climate change. But he is under pressure to do so... [160].

The authors do not deny the existence of human-induced climate change. Rather, they dispute its *emergency status*. First, they argue that climate change does not meet the definition of 'emergency'; not in the standard sense, nor in the legal sense required for emergency declarations. They stress that emergencies are usually unexpected, but that climate change is not: 'even if the worst climate-change scenarios are what's in store for us', climate change is a 'long-expected development... not a sneak attack or a sudden epidemic' [160].

Second, they profess concern about such a declaration being solely used – being

manufactured – to achieve a political agenda: that it was going to be made for the purpose of realising the climate political goals that the Biden administration had so far not been able to pass through Congress.

Are they correct – is there really no emergency?

From an activist, and lay perspective, such a question must border obscene. The seriousness of climate change is indisputable. It will cause — *has* caused — tremendous harm. Numerous authoritative bodies have outlined this harm, and many have issued emergency warnings.[1] Among them, the UN's Secretary-General, António Guterres, who pronounced in April 2022 that, 'this is a climate emergency' [161]. From a policy point of view, the question must seem passé. 'Climate emergency', together with 'climate crisis', have long since become the dominant terms used to denote climate change. The 'boom' of climate emergency declarations peaked in 2019. To date, 2,339 jurisdictions across 40 countries, including 18 national governments, as well as the European Union, have declared a climate emergency [162]. The world has since moved on from declarations. Focus is now on net zero: the development of credible policy plans and pathways for limiting warming to 1.5°C by 2050.

In this light, the question of whether climate change is an emergency seems (i) already answered in the affirmative, evidenced by the numerous pronouncements by authoritative bodies, and supported by extensive scientific research; and (ii) irrelevant, since it is already widely accepted, and arguments to the contrary at this point would have little impact or effect. The term has already entered the public vernacular; declarations have been made. The claims of the *National Review* piece seem little

[1]Most notably, the Intergovernmental Panel on Climate Change (IPCC), but also the UN, The UK's Climate Committee and NASA, among others References – From Corbett; UN Environment Program.

more than 'climate delayism': attempts to undermine and delay climate policy. This is concerning; delayism, after all, is the new climate denialism [163]. Tactics include undermining the urgency of the issue, as well as spreading fatalism, and exaggerating risks of climate policies [163], [164].[2]

However, there are, in fact, several reasons why, despite its popular usage and the many declarations, we might hesitate, or at least have cause to doubt, climate's emergency status. First, there is in fact a lack of clarity about what is even meant by 'climate emergency'. Alongside this confusion, there are three key reasons why we might have cause for doubt: (1) Our actions are not what you would expect of an emergency situation. While declarations of emergencies have been made, no emergency powers, which usually accompany such declarations, have been enacted. Indeed, there has been no action that would adequately and appropriately solve the climate issue at all. In the history of emergencies, this is highly unusual. The majority of proposed measures have, for the most part, consisted of continued commitments to tackling climate change via standard legal and policy frameworks. (2) As a result, there is concern that the dubbing of the situation as a 'climate emergency' is a purely rhetorical political manoeuvre. And (3) the situation seems to differ in significant ways from run-of-the-mill emergencies – what we can call 'paradigmatic cases'.

Why has our climate response been so different? Is it just that we are getting our responses wrong, or is it because climate change is not really an emergency, at least not in the same way or to the same extent as the terrorist attacks of 9/11, or COVID-19? While the issue is no doubt serious and urgent, it does seem to fundamentally differ from classic emergencies like fires, earthquakes and terrorist attacks; it doesn't seem urgent in the same way or to the same degree. Could the authors of the *National Review* be correct?

[2]In the words of the Director of the Environmental Solutions Initiative, 'delay is the new denial' [163].

This paper has one aim: to examine whether or not climate change constitutes a genuine emergency. I argue it does. Emphatically so. In particular, I argue against the interchangeable use of 'climate emergency' and 'climate crisis' – the two are distinct concepts. Climate change was a crisis. But it is now a genuine emergency, and has been since at least 2018.

This paper has five sections. § 3.1 starts by outlining the substantial confusion surrounding the meaning of 'climate emergency'. I identify three main candidates for the meaning: (i) the general phenomenon of climate change; (ii) extreme weather events; and (iii) abrupt and irreversible climate change.

§ 3.2 presents the three key reasons to question climate's emergency status. It is here that I introduce the common-sense definition of emergency – the 'emergency paradigm' – and outline that climate emergency just doesn't seem able to fit with this definition. Rather, climate change seems to be better understood as a crisis – this is the topic of § 3.3.

In § 3.4 I provide my defence of understanding climate change as an emergency. I argue that it is able to count both legally, and conceptually. I suggest that a lot of confusion over the classification of the climate emergency stems from a poor understanding of emergency itself. It is here that I introduce my revised account of emergency that I have developed elsewhere.[3] I define an emergency as a situation or event that is causing, or threatening to cause, great harm to critical systems, and that requires urgent action in order for that harm to be reduced or averted. I then demonstrate that climate change meets both of these necessary conditions. In particular, I argue

[3]See Chapter 1.

that it counts as, what I term, a 'threshold emergency' – a situation in which harm is already occurring, but in which a threshold point has been identified beyond which critical systems will be severely harmed. Urgent action is needed in order to avert that harm.

I conclude in § 3.5 by returning to the objection that climate change seems to fit better with the concept of a crisis than an emergency. I demonstrate how to overcome this objection, and argue that climate change is not a crisis, not any more.

3.1 'Climate Emergency'?

Let us first get clear on what is meant by 'climate emergency'. Below, I introduce a quick definition (subsection 3.1.1), outline the uptake of the term (subsection 3.1.2), and close the section by noting the substantial confusion around its meaning and use (subsection 3.1.3).

3.1.1 Word of the Year

'Climate emergency' arrived in 2019 with a bang. So popular was its usage, that the expression was crowned 2019's word of the year by the Oxford English Dictionary (OED) [165], [166]. The choice marked the term's rapid-fire move from 'relative obscurity' in 2018, to becoming one of 'the most prominent – and prominently debated – terms of 2019', with analysis revealing a 100-fold increase in usage [165] [166].

The OED defined the term as, 'a situation in which urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it' [165].

3.1.2 A Wave of Declarations

Alongside the 100-fold increase in usage, 2019 also saw a boom of climate emergency declarations, with major declarations being made by national, sub-national, and municipal jurisdictions, including the UK, Canada; as well Scotland, Wales, South Australia; and Toronto, London, and Sydney [34]. To date, 2,339 jurisdictions across 40 countries, including 18 national governments, as well as the European Union, have declared a climate emergency [162]. Major news outlets also started deliberately shifting the way they discussed climate change, opting for 'climate emergency' over 'climate change' – a move initiated by *The Guardian* in May 2019 [30].

3.1.3 A Confused Concept

The idea of a climate emergency is simple. However, despite the frequency with which the term is used, there is uncertainty as to what the emergency *actually* refers to. Meaning, it is unclear what the relevant emergency 'situation' or 'event' is. Joshua Horton stresses this point. He states,

> Put simply, climate scientists have no agreed definition of what would constitute a climate emergency, and are nowhere near close to reaching consensus on the issue [20, p. 148].

Horton was writing in 2015, before the wave of declarations. However, the lack of clarity has been continuously expressed in the wake of those declarations. For instance, *BBC News*, commenting on declarations across the UK, observed that, 'there is no single definition of what that [climate emergency] means' [167]. In her examination of national declarations, Jocelyn Stacey likewise notes a lack of consistency, precision, and clarity of meaning – it is, in a word, 'ill-defined' [34, p. 303].

It is possible to clock at least six separate meanings of the term across the literature, public discourse, policy, and importantly, in governmental and legislative declarations

themselves. Different sources refer to different meanings, and often blur the lines between each, or reference numerous accounts. Contenders for the meaning include: (i) the general phenomenon of climate change; (ii) extreme weather events; (iii) abrupt and irreversible climate change; (iv) the destruction of vital ecosystems and the environment; (v) species extinction and biodiversity loss; and (vi) broad systemic issues, including racism and colonialism.

As I show below, the last three are easy to dismiss, whereas the first three appear to be legitimate candidates for the meaning:

Eliminating Three Meanings: iv-vi

It is a fairly easy task to rule out (iv), (v), and (vi). All three meanings have been linked and integrated into the definition and understanding of climate emergency in the declarations of several jurisdictions. Examples can be found in the declarations of South Australia [34, p. 303], [168], Aotearoa/New Zealand [34], the UK Parliament [169], the Northern Ireland Legislative Assembly [34], the City of Melbourne [34, p. 305], the city of Sydney [34], Canada [34], as well as the Canadian Territory of Yukon [34, p. 305].[4]

These issues are no doubt of great importance; however, there is good reason not to include them in the meaning of climate emergency. Ecosystem and environmental destruction, species extinction and biodiversity loss, and deep-seated issues like racism and colonialism are more accurately understood as consequences, contributing factors, and pre-existing conditions that intersect with climate change, rather than the emergency situation itself.

Analogies make this point clear. Consider Hurricane Katrina. The emergency in this case was the hurricane itself, which posed a significant threat to New Orleans, necessitating an urgent response. However, racism was a pre-existing condition and contributing factor that resulted in African American communities being disproportion-

[4]Stacey provides an excellent analysis on these inclusions [34].

ately affected by the hurricane as a result of discriminatory policies and practices that concentrated them in areas of the city most vulnerable to storm damage [170]. Likewise, discriminatory governmental policies and conditions linked to past oppression affected fair access of these communities to emergency aid, and evacuation transport [170]. While these factors contributed to and exacerbated the harm caused by Hurricane Katrina, it would be inaccurate to include it in the definition of the emergency event.

Furthermore, while these may contribute to climate change, they are fundamentally separate problems that, themselves, have multiple underlying causes. Racism has roots in imperialism, colonialism, slavery, and ongoing discriminatory policies and attitudes. Likewise, environmental destruction has been going on for a *long time*.[5] Extensive deforestation began in Europe as early as 1000BC, well before the Industrial Revolution and human-induced climate change. Habitat destruction has also been noted as the main cause of mass species extinction [172].

And so, while iv-vi are important, and are of course related to climate change, they are not good candidates for explaining what the relevant climate emergency situation is, given that they are better understood as related, ancillary issues, that themselves have a range of causes.

Three Real Contenders: i-iii

The three options with substantive potential for the meaning of the emergency include (i) climate change in general, (ii) extreme weather events, and (iii) abrupt and irreversible climate change (iii). What do each of these mean, and where are they used? In turn:

i. The general phenomenon of climate change: Climate change, generally, refers to long-term shifts in global temperatures, weather patterns, and other aspects of the

[5]Environmental destruction dates back to the Palaeolithic age [171].

climate system, caused by human activities, primarily the burning of fossil fuels, but also via deforestation, agricultural processes, and more [173]. The term 'global warming' is often used interchangeably with 'climate change' to describe this phenomenon.

The majority of usage seems to refer to climate change in this general sense. The United Nations Environment Program (UNEP), for example, explains 'climate emergency' by providing a list of general facts about climate change, such as the fact that it is real, human-induced, and caused by increased levels of GHG emissions [174]. Recall the OED definition – it likewise seemed to pick out the emergency situation as the general phenomenon of climate change. Many jurisdictional declarations likewise adopt this general meaning [34].

ii. Extreme weather events: Extreme weather events include temperature extremes, both heatwaves and cold snaps; heavy precipitation and floods, especially flash flooding; droughts; extreme storms, including tropical cyclones, extreme winds, and connective storms (i.e., storms that exhibit other phenomena including tornadoes, hail, heavy precipitation, blizzards, and lightning) [175]. Weather events can also include compound events: events that occur simultaneously or successively, like droughts and heatwaves; or floods and landslides. And, they can include weather events that, when combined, generate extreme events. Wildfires are a good example of this, which often result from a combination of hot, dry, and windy events.

These events are increasingly familiar. One need look no further than the single month of July 2023 for examples. The month broke multiple records for the hottest ever recorded on Earth [176], and extreme events were reported across all seven continents [177]. These included heatwaves in Europe, the US, Uruguay, China, the Middle East, and North Africa; wildfires in Canada; and floods in India, Pakistan, China, South Korea, Japan, The Philippines, and the US [177].

Climate change increases the magnitude, frequency, duration, and intensity of these

extreme events [175]. As the IPCC notes, 'some recent extreme hot events would have had very little chance of occurring without human influence on the climate' [175]. The severity and frequency of these events to date are often unprecedented, and continue to threaten further unprecedented levels. Moreover, changing climate patterns mean that areas historically unaffected by a certain kind of weather event may begin to be exposed to different, new, and previously unencountered events [175]. The Pacific Northwest of the US, for example, has historically been mild, but has experienced increasing extreme heatwaves. These events strain existing infrastructure, agriculture, and communities that are not adapted to these events, leading to economic losses and losses of life.

Climate emergency is often used to refer to these acute events, which closely – or indeed, exactly – resemble classic emergency scenarios, like earthquakes, fires, and floods. Stacey's synthesis of declarations reveal this usage. Most declarations, as Stacey notes, 'tie the definition of the 'climate emergency' to known threats, conventional emergencies, and often recent experiences of record breaking extreme events' [34, p. 303]; 'narrow the framing of the global and all-encompassing phenomenon of climate change by focusing on specific local impacts'; and 'seem to track the new reality of repeated, frequent extreme events' [34, p. 304]. Individual events, such as the 2017 and 2018 wildfires in the US and Canada, and 2019-2020 Australian 'Black Summer' fires, are often cited as 'evidence of the climate emergency' in multiple emergency declarations, such as those made by the City of Sydney, the Australian Capital Territory (ACT), the City of Vancouver, and the Canadian Parliament [34, p. 303].[6] These events are often extrapolated to climate change more generally, which is seen to present the same kind of threat, but on a 'much grander scale' [34, p. 304].[7]

[6]For further details and specific examples and references, see [34], also [178].

[7]Examples of this can be seen in the declarations made in Yukon, Canada, South Australia, and Aotearoa/New Zealand, see [34].

iii. Abrupt and irreversible climate change: Small changes can trigger large ones [179]. These small changes may act as *'tipping points'*, meaning, once a certain threshold is passed, these changes may cause abrupt and irreversible shifts in climatic and environmental conditions.[8] Abrupt, in the sense that, these changes may occur rapidly; irreversible, in that, once these changes occur it is difficult or even impossible to reverse them, even if emissions levels were to drop rapidly. Tipping points include cryosphere (ice) collapse (of arctic sea ice, the Greenland ice sheet, the West and East Antarctic ice sheets); and biosphere collapse (of the Amazon rainforest, of boreal forest, of coral reefs) [96]. Abrupt and irreversible change would lock-in extreme warming, extreme weather events, rising sea levels, and more, and would pose permanent threats to human life and civilisation.

It is this risk of abrupt and irreversible change that some identify as the climate emergency. Experts Timothy Lenton et. al., state, 'in our view, the clearest emergency would be if we were approaching a global cascade of tipping points that led to a new, less habitable, 'hothouse' climate state' [96].[9] This understanding of the climate emergency is also featured in jurisdictional declarations, such as the emergency declaration of the Quebec Municipality (Canada), which specifically defines the threat as 'abrupt and irreversible climate change'.[10]

In sum, while 'climate emergency' appears to be a fairly simple and intuitive concept, it specific meaning is, in fact, a confused mix and match of the above categories. It is at times narrow and acute, and at others, broad and systemic. Different meanings are often meant synonymously, or are used simultaneously. This presents us with a challenge: it is exceedingly hard to affirm that climate change is a genuine emergency when it's unclear what the emergency is even referring to in the first place. It also

[8] For a more technical definition, see [180], [181], and [182].

[9] Sillmann et. al. likewise refer to tipping points as examples of 'potential climate emergencies' [19].

[10] Quoted in Stacey, see [34, p. 303].

leaves the door open for misinterpretation, and misunderstanding.

3.2 Doubting the Emergency: A Critical Evaluation

In addition to the lack of clarity and vagueness about what climate emergency refers to, there are additional reasons to question its emergency status: we're not acting as if it were an emergency (subsection 3.2.1); there is concern that the label is merely a rhetorical, political tool (subsection 3.2.2); and – most problematically – climate change doesn't seem to fit the emergency paradigm.

3.2.1 We're Not Acting Like It

If climate change were a real emergency, you might think, surely, we would be responding to it as such. If there's a fire, you put it out; if there's an approaching tsunami, you evacuate – or you at least try to. Our response to climate change is different.[11] (1) we have seen no emergency action; and (2) there has been no invocation of emergency powers. Rather, (3) climate emergency declarations simply seem to express continued commitments to action, and uphold the status quo. In the context of emergencies, this response is highly unusual. I explore each point in turn:

1. No Emergency Action

Four years have passed since 2019, when the first declarations were being made.[12] In that same time period, the whole of World War One took place, from start to finish. And yet, we have barely made progress. Despite emergency declarations, there

[11] Barry Gills and Jamie Morgan stress this same point: 'although we are living in the time of Global Climate Emergency we are not yet acting as if we are in an imminent crisis', see [183, p. 885].

[12] The UK became the first country to declare a climate emergency in 2019 [184], however the very first declaration by a local government was made in 2016 in Darebin, Australia [185].

has been nowhere near the degree or scale of action that we need in order to limit warming to 1.5°C – *or even 2°C* – so as to avoid dangerous levels of change and avoid irreversible climate damage [186]. At the 2023 G20 negotiations, Virginijus Sinkevičius, the EU environment commissioner, confessed, 'we simply are nowhere' [187]. This was in reference to leading economies' efforts to address climate change. Between them, the G20 nations are responsible for approximately 80% of global emissions [187].

By a lot of measures, things have gotten worse.[13] Global Carbon Dioxide (CO_2) emissions have increased by 600 million metric tonnes (Mt) since 2019 [188]. To put that in relatable terms, that increase equates to the emissions from roughly 430 billion one-way long-haul flights between Sydney and London.[14] Policy targets have been backtracked and missed.[15] And, according to the World Meteorological Organization (WMO) there is a 66% chance global average temperatures will breach 1.5°C for the first time within the next five years [194], [195].

This response lies in stark contrast to our response to COVID-19 – an indisputable global public health emergency. Governments across the world rapidly implemented extraordinary measures, including nation-wide lockdowns, border closures, enforced business closures, work-from-home orders, purchase restrictions, travel restrictions, enforced mask wearing, and physical distancing, and in some instances, mandatory vaccinations. These measures were brought in and changed swiftly – in some cases, overnight.

COVID-19 is but one example. Further examples can be found in responses taken

[13]This is not to say that there has been no progress at all. For example renewable energy has increased. But, there has been nowhere near enough to properly address and mitigate the situation.

[14]This figure is calculated *per plane*, not per person.

[15]The UK is a prime example, see [189], [190], [191], and [192]. As Camilla Cavendish writes, 'parts of the right are mobilising to slow down the path to net zero, as inflation bites and the fossil fuel industry comes under pressure. In the US, Ron DeSantis has rejected "the politicisation of the weather" — despite having had to grapple with the effects of its extremes in Florida — and House Republicans are lobbying to overturn a tax on methane pollution within the Inflation Reduction Act. In Britain, Conservatives who fear annihilation at the next election have decided to use green policies as a wedge against Labour. Even Canada's premier, Justin Trudeau, is struggling to deliver what was a radical plan on decarbonisation' [193].

to 9/11 [196], to both World Wars, to the 2008 Financial Crisis [197], [198] and to the Turkey-Syria Earthquake [199] in February of this year, to name a few.

2. No Emergency Powers

It is not just that our response to climate change has been slower than COVID-19's, or that action has been lacking. The nature of the declarations have also been fundamentally different.

Emergency declarations are typically formal governmental announcements that grant the government special powers, resources, and capacity, to take extraordinary measures to address the situation and protect national interest.[16] These powers commonly include increased control over resource allocation, travel, telecommunication, border security, military deployment, and regulatory flexibility. The process for enacting these powers may differ from nation to nation – some countries may have to refer to conditions outlined in its constitution,[17] whereas others may resort to special legislation or executive orders.[18]

While declarations of climate emergencies have been made, no emergency powers have been enacted. Stacey's analysis of climate emergency declarations in Canada, the UK, Australia, and Aotearoa/New Zealand emphasises this point. Stacey describes these declarations as lacking emergency 'substance' [34, p. 302, 312]. She explains,

> Unlike a conventional declared state of emergency, climate declarations are not orders made by the executive under pre-existing emergency management legislation. Rather, they are statements made predominantly by legislative bodies (Parliaments, legislatures, and municipal councils), sometimes accompanied by legislative reform and at other times not. Further, these declarations do not authorize the use of measures typically associated with emergency response, such as evacuation or appropriation [34, p. 295-6].

[16] For example, see US The National Emergencies Act [41].

[17] See Part XVII of the India's Constitution [200], as well as Article 16 of the French Constitution France (Article 16)[201].

[18] Such as the US National Emergencies Act of 1976 [41], and the UK's Emergency Powers Act of 1964 [202].

In other words, climate declarations seem to be fundamentally different in nature and category from typical governmental declarations of emergency. In this history of emergencies, this is highly unusual.[19]

A resolution brought before the US Senate by Bernie Sanders, Elizabeth Warren, and Kamala Harris, among others, in 2019 perfectly illustrates the unusual nature of climate emergency declarations being made, despite the fact that it did not pass.[20] The resolution sought for Congress to recognise the climate emergency, however, it also specifically outlined that no emergency powers would be activated as a result:

> Nothing in this concurrent resolution constitutes a declaration of a national emergency for purposes of any Act of Congress authorizing the exercise, during the period of a national emergency or other type of declared emergency, of any special or extraordinary power [203].

3. Continuation of the Status Quo

Rather than calls for emergency powers and action, climate declarations have largely resulted in continued commitments to goals and agendas already in place, and which seek to tackle the issue via established legal channels, and 'routine governance practices'.[21] Stacey's observations are again, insightful here:

> From a strictly causal perspective, it is thus difficult to discern what, if any, difference the declaration of climate emergency has made to a 'business as usual', which, in some jurisdictions, already contemplated considerable emissions reductions [34, p. 312].

Scotland is cited as one particular example, where the declaration of emergency merely made commitments to important developments that were already underway, such as the Just Transition Commission and the Climate Change Bill amendments [34, p. 312]. Concerns were also raised in the Welsh Parliament that a climate declaration would

[19]Indeed, there is scant evidence of emergencies that have been declared without at least some form of emergency measure and response being enacted. This author can find no examples.

[20]For further discussion of this example, see [18, p. 627], as well as [16, p. 226-7].

[21]This is not to say that nothing has happened. There have been some novel measures introduced and proposed, such as carbon budgets, as well as 'institutional invigoration', see [34, p. 316]; for more discussion of declarations reinforcing status quo politics, see [204].

be a mere 'rebranding of existing policies' [205], [34].

In sum, we are not acting in the way we usually do when confronted with national emergencies – not in our actions, not in our declarations, and certainly not in ways reminiscent of our responses to emergencies like COVID-19. This constitutes a reason to question whether climate change is in fact a genuine emergency.

An Objection: Action Doesn't Matter

The objection here, of course, is that the lack of response does not preclude climate change from being an emergency, nor does it provide definitive proof against its emergency status. A comet hurtling towards earth would still constitute an emergency, even if no one thought so, or did nothing about it. The film *Don't Look Up* – a satirical comment on climate change – made this clear. As I have argued elsewhere, emergencies can exist objectively, regardless of whether they are recognised and labelled as such, and regardless of whether they are appropriately responded to.[22] However, lack of action is certainly atypical. As such, it certainly gives us reason for pause, and motivates a deeper examination and scrutiny of climate's emergency status.

3.2.2 Emergency Rhetoric: A Calculated Tactic

A greater reason for hesitation is the thought that 'climate emergency' might merely be a rhetorical political framing.

Climate Emergency as a Framing Tool

In the context of public policy, 'framing' refers to the strategic shaping and presentation of issues in order to influence how they are perceived and understood by the public and policymakers [206, p. 185-6], [207]. Framing tactics have long been recognised as

[22] See Chapter 1

a way for certain groups to exploit attention, shape political agendas, and influence political decisions [208].[23]

'Emergency' is often discussed as a 'powerful' frame which has 'persuasive power' in its ability to imply that an event or situation is dangerous and immediate; rally resources; and amplify political pressure [15, p. 282]. And so, the thought here is that, rather than denoting a real emergency, 'climate emergency' is merely being used as a rhetorical tool to propel political agendas [209]; gain traction on climate activism, and progress [209]; make the issue seem urgent and in need of more attention [2, p. 8], [210]; and as a 'symbolic political gesture'.[24]

This view is widely held in the literature.[25] Lucy Holmes McHugh *et. al.*, for instance, argue that, 'the use of 'climate emergency' terminology is an explicit attempt to frame the climate change issue to affect collective action and policy', and is seen as a 'important tool for rapid social mobilization' [15].[26] Declarations have been accused of being merely 'symbolic resolutions' [16, p. 226], with 'powerful rhetorical value' [18, p. 626]. Charles Corbett, for example, described the Sanders 2019 Resolution to Senate as, 'a messaging statement', and 'a talking point for its sponsors on the campaign trail' [16, p. 226].[27]

These allegations are bolstered by three things:

1. The fact that, as we saw in the previous section, no emergency action has been taken;

2. The deliberate change of language by media outlets, which were accompanied by explicit statements that recognise rhetorical import. For instance, *The*

[23]For an example of the different ways an issue can be framed, see [207].

[24]This quote comes from a Facebook post by the National School Strikes 4 Climate on 24 May 2019, cited in [209].

[25]There are some, including Stacey, who do not share the view that declarations are pure rhetoric, see [34, p. 292].

[26]The position is echoed by several others, including Andrew Wilson and Ben Orlove [2, p. 8], and James Patterson *et. al.* [185, p. 842].

[27]For a discussion of this tactic as a political campaign manoeuvre see [16, p. 226-7] and [211].

Guardian's switch to 'climate emergency' was paired with the remark that, 'the phrase 'climate change', for example, sounds rather passive and gentle' [30]; and

3. The fact that 'climate emergency' has been used interchangeably with numerous other terms and frames. Greta Thunberg, for example, beseeched us to, 'call it what it is: climate breakdown, climate crisis, climate emergency' [30]. However, breakdowns, crises, and emergencies are not synonymous – a point I return to in subsection 3.2.3. The multiplicity and fluidity of terms invoked strongly supports the argument that 'emergency' is but one expression among many used in attempt to amplify the importance and awareness of the issue. Furthermore, the issue is also framed in a host of other ways beyond crisis, disaster, and emergency. Economic, security, energy, and health-related frames are common, and each carry different strategic potential [34, p. 292].

Another Objection: Rhetoric Doesn't Matter

The objection here is the same as the objection that action doesn't matter. That the use of the term as targeted, political rhetoric has no bearing on climate change's status as an emergency, nor does it provide definitive proof otherwise. However, in the words of another Alice, it does make the situation curiouser and curiouser. We do not usually respond to emergencies in this way; we don't usually have to convince people that a fire is an emergency, and that we need to evacuate. And so, while neither a lack of action, nor rhetorical use, undermine climate's emergency status, both do provide reasons for pause. They motivate taking a closer look.

3.2.3 Lack of Fit: Climate Change vs. The Emergency Paradigm

There remains one more reason to doubt that climate change counts as a genuine emergency. It is the strongest of the three. Climate change does not seem to fit the definition of emergency. This seems true, regardless of whether we interpret the emergency as the general phenomenon of climate change, extreme weather events, or abrupt and irreversible climate change. I first outline a common-sense understanding of emergency, I then demonstrate why climate change does not fit this understanding. Rather than emergency, climate change seems to more accurately fit with the definition of a crisis (§ 3.3).

The Emergency Paradigm

Emergency is commonly understood as a, '**serious**, **unexpected**, and often **dangerous situation** requiring **immediate action**' [12]. Words that typically come up in discussion of the term include risk of great harm or loss; unforeseen; unpredictable; acute; sudden; short-term; imminent; out of the ordinary; exceptional; extraordinary; abnormal; and the need for immediate, urgent, rapid, time-sensitive, decisive action, as a matter of necessity. I refer to this as the common-sense understanding of emergency.[28]

Pandemics, terrorist attacks, forest fires, earthquakes, and tsunamis all seem to fit with this understanding of emergency. Climate change does not. Concerns about whether the issue can meet the definition are not just found in conservative news outlets. They have also received academic treatment.[29] When examined against ordinary understandings of emergency, climate change seems to struggle to fit any of the definition's descriptors. This seems true regardless of whether we define the emergency as pertaining to (i) the general phenomenon of climate change; (ii) extreme

[28]I discuss this common-sense understanding of emergency, as well as the concept itself, and its shortcomings in Chapter 1.

[29]See, for example, Mark Nevitt's discussion on this point [18, p. 645-7].

weather events; or (iii) abrupt and irreversible climate change. Below I outline the problems of fit for each of the three potential meanings:

Climate Doesn't Fit

1. The general phenomenon of climate change: The general phenomenon of climate change was, recall, what is typically referred to by 'climate emergency'. There is no doubt that climate change has already caused great harm, and continues to pose a further risk of great harm [212]. This is important: the threat of great harm was one of the key indicators of an emergency. However, the mere presence of harm, or risk of harm, does not, in itself, mark something as an emergency. Harm occurs all the time, from illness, accidents, etc. Sometimes events that we don't classify as emergencies can even cause *more* harm. In 2020, there were over *10 million* cancer-related deaths [49], and yet, we do not take cancer to constitute an emergency.[30]. Rather, harm needs to be accompanied by other features that climate does not seem to possess:

Not sudden, immediate, or acute

While climate change is, without doubt, a serious and pressing issue, it is not sudden or acute. It is gradual and ongoing; it has developed over decades; and its consequences have been slowly increasing in intensity. While those consequences are severe and exhibit high risk, their lack of suddenness and immediacy make it difficult to categorise the phenomenon as an emergency [213]. Nor is climate change, or its effects, short-term. CO_2, the main GHG responsible for global warming, stays in the atmosphere for anywhere between 300-1000 years, the accumulation of which promises lasting, even irreversible change [214].

Not unforeseen, unexpected, or unpredictable

[30]For a more detail discussion on this point, see §1.2 and 1.3 of Chapter 1

Climate change is common knowledge. And, it is something we have known about for *decades*. The first UN Conference of the Parties (COP) was in 1995, almost 30 years ago. There have been 28 iterations so far. The potential damage of fossil-fuel use on the atmosphere was outlined as early as 1896 by Svante Arrhenius, with steady increases in CO_2 having been recorded since 1958 [215]. We are now 127 years on from that discovery. The issue was directly brought to the U.S. Senate's attention in 1988 by the Director of the NASA Goddard Institute for Space Studies, James Hansen: 'the greenhouse effect has been detected, and it is changing our climate now' [216]. It has since been a subject of ongoing global political discussion.[31] Climate change and its effects have also been the subject of extensive research. To date, there have been six comprehensive assessment reports from the Intergovernmental Panel on Climate Change (IPCC), outlining predicted change and impacts.[32]

Not urgent in the same way as typical emergencies

While we must urgently respond to and address climate change, the required response is not urgent and a matter of necessity in the same way as typical emergency action. Most emergencies we encounter have a short, and abrupt time frame in which we must act. If a wildfire, tsunami, or lava is hurtling towards my town, I must evacuate without delay. As recently as 10 November 2023 the Icelandic town of Grindavík was evacuated at midnight, over the course of two hours, due to seismic activity an indicating the extreme likelihood of a volcanic eruption [218] [219]. In such situations, every minute counts.

Can we say the same of climate change? The climate emergency is often likened to a time-bomb – 'the climate time-bomb is ticking' [220]. The metaphor is employed to emphasise the issue's urgency, time-sensitive nature, and the need for rapid action in order to 'defuse' it [220]. However, as mentioned above, the effects of climate

[31] Margaret Thatcher's speech to the UN General Assembly on climate change in 1989 is a prime example, see [217].

[32] For the latest iteration and climate projections and modelling, see [212].

are not immediate, sudden, or explosive, like a literal bomb. They are gradual, complex, and unfold over years and decades. The actions we take today, or even tomorrow, will have little bearing on whether we will be able to halt global warming. There is not a set time or deadline we are counting down towards, at which point climate impacts will be felt explosively. While we have collectively agreed to limit warming to 1.5-2°C above pre-industrial levels, these scientifically agreed upon targets are merely regarded as levels beyond which climate change will become increasingly dangerous and potentially irreversible.[33] If we pass these thresholds, it is not that the situation will instantaneously become catastrophic or hopeless. Indeed, if we do exceed – or 'overshoot' – those temperature guidelines, we will still have every reason to act to limit it further and reduce the atmospheric levels of CO_2 in order to 'bring global temperature back down' [222].

Furthermore, in a situation like an approaching tsunami, the failure to immediately respond and evacuate would have devastating consequences. However, politicians have consistently failed to take climate action over the past *four decades*. While this delay has caused harm, it has not wreaked the same level of catastrophic harm as would a failed evacuation in the midst of a volcanic eruption. Thus, rather than being a time-bomb with a strict deadline, it is just that the challenges and consequences, which are already being felt, will merely continue to intensify.

It requires a different kind of response

In addition to being urgently needed, emergency responses often involve quick decision-making, with limited time for discussion. These measures are usually brought in *quickly*; *temporarily*; and are often *unusual*. COVID-19 illustrates all of these features well: measures often needed to be brought in overnight or in the course of a few days, they were temporary, and unusual both in the sense that they were rushed

[33]There is debate about whether a 'safe level' or warming or threshold can even be established, see [221].

through via emergency powers bypassing ordinary democratic procedure, and in the sense that they enforced action atypical of our society (i.e. lockdowns, etc). Climate measures, however, take significant planning, consideration, and coordination – both domestically and internationally. They are not the kind of responses that can be introduced overnight, especially given their potential for economic, political, and social ramifications; nor is the issue one that can be immediately stopped. Indeed, stopping fossil fuel use overnight would in itself cause catastrophic harm, given that these fuels are still responsible for approximately 80% of the world's energy production [223].

Furthermore, climate change requires sustained, comprehensive, and long-term efforts, to both mitigate and adapt. The transition away from fossil fuels, the development of renewable energy sources, and the necessary changes in agriculture, lifestyle, transportation, land-use, infrastructure, and beyond, are not temporary measures. This point is reinforced by Stacey, who notes that measures like new building code regulations and carbon-pricing schemes have 'no clear end point' [34, p. 309]. Finally, these measures can be introduced via ordinary democratic procedure, without appeal to emergency power. This is evidenced by, for example, the manner in which Biden introduced the Inflation Reduction Act in 2022, by the distinctive lack of appeal to emergency powers to introduce climate policy, and by the commitment to pre-existing emissions reduction plans in the majority of climate declarations. This is all markedly different from typical emergency response.

No discernible emergency event

Climate change lacks a single discernible emergency event, or situation. The phenomenon has multiple causes, and multiple effects. These effects are global, impact different regions in different ways, and involve complex interactions between various natural systems, ecosystems, and societies. While we can group all of these changes under the banner of 'climate change', any one effect in itself can be difficult to wholly

attribute to climate change. For example, ocean temperature is changing because of climate change, but also fluctuates due to naturally occurring El Niño and La Niña events [224]. Likewise, individual extreme weather events are made more intense, likely, and frequent because of climate change, however, can also be caused and contributed to by other geophysical features. While the IPCC finds that human-related GHG emissions are 'virtually certain' (with 99–100% probability) to be the main driver of global temperature extremes, it is only 'likely' (66-100%) the main driver of increased precipitation and compound weather events, droughts, and tropical cyclones [175], [225]. It is therefore difficult to attribute that event solely to climate change.[34]

While climate change fails to meet almost all of the emergency definition criteria, we can say, however, that the unprecedented and rapid change in the Earth's climate since the Industrial Revolution is certainly abnormal and exceptional in the context of the Earth's natural climate variability over the past several thousand years. One might try to argue, however, that while abnormal in the context of Earth's climate record, climate change has become normalized over time due to its slow and incremental nature, and as such is not 'abnormal' in the context of the everyday. Indeed, changing climate patterns and its effects are often referred to as, 'the new normal' [228], [229], [230].

In sum: while climate change poses a significant risk of harm, and is a serious issue that we must respond to as quickly as possible, it lacks almost all of the defining features of a typical emergency. It is not sudden, acute, short-term, unforeseen, unexpected, unpredictable. Nor is it time-sensitive in the same way as paradigmatic emergencies. Our responses do not need to be urgent, rapid in the same way as standard emergency

[34]However, while it is difficult to discern the exact cause of a given extreme event, the field of climate attribution is steadily developing, and can, with increasing certainty, quantify the degree to which climate change alters the probability and magnitude of extreme events, see [175], [226], and [227].

responses, nor are those responses a matter of necessity in the same way. Responses are not temporary, and involve long-term, 'transformational' shifts, and the problem is complex, multifaceted, and gradual [231]. In the absence of these other defining features of emergency, it is hard to say that the phenomenon of climate change can really count as a genuine emergency.

2. Extreme weather events: Natural disasters are *the* standard for emergencies. As paradigmatic examples, they are cited in almost every discussion of emergency. It is hard to see, therefore, how extreme weather events, which have been described as natural disasters 'on steroids', could not count as genuine climate emergencies [232], [233], [234].

Extreme weather events certainly pose immediate threats, and can cause significant damage. However, while climate change exacerbates these events, it is complex to attribute any specific event solely to climate change. This was discussed above. Can we say, therefore, that these events *are* a climate emergency, or merely that climate *contributed* to various individual emergencies brought about by these natural disasters? Consider that these events are often declared emergencies in themselves, even though they are 'aggravated' by climate change. The Australian Black Summer fires is a case in point. It was declared an emergency in and of itself, not as a 'climate emergency', despite climate's role in its occurrence [235], [236], [237]. Moreover, it is only after the event – often well after the emergency has passed – that we are able to attribute and assess the role of climate change in causing the event [237]. The extrapolation of individual extreme weather emergencies to a broader state, national, or global climate emergency – a move made in multiple of the climate emergency declarations – thus seems problematic.

This point is likewise emphasised by Sillmann et. al.:

> The consequences of any single extreme event, such as Typhoon Haiyan, Hurricane Sandy, or the Russian heat wave of 2010, might be seen as an emergency on their own. But no single event, whether attributed to anthropogenic climate change or not, is a sufficient reason to declare a global climate emergency [19, p. 291].

And so, even though extreme weather events have already occurred, and may constitute emergencies in their own right, they alone do not seem to be able to qualify as, or constitute, a climate emergency.

3. Abrupt and irreversible climate change: What if we define climate emergency as 'abrupt and irreversible climate change' – would it count then? The crossing of a tipping point, whose passing would set in motion abrupt and irreversible change, has been referred to as, 'the more plausible 'emergency' scenario' [20, p. 148].[35] This understanding of the situation aligns more closely with the idea of an emergency due to the potential for sudden, acute, high-risk, unprecedented, harmful, and catastrophic shifts in the climate system. Moreover, while some tipping points have been identified, the exact moment of tipping is hard to accurately predict due to the highly complex and stochastic nature of environmental systems [19], [20]. So it seems we can check-off unexpectedness. Moreover, these abrupt changes would also be highly abnormal in the context of the Earth's natural climate variability and timescale of change.

As we can see, a lot of the typical hallmarks of emergency are present, suggesting that this would constitute a real emergency. However, there are several difficulties with this conclusion:

(i) First, not all tipping points are alike. While some tipping points are 'fast' (they happen quickly), such as an abrupt change in West African Monsoon, others are '*slow*'

[35]This is likewise noted by Sillmann *et. al.*, see [19].

(they happen slowly) [19, p. 292].[36] Examples of slow tipping points include the loss of ice sheets, as well as the Amazon Rainforest [238], [239], [240], [241]. The fact that different tipping points have different timescales of occurrence, or rates of change, means that it is inaccurate to categorise them all as sudden events.

(ii) Second, the 'abrupt' change that tipping points are likely to bring about is not abrupt in the typical sense. The term generally means unexpected and sudden. *Abrupt climate change*, however, is defined by the IPCC as a change in the climate system that,

> takes place over a few decades or less, persists (or is anticipated to persist) for at least a few decades and causes substantial impacts in human and/or natural systems [242].

Thus, not only is climate change a gradual, slow-moving process, but so is abrupt climate change. The key difference is that this 'abrupt' change takes place at a comparatively faster rate – over a few decades *or less*. As shown with the general phenomenon of climate change, this long process of change jars with the typical meaning of urgency and suddenness in the definition of emergency.

(iii) Third, while the exact point of tipping may be difficult to predict, tipping points continue to be the source of extensive research; specific tipping elements (i.e. The West Antarctic Ice Sheet) have been identified, and rates of change have been projected and modelled. It is hard to say, therefore, that they are unexpected. Nor can we say that they are short-term – they happen over long timescales, and promise permanent results.

(iv) Fourth, suppose we do confine our meaning of climate emergency exclusively to fast tipping points. Given that these have not yet occurred [as far as we know] we cannot yet say, therefore, that we are in the midst of a climate emergency. Not yet at least. Moreover, in the absence of a clear timeline or level of certainty of when these

[36] My emphasis.

tipping points will occur, it becomes challenging to mobilize immediate emergency responses or allocate resources effectively in order to prevent tipping.

Conversely, suppose we do wish to include slow tipping points in the meaning. Slow tipping points lag climate forcing – meaning, by the time tipping becomes evident, the element will have already lost its stability; it will have already tipped. Sillmann *et. al.* make the following comment: 'evidence suggests that the West Antarctic ice sheet has been tipped by oceanic warming during the past 20 years, yet no climate emergency has been declared thus far' [19, p.291], [243]. If we are to accept the climate emergency refers to abrupt and irreversible climate change, and the West Antarctic ice sheet – a significant tipping point – tipped 20 years ago, then we must accept that we have been in a state of emergency since at least 1995. If emergencies require immediate responses as a matter of necessity, how can it be that we have not yet responded? This conception of abrupt and irreversible change, while extremely important, likewise does not fit well with the definition of emergency.

Thus, while abrupt and irreversible climate change does, at first glance, align more closely with the idea of an emergency, it ultimately cuts against the emergency definition's emphasis on many fronts. It, too, does not fit.[37]

We are left with the unsettling conclusion that none of these three ways of understanding climate change constitute an emergency. Some of them lack the suddenness and immediacy required, while others are too complex and abstract to be considered emergencies in the conventional sense. In particular, the issue does not seem to be urgent in the same way or to the same extent as paradigmatic emergencies. Climate change just doesn't seem to fit.

[37]This conclusion is likewise held by Horton: 'by definition, an emergency must exhibit a combination of high risk, urgency and necessity; no plausible climatic tipping point displays all these attributes simultaneously' [20, p. 148]. Joshua Horton draws on the IPCC's Fifth Assessment Report (AR5) to make this conclusion.

3.3 Climate *Crisis*: A Better Fit?

I have noted in several places, both within this chapter, as well as Chapter 1, that 'climate emergency' and 'climate crisis' are often used synonymously [2], [15], [30]. Both of these terms flag an event or situation as important, serious, dangerous, and in need of attention [244]. However, while emergencies and crises can share certain similarities and overlaps, the two concepts do differ.[38] Climate change did not seem to fit emergency, but it does appear to match crisis.

I first unpack the definition of 'crisis' (subsection 3.3.1), focusing particularly on 'creeping crises', I then apply this framework to climate change, and demonstrate that, unlike emergency, crisis seems to do a better job of explaining the issue (subsection 3.3.2).

3.3.1 What is a Crisis?

Two Accounts of Crisis

There is substantial mystery and confusion in the literature when it comes to the definition of crisis.[39] In particular there is a tension between fast and gradual accounts. Let us refer to these two kinds of accounts as the **traditional account**, and the **creeping account**, respectively.

Traditional definitions of crisis seem almost indistinguishable from the common-sense definition of emergency. For instance, they tend to earmark explosions, invasions, and earthquakes as stereotypical crises [40, p. 4] [248]. As Arjen Boin et. al., leading experts in the field of disaster management, note, this definition stresses the 'exceptional' and 'fast-burning nature' of crises, as events that 'surprise us', 'explode

[38]For an excellent overview of the different definitions and challenges encountering the term, see Tony Jaques, [245]. Jay Callahan provides a good discussion of the difference between emergency and crisis concepts from a medical perspective, arguing that they are distinct and not interchangeable, see [246]; see also, [247].

[39]There is likewise mystery and confusion surrounding the definition of emergency – a topic I explore in Chapter 1.

on the scene', and which require 'urgent' responses [40, p.3].[40] One could be mistaken for thinking this definition was picking out an emergency as they are usually described. For ease, let us suppose this traditional account of crisis is equivalent to the common-sense meaning of emergency. Consequently, let us put this traditional meaning of crisis to bed for the rest of our examination.

Boin et. al., provide a more sophisticated definition of crisis which integrates the fast and gradual versions. They argue that we can better understand a crisis as, 'a developmental process with root causes, an incubation phase, an acute phase, and an aftermath' [250, p. 4]. This process can occur quickly, or even 'instantaneously' [250, p. 4], and can be understood as an 'acute crisis'.[41] It can also take years [250, p. 4]. A crisis that takes a long time to develop is referred to as a 'creeping' or 'slow-burning' crisis [40].[42] My focus will be on this second, creeping account of the concept:

Creeping Crises

Discussion of these slow building crises has come to dominate the recent literature [40]. The creeping account suggests that crises are a different and distinct phenomenon from emergencies. Two key features seem to distinguish them: *pace* and *complexity*. Emergencies are sudden, the threat imminent, and the action required, immediate. Creeping crises, however, are closer to the tortoise than the hare: they are often **more gradual** and are **not necessarily immediate** – they generally allow more time for assessing the situation and developing strategic responses. Moreover, emergency events and their causes are usually clearly discernible: a fire, a flood, an attack. Crises tend to be **broader** and **more complex**; their **causes more numerous**; their **effects often more widespread**. We often hear of crises in the context of public

[40] See also, [248], and [249].

[41] Again, we see overlap here with emergency. However, this overlap does explain why we often see the terms used interchangeably. Hurricane Katrina, for example, has been widely referred to as both an emergency and a crisis [251], [252].

[42] These are additionally sometimes referred to as compound crises, see [15].

relations challenges; leadership; humanitarian aid and refugees; public health; financial disruptions and market failures; and issues like antimicrobial resistance [15], [40], [253]. Twelve years of conflict in Syria have led to the displacement of 14 million Syrians – the situation is a refugee crisis [254]. To date, 15.3 million Syrians (70% of the population) rely on humanitarian assistance to subsist – this is a humanitarian crisis [254], [255].

Jonathan Wolff, whose meaning of crisis appears to track the creeping account, further emphasises this distinction between the two concepts:

> If an emergency requires an instant, almost instinctive, protective response, a crisis, in the sense I intend, is something more protracted and extended over time. It still requires exceptional, and, we hope, time limited action, but there is a little more time for consideration of options and some consultation, and a greater awareness of the wide array of options that are possible [105].

According to Boin et. al., these types of crises have five key aspects:

1. ***Gradual:*** They build-up and develop comparatively slowly over time, due to various interacting conditions over time and space (contributing factors are not limited by geography) [256, p. 5]. In this sense, these crises are often multidimensional.

2. ***Potential for Damage:*** They have the potential to cause serious damage to critical values or systems, and can have significant societal impacts [250, p. 4].

3. ***Precursors and Warnings:*** They often exhibit early warning signs or precursor events that foreshadow more extensive damage [256, p. 5], [257]. Boin et. al. explain,

   > 'they [these crises] may even travel and reveal themselves across time and space. We not only know they exist; we witness regular (and potentially dangerous) manifestations of a bigger problem: small earthquakes, in the case of oil exploration; privacy breaches, in the

> case of Big Data... or drowning migrants, in the case of the migrant crisis' [256, p.7-8].

These signs are not limited to one location: 'their manifestations may pop up anywhere in the world, not least because of the interconnected nature of modern society [250, p. 4]. Precursor events and early warning signs mean that these crises can be anticipated and even forecast to some degree.[43]

4. ***Varying Attention:*** These crises and their threats are often subject to varying degrees of societal and political attention [257, p. 7]. Attention levels may shift over time amongst different societal groups and public officials [256, p. 5].

5. ***Insufficient Response:*** Inadequate responses and insufficient remedial action from authorities allow these crises to build-up, thereby increasing their damage potential. Boin et. al. see this as one of the key hallmarks of these crises [256, p. 7].

3.3.2 Climate Change as a Creeping Crisis

Climate change seems to fit the creeping crisis definition to a tee:

1. **Gradual Development**: The slow, gradual nature of climate change was one of the key barriers to its emergency classification – both of the general phenomenon, as well as acute and irreversible climate change. The accumulation of GHGs into Earth's atmosphere from human activities has been gradually increasing since the Industrial Revolution. The crisis is multidimensional: emissions release occurs from multiple sources (fuel, agriculture, industrial processes), across many different locations (every country has its own GHG emissions), and across time.

[43]For a discussion of how financial crises can occur with surprising consistency across time and geography, and are somewhat predictable, see Carmen Reinhart and Kenneth Rogoff, [258].

Moreover, the impacts of climate change, such as increases in global temperature, likewise occur over decades and even centuries.

2. **Potential for Damage**: the damage potential of climate change is enormous. Its various impacts, including increased sea levels, and increased global and ocean temperatures, threaten to affect critical systems and values, including environments, ecosystems, health, economies, infrastructure, and more.

3. **Precursors and Warnings**: climate change exhibits a host of early warnings and precursor events. While extreme weather events are emergencies in themselves, they are also symptomatic of the broader issue and changing atmospheric conditions: their increasing frequency and intensity provide a warning of what lies ahead. Other observable signs include rising temperatures, melting glaciers and ice sheets, changing precipitation patterns, and reduced resilience of ecosystems, to name a few [180], [259], [260], [261]. The rate at which these observable phenomena have 'broken records' is an alarming indicator in itself [262].

4. **Varying Attention**: The degree of attention climate change has received has varied dramatically since, for example, Hansen's 1988 testimony. While some groups and officials have been advocating for action for decades, attention levels have shifted over time and at different rates among different societal groups and governments. This attention is influenced by various factors, including attention span,[44] as well as geopolitical and societal indicators.[45] Furthermore, political

[44]Other issues have drawn attention away from climate change. COVID-19 provides one example. Brian Spisak et. al. 2022 found that climate change content sharing and resharing on social media during the spring of 2020 decreased by 80% from previous levels, see [263]. Another example, is the War in Ukraine, see [264].

[45]A comparative media analysis by Andreas Schmidt et. al. across 27 countries found that while climate change has been receiving increasing attention across the board, that attention varies drastically between countries. There is a noticeable tendency for the issue to receive more attention

and public attention noticeably spikes in the wake of extreme weather events [263]. The amount of attention climate change has received throughout the month of July 2023 in response to record-breaking heat and other extreme events is evidence of this point [176], [177], [262], [267].

5. **Insufficient Response**: This final feature needs no further comment. The level of insufficient inaction has already been extensively addressed above.

The creeping crisis holds great explanatory power for climate change. It captures the importance of climate change, as well as abrupt and irreversible climate change, despite its comparatively gradual and slow pace compared to more instantaneous events like earthquakes. Its focus on damage potential to critical systems and values allows us to easily incorporate the threat posed by climate change to vital ecosystems and environments, as well as to biodiversity, further species extinction, and broader systemic implications climate change will have. Likewise, the recognition of the multidimensional nature of these crises allows us to view the role of systemic issues including racism, colonialism, and others, in both contributing to climate change, as well as explaining its disproportional impact upon vulnerable communities. Weather events along with other indicators provide neat examples of warning signals and precursor events. Moreover, the fact that the foreboding crisis is continuing to build because of in action likewise explains the 'unknown' threat potential of climate change – if not stopped, who's to say what lies in store for us? Finally, nothing in the crisis description stipulates that measures and responses must be temporary or short-term.

If not a climate emergency, we certainly seem to have a climate crisis.[46] The status

and traction in countries with higher reliance on fossil fuels and carbon-intensive industry, see [265]; Valerie Hase et. al. likewise discuss the varying levels of attention climate change receives in the Global North compared to the Global South, see [266].

[46]Crisis sometimes has a second meaning in common sense language as well as the literature. It can

of crisis, rather than emergency, in no way diminishes the importance of an issue. Both are things that must be rapidly addressed. Rather, it simply marks it out as a different kind of problem, albeit with slightly less urgency than the response required of an approaching wildfire, or evacuation. Crises do not generally need to be responded to in ways that are required by emergencies.[47] This suits climate well. Addressing climate change will require thought-out, widespread, lasting changes across all aspects of society. There is no quick, temporary fix.

3.4 Justifying the Emergency: Climate Counts

Above, I presented a thorough examination of why there is good reason to question climate's emergency status. I ignited this enquiry by referencing the worries of the *National Review*, but propelled it by noting the dramatic differences between the way we treat regular emergencies, and our response to climate change, as well as the fact that the term seems to be used by most as mere rhetoric. I noted that these reasons did not provide any proof against climate's emergency status. But they do provide reasons for pause. The real reason for concern comes from the fact that climate change also struggles to match the way we usually think about emergencies. It seems fundamentally different in nature from paradigmatic cases like fires and floods. Rather, and upon examination, climate change seems more like a crisis than an emergency.

I disagree. Climate change is not a crisis. Nor is 'climate emergency' mere rhetoric. Climate change is a *genuine* emergency. In this section, I intend to prove this claim, and demonstrate that it can qualify both legally, *and* conceptually. On this, I intend to leave no room for doubt.

be used to refer to a turning point; a critical period; 'a time when a difficult or important decision must be made' [268], [244, p. 2]. Climate meets this too. In fact, extraordinarily well. The 2030s have often been referred to as a 'critical juncture' or period of action for climate change, see[269].

[47]We do not have grounds for enacting emergency powers – and indeed, we have not.

In particular, I seek to demonstrate that a lot of the confusion over climate change's status as an emergency stems from a poor understanding of the concept of emergency itself. I have explored the nature of emergencies elsewhere, and have argued for a revised definition.[48] On my account, the definition of emergency contains only two necessary conditions: (i) great harm to critical systems; and (ii) the need for urgent action. Climate meets these criteria.

In what follows, I first demonstrate that climate change can meet the legal definition of emergency in subsection 3.4.1. Next, in subsection 3.4.2, I introduce my revised definition of emergency, and demonstrate that climate change can fit the conceptual understanding of emergency as well. Specifically, I argue that we can understand it as a 'threshold emergency', a term I have developed elsewhere[49] and explain in more depth within the section. In § 3.5 I then return to the topic of crisis. I argue that it is not accurate to understand climate change as a creeping crisis – at least, not any more. Climate change has transitioned from a crisis into a threshold emergency – a distinct, and different type of event. I further unpack the differences here between crises and emergencies, and in the process, contribute to conceptual discussions of both concepts. I conclude that climate change is a threshold emergency, not a crisis.

3.4.1 It Fits Legally

First, let me show that climate change can fit the legal definition of emergency – at least within the US.

One of the main contentions of the *National Review* article was, recall, that climate change was not an emergency in the legal sense – 'meaning the sense necessary for the legitimate activation of presidential emergency powers' [160]. It is, however, not

[48] See Chapter 1.
[49] See Chapter 1

a difficult feat to argue that climate change can legally count as an emergency within the US.[50]

In the US, the 1976 National Emergencies Act (NEA) is the primary legal framework for declaring a national emergency [18], [41].[51] Another is the Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act), which provides a legal avenue for declaring emergencies in the wake of natural disasters [18, p. 621-2]. Neither act provides a definition of emergency [41]. Rather, as Nevitt explains, the NEA, 'effectively [grants] the President wide discretion in making any emergency determination to address a wide variety of threats' [18, p. 620]. In other words, the determination of a given situation as an emergency is at the discretion of the President – if the leader of the nation says it's an emergency, it's an emergency. The Stafford Act likewise makes the determination of an emergency as a matter of presidential discretion. Under the Act, an emergency is defined as 'any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property, and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States' [42], reproduced in [18, p. 622]. The structure of the NEA and Stafford Act thus adhere what we might call a subjective account of emergency.[52]

If climate change's emergency status is simply a matter of the President's discretion, and a President is inclined to declare it one under the NEA, then by all means, climate change would legally count as a 'national emergency'.[53] The *National Review* was

[50]The majority of scholarship on national emergencies, and its legal definitions, come from the US. For an excellent analysis of whether climate change fits the legal definition of emergency in the US, see Nevitt [18].

[51]I likewise examine the NEA and Stafford Act in Chapter 1.

[52]For more on subjective emergencies, including the connection of the NEA and Stafford Act to this position, see Chapter 1.

[53]Legal classifications of emergency vary drastically across national and international jurisdictions. While it would be simple to classify climate change as an emergency under the NEA in the US, it would be difficult to legally classify climate as an emergency in India, for example. Under the Indian Constitution, a 'national emergency' can only be declared if there is a threat to the country's security by war, external aggression, or armed rebellion (Article 352) – climate change does not qualify [200].

wrong on this front. This position is shared within the legal literature.[54] Nevitt in particular advocates that climate change can – and *should* – be declared as a national emergency under the NEA [18, p. 653].

Climate's ability to legally qualify as an emergency does not, however, constitute compelling proof that it is in fact a real emergency. Trump's 2019 declaration of a national emergency concerning the Southern Border – *the border wall* – under the NEA demonstrates the shortcomings of relying solely on legal declarations as proof, or even indicator, that some event or situation qualifies as an emergency [45].[55] Trump argued that 'the southern border is a major entry point for criminals, gang members, and illicit narcotics' [45]. This, together with 'large-scale' illegal migration, he insisted, posed a national security threat and national emergency.

The declaration was widely regarded as a farce, and certainly not as a legitimate or real emergency. Rather, it was seen as a strategic attempt – 'a purely political ploy' – to re-purpose funds for the construction of the wall his election campaign promised [23], [46]. A *Washington Post* Article title demonstrates the political sentiment at the time: '*Can the border really be called an 'emergency'? Not according to the dictionary*' [270].[56] Just like climate change, the border situation did not possess the typical hallmarks of an emergency: it was not sudden, unforeseen, or urgent. The emergency Proclamation itself describes the situation as 'long-standing' [45]. Farber emphasises this point: 'if an emergency is supposed to be sudden and unexpected, the Proclamation's description of border conditions fails to meet the bill' [23]. Of particular note is that, even though several legal challenges were initiated against Trump, contesting his authority under the NEA, none of these cases were focused on

[54]Several US legal scholars have recently examined the topic of climate change in the context of emergency declarations in the US [16], [18], [23].

[55]For an excellent discussion of the border wall emergency declaration, see [23, p. 1149-54].

[56]Rather than genuine emergency, the declaration has been described as a 'unilateral power grab', and 'authoritarian threat to constitutional democracy' [271].

whether the situation 'qualifie[d] as a 'national emergency" [272].[57] Instead, focus was on the legality of the reallocation of funds, and military construction projects [23]. One court even held that, 'there are no judicially manageable standards for determining what "emergency" means' [18, p. 623], [273]. Nevitt notes that this sentiment is in line with a broader trend; courts have generally refrained from challenging a president's emergency authority [18, p. 623].

In sum, it is fairly straightforward to argue that climate change could count as an emergency in the sense required for legal declarations of emergency in the US. All we need is for President Biden to come out and say so. However, its ability to qualify legally, alone, does not serve as proof that climate change genuinely counts as an emergency. The question, then, is whether it can fit conceptually?

3.4.2 It Fits Conceptually

In this section, I present a revised account of emergency, and demonstrate that, on the revised version, climate change does constitute an emergency.

Emergency Redefined

Recall the words surrounding the common-sense definition of emergency: risk of great harm or loss; unforeseen; unpredictable; acute; sudden; short-term; imminent; out of the ordinary; exceptional; extraordinary; abnormal; and the need for immediate, urgent, rapid, time-sensitive, decisive action, as a matter of necessity. Elsewhere I have argued that the common-sense definition of emergency is flawed, and that of this range of features, there are in fact only *two* that are necessary to its definition.[58] In its place, I argued for a revised account of emergency, which defines the concept as follows:

> **Emergency**: a situation or event that is causing, or threatening to cause, **great harm to critical systems**, and that requires **urgent action** in order for that harm to be reduced or averted.

[57] See also, [18, fn. 172 p. 623]; and [23, p. 1150-4].
[58] See Chapter 1.

Moreover, I argue that emergencies can exist objectively. The important implication here is that we can be mistaken in not classifying something as an emergency when it is one, and vice versa – we can get it wrong. I will not repeat my defence of this revised account, nor my reasons for rejecting the common-sense definition here.[59] However, let me briefly explain the requirements of the two necessary definitions as I see them, and outline the three different kinds of emergencies I argue that it is possible to distinguish.[60]

Great Harm to Critical Systems

Harm first: By their nature, emergencies must be causing or threatening to cause great harm to critical systems. By 'great harm to critical systems', I refer to harm that threatens the functioning and stability of society's critical systems, including physical planetary systems, and sociotechnical systems (*see Figure 3.1*). While all systems are essential for the functioning of society, including the physical and biochemical systems, sociotechnological systems are perhaps the easiest to understand in relation to the functioning of society. These systems were specified to include climate control, food, health, resource extraction, security, shelter, and utilities. We can flesh out these components as including elements such as energy infrastructure; water supply; sanitation; transport networks; healthcare systems; communication systems; government and governance structures, which are important for providing public services and maintaining law and order; financial systems; food and agricultural systems; environmental systems; and national security and defence systems. These systems play an essential role in ensuring the provision of basic needs, such as access to food and shelter. Likewise, the provision of basic needs are important in ensuring the maintenance and smooth functioning of sociotechnological systems. These systems are

[59]For a thorough analysis of emergency, and argument in defence of the revised definition, see Chapter 1.

[60]Note, my concern is with public as opposed to personal emergencies. For more on this distinction, see Chapter 1.

objectively important. I contend that it is critical systems, as the object of harm, as opposed to scale, or type of harm, that is doing the explanatory work behind emergency.

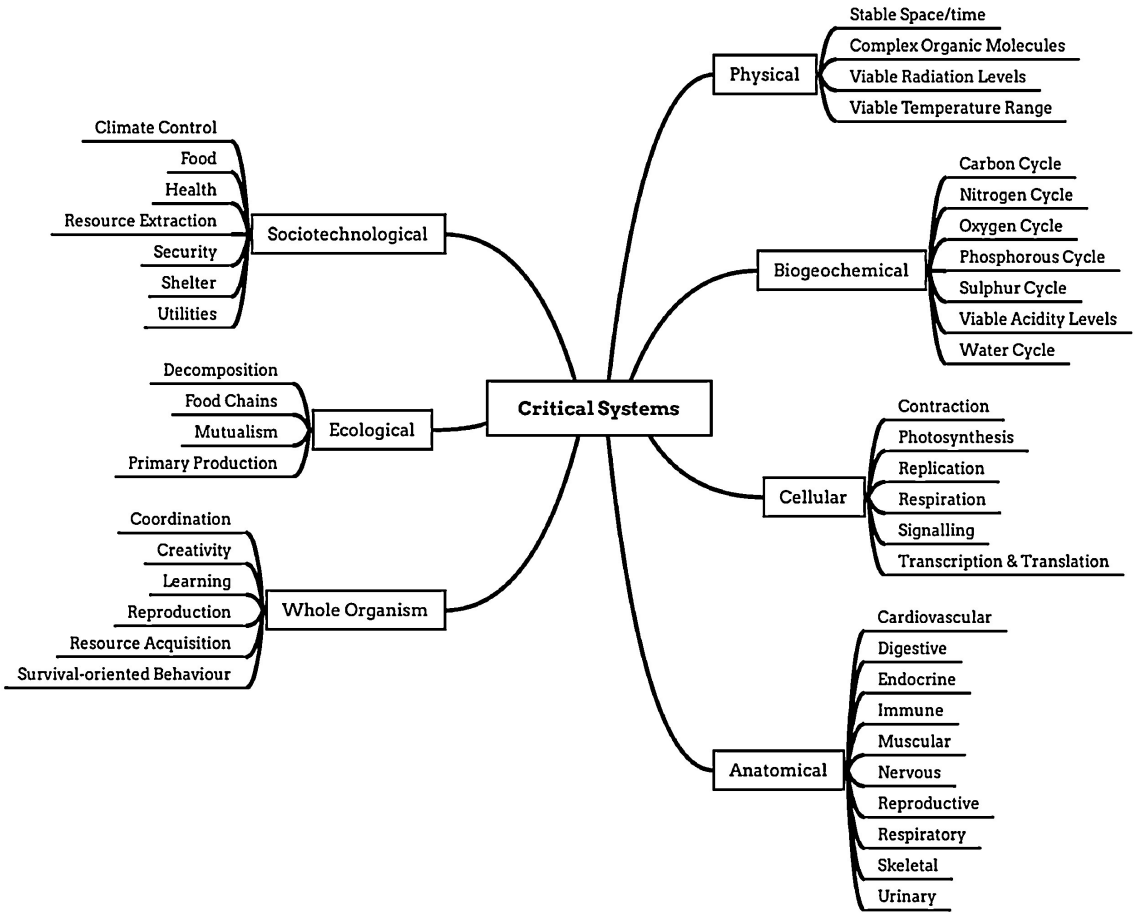


FIGURE 3.1: Classification of Critical Systems, reproduced from Avan et. al. [p.21][51]

Urgency

As a general rule, the less time there is to respond to a situation, the more urgent it becomes. However, a more nuanced account is possible if we understand urgency as a function of three different variables: badness (value), time, and uncertainty:

Urgency Equation: U = f(B, (T1, T2), Uc).[61]

In other words, the urgency of an emergency is determined by how bad the situation is or would be, how much time remains to respond in order to avert or reduce the

[61]For a thorough explanation, see Chapter 1.

harm involved, and how much uncertainty is involved. More specifically:

Badness: Badness refers to the level of harm under threat to critical system(s) during a given emergency. Given the essential role of these systems, harm that threatens their ability to function is considered bad.

Time: Time is a complex variable that can be broken down into two sub-variables: time until harm (T1) and response time (T2). In general, the less time there is until harm, and the longer a response would take, the more urgent the situation. Time until harm (T1) refers to the amount of time that is left before a bad outcome occurs. For example, if someone is bleeding out and will die in an hour unless they get to the hospital, T1 would be one hour. For some emergencies (what I go on to classify as explosive emergencies, like earthquakes, and unexpected attacks) harm occurs immediately, so the time until harm is already 0. Response time (T2) refers to the amount of time required to respond effectively in order to avoid or reduce harm. For example, upon seeing a fire, T2 would be the amount of time it takes for a successful response to take place. It may involve the time it takes an observer to react, to place a call and report the fire, and the length of time it takes for fire responders to arrive and put out the flames. Response time is comprised of several different factors or sub-variables that influence how long it will take for a situation to be responded to. These sub-variables include, but are not limited to: (a) preparedness; (b) reaction time; (c) availability of solutions and resources; (d) situation complexity; (e) solution implementation rate; and (f) solution speed and success rate.[62]

Uncertainty: Uncertainty refers to the degree of unknown or unpredictable factors that are present in an emergency situation. Uncertainty typically increases urgency.

[62]For explanations of each sub-variable, see Chapter 1, §1.5.2.

It can be generated by factors including incomplete information, unexpected events, or unpredictable outcomes. Uncertainty can surround both the extent of harm, or badness, the time until harm, and response time. As such, it plays a crucial role alongside time and badness for determining the urgency of an emergency situation.

Three Kinds of Emergencies

Finally, I argue that it is possible to distinguish between three kinds of emergencies on the basis of time:

1. *Explosive emergencies*: These are emergencies that occur suddenly and without warning, such as an unexpected terrorist attack or earthquake. These events *immediately* cause harm, and urgent action is needed in order to prevent that harm from escalating and reduce it *(See Figure 3.2)*. A note on figures 2-4: I have placed each emergency event at an arbitrary level on the badness axis. This is merely illustrative. The specific degree of badness, as well as the shape of the curve of harm, and, for figures 3 and 4, the time of its occurrence, will change according to the facts surrounding any given emergency case.

2. *Time-bomb emergencies*: These are emergencies that provide a degree of fore-warning – they provide us with a window of time until their impact. These events *threaten* harm. Urgent action needs to be taken in order to avert that harm. If that harm is not or cannot be averted, urgent action will be needed in order to prevent that harm from escalating and reduce it. Examples include forecast tsunamis, and hurricanes *(See* Figure 3.3*)*.

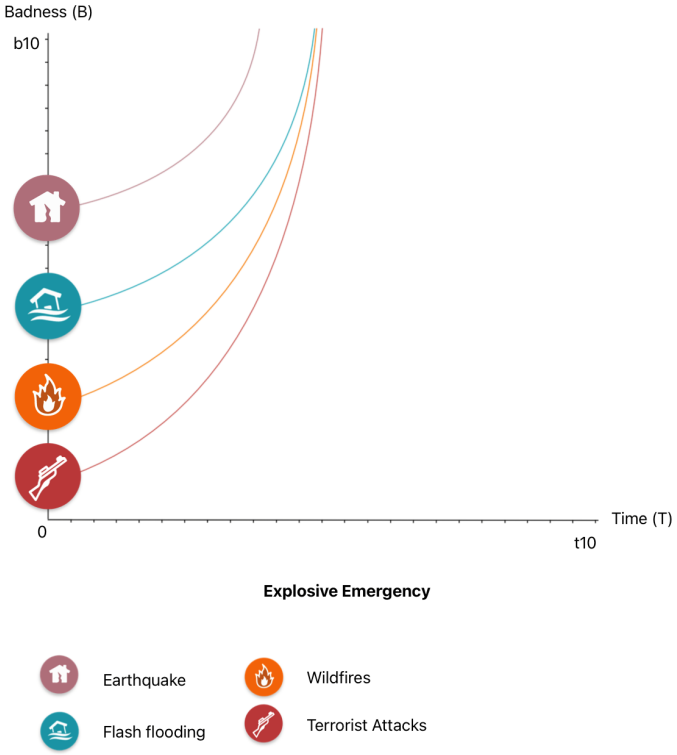


FIGURE 3.2: Explosive Emergencies

3. *Threshold emergencies*: These emergencies refer to situations where a level of harm is already taking place. Importantly, a threshold (a point at which the situation will cause great harm to critical systems) has been identified, and urgent action is needed in order to prevent that harm reaching that threshold *(See Figure 3.4)*. COVID-19 serves as an example – the pandemic started slowly with small infection rates, and then increased exponentially. Key thresholds, such as hospital capacity, were set as key turning points, beyond which critical systems would be harmed [66].

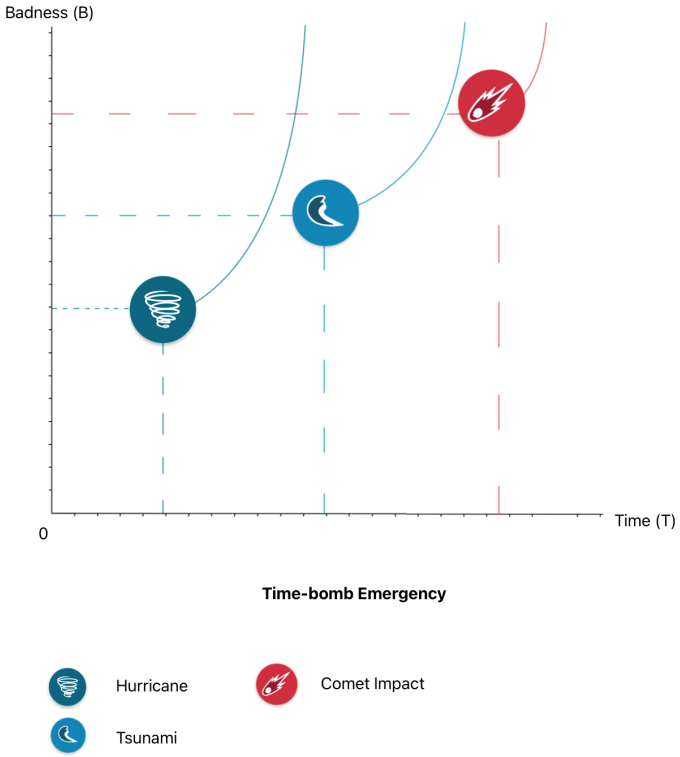


FIGURE 3.3: Time-Bomb Emergencies

Climate Counts an Emergency

I argue that climate change satisfies the criteria of an emergency according to my revised account. Moreover, there are objective criteria that we can appeal to in order to confirm its existence and status as an objective emergency.[63] Specifically, I propose that we understand the general phenomenon of climate change as the 'climate emergency' – not extreme weather events or abrupt and irreversible climate change.

I will not spend time here defending in detail why extreme weather events and abrupt and irreversible climate change are not rival candidates for the title of 'climate emergency'. Both extreme weather events and abrupt and irreversible change are an integral part of climate change. However, they are, I argue, better understood as a part of the threshold climate emergency that I go on to identify. While extreme weather

[63]For more on these objective criteria, see Chapter 1.

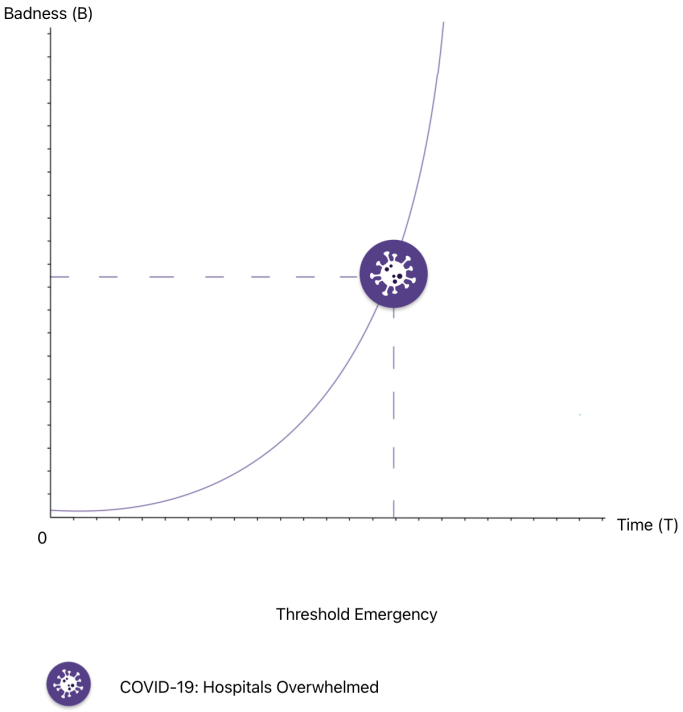


FIGURE 3.4: Threshold Emergencies

events can and often do constitute emergencies in and of themselves, these emergencies alone do not equate to a 'climate emergency'. Rather, they are better understood as manifestations of the climate emergency, and indicators of the approaching critical threshold. Moreover, their scale, magnitude and impact, feed into the determination of the threshold point of the general phenomenon of climate change. Abrupt and irreversible climate change on the other hand, is best understood as a worsening of the climate emergency.

With this in mind, I will now proceed with my argument that demonstrates that the general phenomenon of climate change is what counts as the 'climate emergency'. I first expand on what I mean by threshold emergencies, and outline how climate change meets this classification. I proceed to demonstrate that both necessary conditions of emergency are present: great harm to critical systems, and the need for urgent action.

The General Phenomenon of Climate Change as the 'Climate Emergency'

I argue that we should understand the general phenomenon of climate change as the relevant 'climate emergency'. Specifically, I argue that climate change constitutes a threshold emergency. I first explain why this is the case, and then appeal to objective criteria to demonstrate that the phenomenon fulfills the two necessary conditions of the emergency definition.

Climate Change as a Threshold Emergency

On the common-sense definition of emergency, much is made of the importance of suddenness, unexpectedness, unpredictability, and unforseeability. Recall the arguments from subsection 3.2.3 about why climate change did not seem able to meet the requirements of the definition. It is true that climate change does not occur suddenly, in the way that explosive emergencies do. Nor is it the case that climate change is like a time-bomb that we must urgently defuse in a given amount of time before disaster strikes. On the revised account of emergency, however, this does not matter, nor does it constitute a reason to think climate change doesn't count.

A particular novelty of my account of emergencies is my classification of the three separate types of emergencies. While climate change does not meet the explosive or time-bomb classifications, it *does* meet the conditions of the threshold emergency. This is because (i) harm is already occurring and continuing to escalate, but that harm is not yet at the level which would overwhelm our critical systems, and (ii) a threshold has been identified at which point our critical systems would be severely threatened and increasingly lack the ability to adapt. This threshold has been identified as warming exceeding 1.5°C above pre-industrial levels of global average temperature (*See Figure 3.5*– for illustrative purposes I have mapped it alongside COVID-19, another threshold emergency). Let me unpack each point:

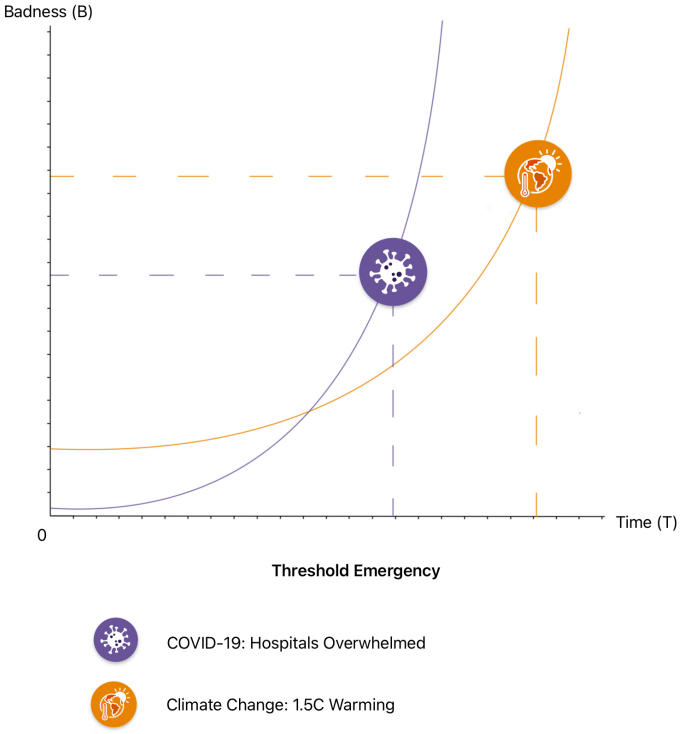


FIGURE 3.5: Threshold Emergencies: Climate Change and COVID-19

(i) Harm is Already Occurring: The presence of harm that is already occurring was one of the key differences marking out threshold emergencies from the time-bomb category. I do not need to spend time demonstrating that harm has already occurred, and is continuing to occur as a result of climate change. I have already outlined some of the harmful impacts in previous sections of this paper. The harm has also been extensively documented by the IPCC.[64] As the IPCC Special Report on the Impacts of Global Warming of 1.5°C (SR1.5) notes, 'the impacts of climate change are being felt in every inhabited continent and in the oceans' [4, p. 79]. There is also evidence that effects have already taken place in all 193 member countries of the UN [3].

(ii) The 1.5°C Threshold: The identification of a threshold point, beyond which critical systems will be severely harmed, is crucial to this category of emergency. Climate

[64]See, for example, The Sixth Assessment Report [212].

change has such a threshold. As of 2017, human-induced warming reached 1°C above pre-industrial levels [4, p. 51]. Any additional warming beyond current levels, even if limited to 1.5°C, will amplify the risks associated with extreme weather events, heatwaves, heavy rainfall, and other consequences. However, warming of 1.5°C has been marked out as the point beyond which climate impacts and climate-related risks will become more pronounced, and our ability to adapt to these impacts will diminish. Noticeably, the SR1.5 couches its assessment in terms of the impacts 1.5°C warming will have on *natural and human systems* – what we might otherwise understand as critical systems [4]. The systems identified and discussed include water systems and freshwater availability; agriculture and food security; human health; livelihoods; economies and economic growth; ecosystems; biodiversity; coastal systems; permafrost; and infrastructure, including buildings, energy systems and transport.[65]

The first UNFCCC document to mention 1.5°C as a possible threshold to consider was the Cancun Agreement, adopted at COP16 in 2010 [4, p. 79]. It was here that 2°C, rather than 1.5°C, was marked out as a threshold that we ought not to cross lest harm increase to unsustainable levels, rather than as a point up until which warming will be safe. This was the finding of the Structured Expert Dialogue (SED): 'Parties would profit from restating the long-term global goal as a 'defence line' or 'buffer zone', instead of a 'guardrail' up to which all would be safe' [274, p. 33]. The Paris Agreement, adopted at COP21 in 2015, specified the goal of holding "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursuing efforts "to limit the temperature increase to 1.5°C above pre-industrial levels' [275]. However, the threshold goalpost has since moved. Experts and leading bodies are in agreement that we must limit warming to 1.5°C in order to avoid the worst impacts of climate change [4].

What happens if we surpass 1.5°C? SR1.5 examines the impacts of 2°C as opposed

[65]The report provides a detailed analysis of the impacts and projected risks for each of these systems.

to 1.5°C warming. It stresses that impacts and risks would continue to escalate, but that there may be drastic differences between the two temperature averages:

> Going from 1.5 degrees of global warming to 2 degrees could mean substantial warming of extreme hot days in all land regions, an increase in heavy rainfall events in some regions, particularly in the high latitudes of the Northern Hemisphere, potentially raising the risk of flooding, and projected drying of some regions, such as the Mediterranean [4, p. 282]

The following figure from the United Nations Environment Program (UNEP) Emissions Gap Report 2023 provides a good illustration of the key differences between the likelihood of extreme heat, precipitation, and drought events at 1.1°C, 1.5°C, 2°C, and 4°C respectively compared to 1850-1900 levels *(see Figure 3.6)*. For instance, extreme temperature events that usually would have occurred once every 50 years are made 8.6 times more likely to occur in a 1.5°C world, as opposed to 4.8 times likely at present, and worse still at 13.9 times more likely at 2°C [276, p. 32]. Thus, in order to avoid even worse harms, it is clear we must limit warming to 1.5°C.

Someone may object here that I have set the bar too high – that it is unlikely that we will be able to limit warming to 1.5°C, and that the threshold should be 2°C instead. There are two responses worth noting here. The first is that this objector has a significant opponent in the form of scientific consensus – the team I choose to side with. As mentioned, 1.5°C is widely regarded as the point beyond which harms will become unmanageable and severely risk undermining our critical systems. The second response: we are concerned with whether climate change counts as an emergency, point blank. I have established that for threshold emergencies, an event or situation counts as an emergency when a threshold has been identified beyond which critical systems will be severely harmed. 1.5°C is that threshold for climate change. If we do not limit warming to 1.5°C, this does not mean that there is no emergency. A fire is still an emergency even if we don't manage to put it out – even more so. 2°C+ would still be an emergency, *even more so*. So, 2°C is a threshold, but it is a threshold

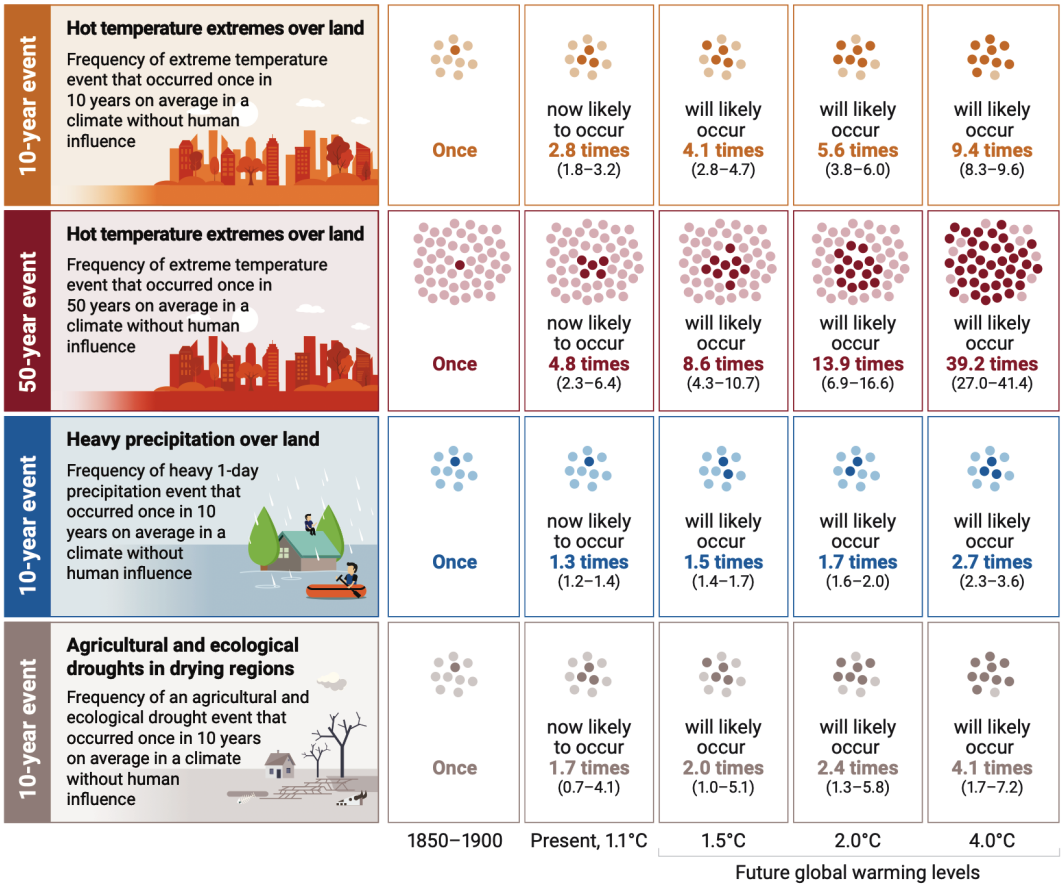


FIGURE 3.6: Temperature implications of key scenarios assessed in this chapter and the associated risks of extreme events, reproduced from the UNEP Emissions Gap Report 2023 [276, p. 32]

beyond which things will become even worse. The same is true of 4°C; of 6°C; of 8°C. So, let us wave goodbye to this objection.

I have argued that climate change is a threshold emergency because harm is already occurring, and because there is a threshold beyond which critical systems will be severely harmed and compromised. Now let me add to this by appealing to objective measures to confirm that climate change meets the two necessary conditions required: (i) great harm to critical systems, and (ii) the need for urgent action.

Measuring Climate Harm

Climate change threatens harm to a significant number of the critical systems identified in Figure 3.1. It will impact sociotechnological systems (including food, health, resource availability, security, shelter, utilities, as well as the systems I identified, including transport, communication, and governance structures), ecological systems, and biogeochemical systems – first and foremost, the carbon cycle.

Some emergencies directly affect one system, and carry indirect knock-on and escalation effects for other systems. COVID-19 is a key example, which directly impacted health systems, but indirectly went on to impede finance, trade, etc. Climate change, however, directly threatens multiple critical systems at once. I argued in Chapter 1 that critical systems are objectively important to the functioning of society, and harm to them, objectively bad. There are also ways to objectively monitor, measure, and predict this harm.

The IPCC employs a vast array of modelling tools and data to assess the impacts, and projected impacts, of climate change. For instance, the current measure of the rise in global average temperatures is 'the average of many thousands of temperature measurements taken over the world's land and oceans'[4, p. 282]. Moreover, the evidence for the assessment of the changes in a 1.5°C world versus a 2°C world are 'drawn both from observations and model projections' [4, p. 183].

I do not have the space here to detail the many measures of climate harm. The SR1.5 alone was 616 pages in length. The topic has been extensively studied and reported by numerous bodies, including the IPCC, as well as other bodies such as NASA. Let me therefore use the interplay of heat, health, and economic systems as one example of how we can objectively monitor, measure, and predict climate harm.

Example: Heat, Health, and Economies:

Heat poses a significant threat to human well-being. The highest wet-bulb temperature humans can endure is 35°C for a maximum of approximately six hours without air conditioning [277]. Wet-bulb temperature, defined as the lowest temperature an object can reach when moisture evaporates from it, has connotations for our ability to cool down: the lower the wet-bulb temperature, the easier it is for us to cool down [277].

Satellite data analysis reveals a doubling of extreme wet-bulb temperature instances over the past 40 years across the globe [277]. Instruments like NASA EARTH's Atmospheric Infrared Sounder (AIRS) on NASA's Aqua satellite, and the ECOsystem Spaceborne Thermal Radiometer Experiment (ECOSTRESS) on the International Space Station (ISS) provide vital data for studying and modelling heat stress [277]). These tools enable us to assess and predict future heat events. Predictions indicate that regions like South Asia and the Persian Gulf may consistently surpass critical wet-bulb temperatures by 2050, with Midwestern states in the United States reaching critical limits within 50 years [277].

Heatwaves present severe harm to human health, basic needs, and societal functioning, and also impact health systems and economies. For instance economic assessments have indicated that heatwaves have cost the global economy an estimated $16tn from 1992 - 2013 [278][279]. In this example alone, it should be clear how we can appeal to various data about human anatomical function, heat and weather patterns, and financial markets to assess and predict levels of harm to these critical systems as a result of climate change.

Given the diverse measures and data concerning climate impacts, there is little room for doubt regarding the extent to which climate change has caused and will continue to cause harm to critical systems that are necessary for the functioning of society.

Measuring Urgency

The contention raised in § 3.2 was that climate change was not urgent in the same way as typical emergencies. In particular, it was noted that most emergencies require action within a short and abrupt time frame. I gave examples of evacuations in the face of approaching fires, tsunamis, and volcanic eruptions, where every minute counts. Whereas with climate change, the actions we take today, tomorrow, or next week will have little bearing on whether we are able to limit warming to 1.5°C. It was said, too, that a failure to immediately respond in the case of the tsunami, for example, would have devastating impacts. Whereas with climate, we have failed to respond to climate change for four decades. While this has caused harm, it has not resulted in the same kind of catastrophic harm as a failed or delayed evacuation would.

However, both of these assessments are mistaken. First, a longer time frame does not necessarily mean that there is more time to spare. Rather, whether or not there is more time to spare is something that we can assess on the basis of what I have called the urgency equation: on how much time there is until the impact of harm in relation to the time it would take to respond, and in addition to any uncertainty surrounding the situation.

It is likewise mistaken to think that delay on climate change will not lead to devastating impacts. While the impacts may be felt more immediately in the case of delayed action in the event of an explosive or near-future time-bomb emergency (i.e., an approaching hurricane with a 52-hour window until impact), it is still the case that delayed action in threshold emergencies will likewise result in comparable harm. This, too, is something we can work out by appealing to the urgency equation.

I argue that climate change is urgent, and urgent in the same way as responses to approaching fires, tsunamis, and volcanic eruptions. We need to act without delay in order to limit warming to 1.5°C and avoid worsening impacts. Climate change

has long been discussed in some academic circles as urgent – Andrew Jordan Wilson and Ben Orlove provide a good analysis of these accounts [2]. However, although urgency is discussed, the account lacks a specific definition of 'urgency', particularly urgency in relation to climate change [2].

I argued in Chapter 1 that my account of urgency – the urgency equation – is better able to capture the concept of urgency than those found in the emergency and disaster literature. Below, I argue that it is also able to provide a better explanation of urgency in the context of climate change. As with harm, there are measures we can use to objectively assess how urgent a situation is, and therefore whether there is the need for urgent action. Let me first outline time until harm (T1), and response time (T2) for climate change, and indicate which tools we can appeal to in order to assess these markers. I then outline the presence of uncertainty in relation to the badness of harm, T1 and T2, in climate change, and its contribution to urgency.

Time until Harm (T1)

2050 has been set as the international target for reaching net zero emissions in order to limit warming to 1.5°C. This 2050 target is informed by and based upon scientific assessment from the IPCC, including modelling of current emission rates and trajectories. As the SR1.5 states:

> Limiting warming to 1.5°C implies reaching net zero CO2 emissions globally around 2050 and concurrent deep reductions in emissions of non-CO2 forcers, particularly methane (high confidence) [4, p. 33]

That gives us 26 years. 26 years is a *long* time. Suppose you were in a car accident, and were told that you had 26 years to get to the hospital or else. This is not something we would consider urgent. Far from it! Globally, average life expectancy is 73.4 years [280]. 26 years is over 1/3rd of that figure. There are many things you might decide to go and do before getting to hospital, including things that are completely trivial. You may decide it's more important to go home and cook dinner,

or reply to an email you'd been meaning to. Given that you have 26 years to play with, this delay and prioritisation of other, trivial tasks seems reasonable. Compare this to, say, needing to get to hospital within 1 hour – this is next to nothing in the context of 73.4 years. In such a case, the idea of someone stopping home to cook dinner or reply to emails rather than heading directly to the hospital would be absurd. And so, given that we have 26 years to limit warming to 1.5°C, while we must act, it does not seem urgent in the same way. It is not unreasonable for climate policymakers to still eat well, catch up on their inbox, and take time out for themselves.

However, time until impact is not the only consideration. Response time is also crucial:

Response Time (T2)

Recall that, in general, the more response time you need comparative to the time until impact, the more urgent the situation. So, although we have 26 years until 2050 – what feels like a long time – this is *barely* enough.

But who's to say it's barely enough time? As with harm, and T1, there are objective markers that can assist us in determining T2 for climate change – in determining how much time it will take to successfully respond to climate change in a way that would achieve net zero emissions by 2050 and avoid warming beyond 1.5°C. For instance, the IPCC has identified multiple 'pathways' for limiting warming to 1.5°C. These 1.5°C pathways are defined as scenarios or trajectories that 'provide a one-in-two to two-in-three chance of warming either remaining below 1.5°C or returning to 1.5°C by around 2100 following an overshoot' [4, p. 51] – 'solution-oriented trajectories from today's world to achieving a set of future goals' [4, p. 64] In other words, they are literal paths that, if taken, will lead us to a 1.5°C destination (fingers crossed[66]). These pathways are created via the use of computer models that simulate levels of

[66]See the subsequent section on uncertainty.

emissions that would be consistent with different levels of warming [4, p. 159].

The pathways reveal that it is still possible 'within the laws of chemistry and physics' to limit warming to 1.5°C [4, p. vi]. So, there are *(c) solutions and resources available*. This availability helps reduce response time. Consider the alternative: if there was no yet known way to reduce and stop further warming – no pathways at all. This would seriously increase the amount of time we would need to respond to the situation. We should count ourselves lucky on this point.

However, although there are solutions available, we are running out of time to implement these pathways. Why? Because each pathway requires a significant amount of time for *(f) the solution to be effectively deployed and succeed*. Indeed, some of the necessary solutions outlined in these pathways will take years to build up, develop, and be deployed at scale. This increases response time. For instance, all pathways for 1.5°C involve some degree of carbon dioxide removal (CDR) *in addition to* significant emissions reductions. But, as the Former Director of the European Commission, Artur Runge-Metzger, stresses,

> CDR will not fall from heaven like manna. It will require active and urgent public policies. Novel CDR, such as direct air capture and storage, enhanced weathering, and new carbon-rich materials, are still at an early stage of development and will thus require a significant push. Deployment at scale, even of well-known conventional CDR on land, will require a CO2 price incentive and an adequate regulatory framework. Without strong public governance, CDR could be implemented in a way that undercuts emission reduction efforts or harms the environment [281, p. 7]

To make matters worse, we are not implementing these solutions, nor are we adopting these pathways which we so urgently need in order to avoid and reduce climate harm. This increases response time, and speaks to *(e) solution implementation rate*. The UNEP Emissions Gap Report 2023 recently published data on the size of the gap that is predicted to exist between our current emissions trajectories under current climate policies, and 1.5°C, or even 2°C pathways in 2030 (Figure 3.7). The gap is *large*. As

it is, current climate policies[67] fall drastically short of climate pledges and nationally determined contributions (NDCs).[68] Indeed, if we continue on current trajectories, it is anticipated that the carbon budget allowing a 50% probability of restricting temperature increase to 1.5°C, will likely be surpassed by 2030 [276, p. 27]. The gap between current policies and fully realised pledges is estimated to be 5 GtCO2e [276, p. xix].[69] This gap is referred to as the 'global implementation gap' [276, p. xix]. However, even if all nations were to fully realise their NDCs – a challenging task – this would still leave an 'emissions gap' of 19 GtCO2e between those NDCs and a 1.5°C pathway in 2030 *(see Figure 3.7)*. To put this gap into perspective: as a result of COVID-19 emissions dropped at a level unprecedented in *human history* [5]. And yet, this drop was only approximately 2 GtCO2e [5]. A chilling comparison.

Worse still, we must consider another important factor, which is why solution implementation rates are so slow. Part of the answer lies in politics. It is not easy implementing climate policy. It seems even more difficult keeping policy in place once it has been implemented, and preventing its backtracking.[70] Thus, political inertia is another significant factor in increasing response time in regards to sub-variable *(e)*.

And so, even though we know how to stop warming, and even though it is scientifically possible to shift to 1.5°C compatible pathways, this would require 'unprecedented transitions in all aspects of society' [4, p. vi], 'stringent emissions reductions' [276, p. 27], and rapid and ambitious action. The time it would take to implement solutions, as well as the time it would take for those solutions to be successfully deployed and scaled, means that there is a large response time (T2) against

[67]The current policy scenario mapping takes into account recent policy developments such as the Inflation Reduction Act of the US, see [276, p. 24].

[68]NDCs refer to the submissions made by countries that have ratified the Paris Agreement and which reflect their national efforts to reach the Paris Agreement's long-term temperature goal of limiting warming to well below 2°C.

[69]By 'fully realised pledges' I refer to what the report calls 'conditional NDCS', which encompass the implementation of both domestic and internationally contingent climate policies, see [276, p. 24].

[70]Painful examples of climate policy backtracking can be found in Australia and the UK, as well as within companies, including Shell and BP.

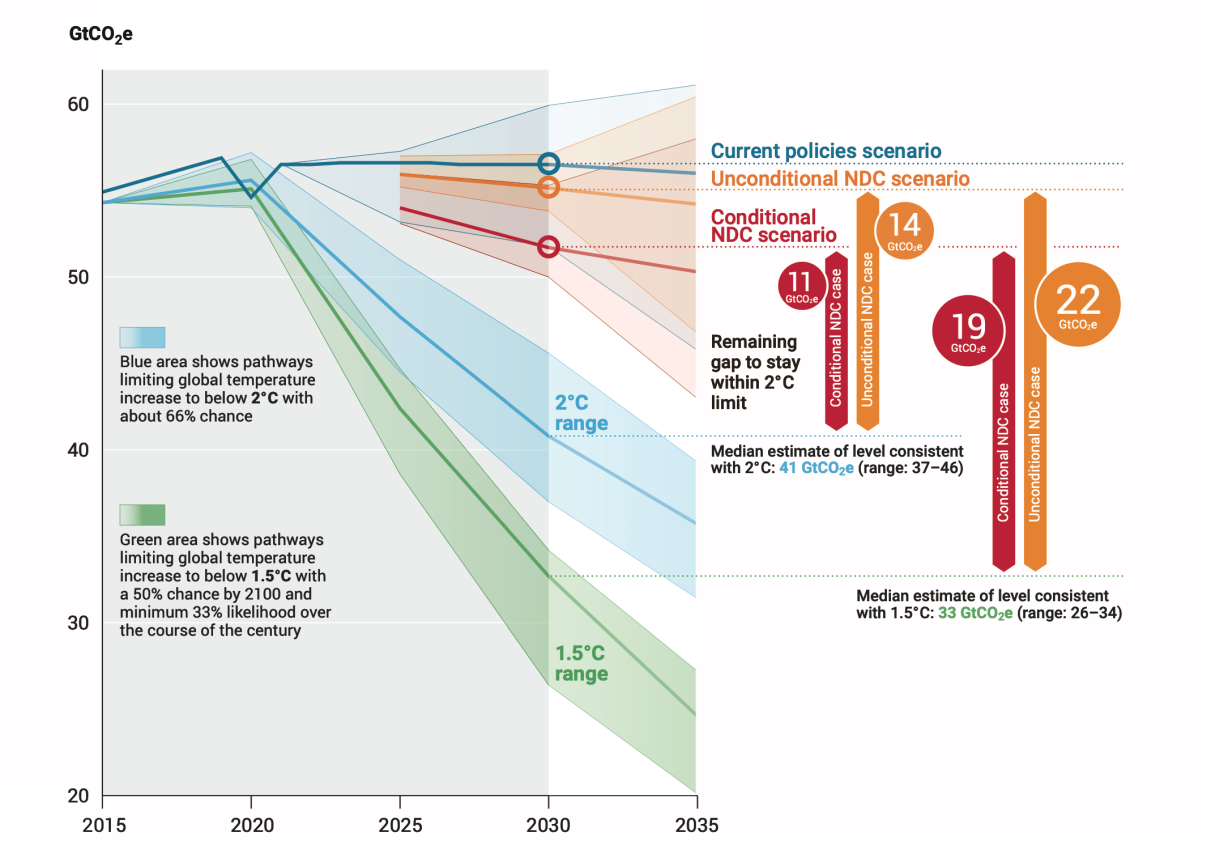


FIGURE 3.7: Global GHG emissions under different scenarios and the emissions gap in 2030 and 2035 (median estimate and tenth to ninetieth percentile range), reproduced from the UNEP Emissions Gap Report 2023 [276, p. 29]

a comparatively short time until impact (T1). There is *urgency*.

The reader should understand now – if they didn't already – why 26 years is barely enough. Let us come back to the car accident example. Suppose we needed to get to the hospital in 1 hour or else. And suppose the hospital is only 10 minutes away. Even in such a scenario, we would not waste a moment in getting to there, despite the 50-minute window of leeway.[71] In the climate case, however, we do not even have that leeway. 26 years is barely enough time as it is. It is arguably *more* urgent. This is saying something, given that the former example is a classic case of an emergency, albeit on a personal scale.

[71] I explained in Chapter 1 that this was because of the presence of uncertainty which increases urgency in this scenario.

Uncertainty

I have already established that climate change, understood as a threshold emergency, requires urgent action in virtue of the relationship between T1 and T2. Let me now demonstrate that this already high level of urgency is further intensified as a result of the third variable in the urgency equation: uncertainty.

Uncertainty, recall, typically increases urgency. When it comes to climate change, there is *a lot* of uncertainty. I first outline (1) the specific aspects of climate change about which there is uncertainty and then explain (2) what factors contribute to and generate this uncertainty.

(1) Uncertainty about what?

The role and significance of uncertainty surrounding climate change is repeatedly emphasised by the IPCC. This uncertainty is not in regard to whether the phenomenon is real or not, or whether it is caused by human activity – on these points, there is overwhelming and conclusive consensus. Rather, it concerns issues such as the severity and frequency of climate harms, the speed at which we will surpass 1.5°C warming, the time until harm, response time, and unforeseen consequences.

More specifically, we may surpass the 1.5°C threshold sooner than expected. There are several reasons why this might occur: climate impacts may escalate sooner than expected: recent events, such as unprecedented temperature increases, suggest impacts may be imminent, challenging our assumptions. As the Emissions Gap Report 2023 notes, '86 days have been recorded with temperatures exceeding 1.5°C above pre-industrial levels this year... they signal that we are getting closer' [276, p. xvi]. There may be other drivers of warming that intensify warming speeds, such as increasing rates of wildfires that generate further, unexpected emissions. Alternatively, the response

time may take longer than expected. Certain measures and solutions included in various 1.5°C pathways may not prove successful on scale, or there may be other reasons, such as unforeseen political, legal, social, or regulatory hurdles, why their implementation is delayed. Indeed, the pathways themselves recognise only a one-in-three or possibly one-in-two likelihood of effectively stopping warming at 1.5°C: 'importantly, 1.5°C pathways allow a substantial (up to one-in-two) chance of warming still exceeding 1.5°C' [4, p. 60]. And so, even if we follow the pathway perfectly, it may still not be sufficient. Finally, there may be unforeseen complications that impact our ability to respond. For instance, there may be other pressing emergencies that we must address, and which might draw attention and resources away from, and delay, our climate responses.

In short, climate harms may be more damaging and frequent than estimated, and we cannot fully predict what lies ahead. The list provided is not comprehensive, but it does demonstrate the significant amount of uncertainty involved.

(2) What generates climate uncertainty?

There are several factors that can generate uncertainty. These include the limitations of models and data, as well as the lack of full knowledge of Earth's systems and their complexity. As noted in SR1.5, 'knowledge of the causes and consequences of climate change and of ways to reduce GHG emissions is not always accurate' [4, p. 364]. Moreover, the assessments that are made are contingent upon the data we do have available which may be incomplete [4, p. 32].

Finally, the worse climate harms become, the harder it will be to accurately model and predict harm. Why? Because as harms intensify, they lead to increasingly complex outcomes and interactions which are harder to model. The AR6 explains as follows:

> With every increment of warming, climate change impacts and risks will become increasingly complex and more difficult to manage. Many regions are projected to experience an increase in the probability of compound

> events with higher global warming, such as concurrent heatwaves and droughts, compound flooding and fire weather. In addition, multiple climatic and non-climatic risk drivers such as biodiversity loss or violent conflict will interact, resulting in compounding overall risk and risks cascading across sectors and regions. Furthermore, risks can arise from some responses that are intended to reduce the risks of climate change, e.g., adverse side effects of some emission reduction and carbon dioxide removal (CDR) measures' [212, p. 72].

It is clear that there is significant uncertainty surrounding climate change. It is also clear that climate impacts are being felt faster than expected. In the words of the UN Secretary-General, António Guterres, 'climate change is out of control' [282]. This uncertainty, combined with the badness of climate change, and the time until harm vs the response time generate extreme urgency. I demonstrated that climate met the first necessary condition of the definition of emergency: great harm to critical systems. I have now shown that it also meets the second: the need for urgent action.

3.5 Creeping crises vs. Threshold Emergencies

Let me conclude this paper by revisiting the key claim made in § 3.3 – that climate change seems more like a creeping crisis than an emergency. This, undoubtedly, can serve as an objection to my account. Indeed, the argument that climate change aligns with the standard definition of a creeping crisis, while diverging from the standard or common-sense definition of an emergency, would surely hold stronger explanatory power than one which argues that climate change qualifies as an emergency, but only once we revise our definition of the concept. After all, shouldn't we try to keep things as simple as possible?

My answer: not always. And certainly not when the 'simpler' version is flawed. Elsewhere I have extensively examined the common-sense definition of emergency.[72] I found it problematic, and ill-defined. In its place, I developed a more nuanced

[72] See Chapter 1.

account that, I argue, does a better job at explaining the concept, and does so in a way that is simultaneously more robust, intuitive, and ultimately simplistic than the common-sense meaning. After all, I do narrow the definition down to only two necessary conditions. In the process I identified three distinct categories of emergencies: explosive, time-bomb, and threshold emergencies. When introducing threshold emergencies, I suggested that COVID-19 counts as a perfect example. I then went on to argue that climate change, likewise, fits the notion perfectly.

However, those who wish to hit back against my account may argue that a threshold emergency is merely a creeping crisis in disguise. Indeed, while I took COVID-19 as a key example of a threshold emergency, others argue it is best to interpret COVID-19 as a creeping crisis [104], [256]. And what of climate change? Recall that the creeping crisis had certain distinguishable features: they are gradual and build up over long periods of time; have great potential for damage; often involve precursors and early warnings; receive varying levels of attention; and are met with insufficient response. It is true that climate change seems to fit with this definition remarkably well – almost as if it were tailor-made for the issue. Climate change is, after all, broad, gradual, has built up slowly, is global in scale, and infinitely complex, is the recipient of drastically varying attention, and responses have been insufficient to say the least. Indeed, if current policies continue, there is a 66% chance that we will reach 3°C warming within this century [276, p. 31] [283]. That is insufficient!

I do not dispute that climate change has fitted well in the past with the creeping crisis definition. But, it is no longer a crisis. Climate change has transitioned from a creeping crisis and into a threshold emergency. I suggest that my novel account of threshold emergencies holds the key to successfully explaining the distinction between creeping crises and emergencies. Not only does my account allow us to be able to distinguish between the climate emergency and what was the climate crisis, as well as pinpoint the moment of this transition, but it also provides an important conceptual

aid for academic thinking on crises and emergencies in general – two concepts which are widely confused and inaccurately used interchangeably. Providing a framework to neatly distinguish between the two is no small feat.

So, how do we do it? The key difference between creeping crises and threshold emergencies is the presence and identification of a threshold point beyond which critical systems would be at great risk of harm. A creeping crisis transitions into a threshold emergency when such a threshold is identified. It is important to note that the status of an event as a creeping crisis as opposed to emergency, makes it no less important or in need of response. Both are situations that cause harm, and both should be responded to effectively and quickly as a matter of priority. However, they are distinct events.

To illustrate, consider the cost-of-living crisis in the UK in 2022-2023. While some did argue that it should be seen as a public health or social emergency, it was predominantly discussed as a crisis [284], [285], [286]. The situation exacerbated inequalities, especially in relation to health, housing, employment, and discrimination [287]; had a detrimental impact on mental health [284], [288]; and increased rates of poverty [289]. However, it did not overwhelm and harm critical systems in the same way as COVID-19. To be sure, the crisis was bad – it placed enormous pressure on systems, and greatly impacted the availability and scarcity of essential products and services. It was an important issue to be addressed as quickly as possible. Despite that, it is not right to say that it at any point became an emergency. Though systems were strained, they were not yet at risk of being overwhelmed and damaged in the way they were during COVID-19. An imminent threshold at which point systems would be harmed in this way was never established or seen to be imminent. So, it is right to say that the cost-of-living crisis was a creeping crisis.

In contrast, consider COVID-19. It is likewise right to say that COVID-19 was a creeping crisis. But it is also right to say that it very quickly stopped being a crisis, and started being a threshold emergency. Indeed, it is possible to exactly

pinpoint this moment of transition. In the UK, this moment seems to have been March 13, 2020. As Richard Horton writes,

> 'The evening of March 13 was the moment Downing Street realised that the NHS would be overwhelmed if it continued to pursue a policy of mitigation (herd immunity). Only now did the principals have NHS data showing that hospitalisations were rising faster than models predicted' [66].

Consider Figure 3.8. Let us suppose that t0 is the point in time at which a threshold is identified. For COVID-19 in the UK, t0 would be March 13, 2020. It was at this point that the threshold regarding the overwhelming of hospitals had been established, and it was both clear (1) that the situation was going to threaten great harm to critical systems, and (2) required urgent action in order for that harm to be avoided. However, as we can see in Figure 3.8, COVID-19 harm was already occurring before t0. I maintain that the situation up until the identification of a threshold and before t0 constitutes a creeping crisis.

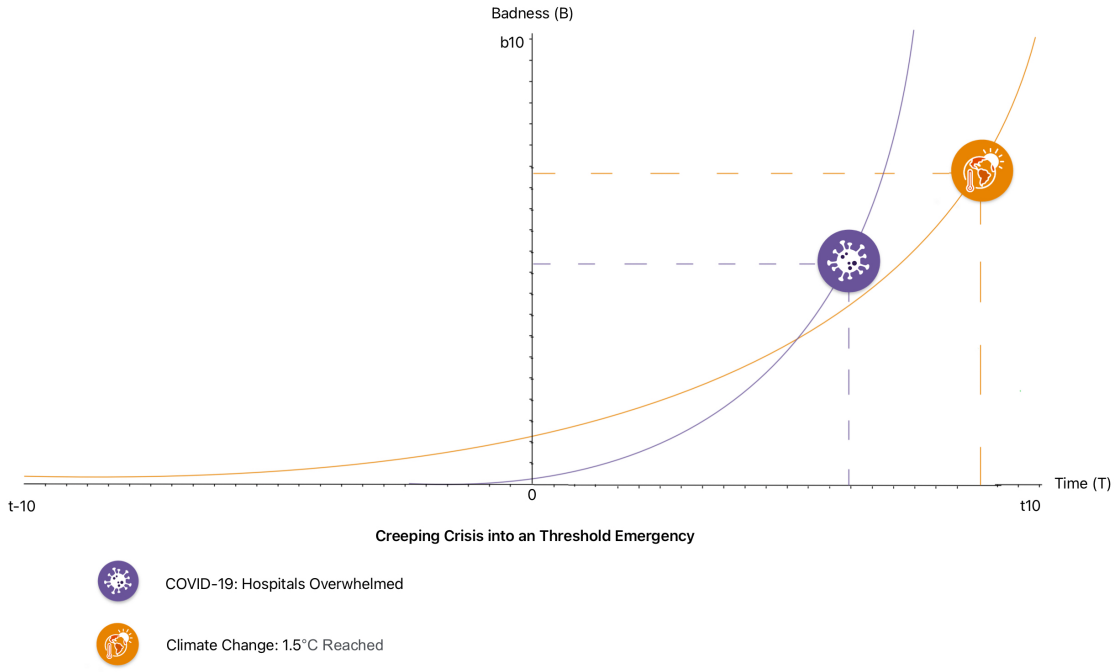


FIGURE 3.8: The Transition of Creeping Crises into Threshold Emergencies

Let's return to climate change. Climate change has been causing harm for a long time. This harm has been slowly building and escalating. It was, for a long time, a creeping crisis. The status of this situation changed, however, at the point when the critical threshold of 1.5-2°C was identified as the point beyond which critical systems would be severely harmed, and that urgent action was needed to avert and reduce the threat. Return to Figure 3.8. For climate change, then, we might locate t0 as 08 October 2018 – the date on which the SR1.5 was published.[73] This was the point at which the climate crisis became the climate emergency.

The presence of an identified threshold is a key way to distinguish between creeping crises and emergencies. Another example that illustrates this point is the issue of antimicrobial resistance. This is an issue that has been building for a long time and is causing harm. But, there has been no threshold point yet identified. Eric Toner et. al. emphasise this point. They write that, 'while it is difficult to determine how far in the future such a disturbing scenario lies, this fate is likely inevitable unless action is taken' [290, p. 154]. Antimicrobial resistance is a clear example of a creeping crisis – as something that is continuing to worsen. It is important that the situation be addressed lest things worsen and run the risk of turning into an emergency.

Finally I want to note a further fact that distinguishes creeping crises from threshold emergencies: it is not the case that all creeping crises will transition into a threshold emergency. As noted, they need not develop into emergencies at all, as with the cost-of-living crisis. But, more than that, they can also transition into explosive emergencies *(see Figure 3.9)*. Consider the 9/11 terrorist attacks. This is, as we have seen, a paradigmatic example of an emergency. It came about suddenly, or explosively, and required immediate action. However, although we look on this event as a clear example of an emergency, it is also possible to say that, in hindsight, the factors

[73]However, another contender for t0 would be the date of the 2015 Paris Agreement when the Parties agreed upon the importance of limiting warming to well below 2°C and adopted this as their shared goal.

contributing to this emergency were, at an earlier stage, part of a crisis. In retrospect, the lead-up to the attacks reveals various geopolitical tensions, intelligence failures, and security lapses that we might label as a creeping crisis.

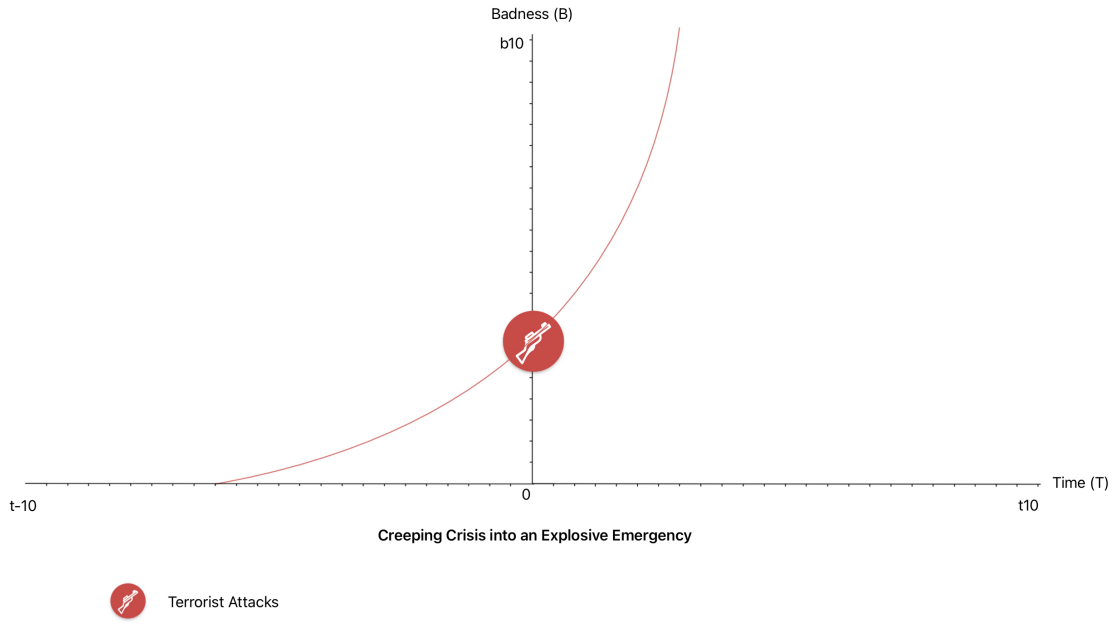


FIGURE 3.9: The Transition of Creeping Crises into Explosive Emergencies

In sum, I have shown that creeping crises and threshold emergencies are distinct events, and have provided a mechanism for clearly distinguishing between the two: the identification of an emergency threshold. This is not only useful in the context of climate change, but a novel contribution to the emergency and crisis literature. I have also dismissed the objection that climate change is a crisis rather than an emergency. It was a crisis. It is now an emergency.

Concluding Remarks

In this paper, I have argued that climate change is a genuine emergency. I hope to have successfully dispelled any room for doubt on this matter.

On an assessment of the literature, it is in fact unclear what 'climate emergency' even means, let alone whether it genuinely constitutes one, despite its widespread use. I outlined this confusion in § 3.1.

The paper and question as to whether climate change is a real emergency was motivated not just by the poor definition, but by several further curious facts: (1) That, despite its widespread use, we are not acting as we would in normal emergency situations – there has been no emergency action, nor use of emergency powers. (2) Moreover, there seemed to be reason to think that 'climate emergency' was being used by some as mere political rhetoric. And, (3) climate change does not in fact seem able to meet the common-sense definition of emergency. It seems fundamentally different from paradigmatic cases like fires, floods, and tsunamis. While it is an urgent issue, it did not seem to be urgent in the same way as these typical emergencies. I outlined these arguments in § 3.2. Rather, on closer examination, climate change seems more like a crisis – particularly a creeping crisis – than an emergency. This was the topic of § 3.3.

I disagree with that assessment. Climate change is a genuine, bona fide emergency. I presented my justification of this in § 3.4. I argued that climate change not only is able to qualify as an emergency legally, at least within the US, but also counts conceptually. However, in order to understand the nature climate change and its emergency status, I argued that it was necessary to revise the concept of emergency. I drew upon a revised account of emergency I have developed elsewhere, which redefines an emergency as a situation or event that is causing, or threatening to cause, great harm to critical systems, and that requires urgent action in order for that harm to be reduced or averted. I then demonstrated that climate change meets this definition. I drew upon objective measures to demonstrate that it poses great

harm to critical systems, and requires urgent action in order to avert or reduce that harm. In particular, I introduced three distinct categories of emergencies that I previously distinguished, and argued that the general phenomenon of climate change, as opposed to extreme weather events or abrupt and irreversible change, constituted a threshold emergency. Critical to this definition is the identification of 1.5°C warming as a threshold beyond which our critical systems will be overwhelmed, and which requires urgent action in order to avert that point.

Finally in § 3.5, I returned to the objection that climate change is better understood as a crisis rather than an emergency, as well as the suggestion that there is no substantive difference between creeping crises and threshold emergencies. I disputed this claim. Rather, I argued that these are two distinct categories of events, and that the presence of a threshold is what enables us to distinguish between them. I also demonstrated that not all creeping crises will turn into threshold emergencies; some may persist as crises, while others have the potential to escalate into explosive emergencies. I concluded that climate change was, at one point, a creeping crisis. But that it has now elevated into an emergency. It is the real deal.

With this paper, I hope to have contributed not only to the understanding of the climate emergency, but to the literature on emergency and crises as well.

Part III

EMERGENCY ETHICS IN ACTION

4

Is a Carbon Tax an Emergency Measure?

If we are to accept that climate change is a genuine emergency, then we must also accept that it requires an urgent solution. An emergency is a situation or event that is causing, or is threatening to cause, great harm, and that requires urgent action to reduce that harm or avoid it.

A carbon tax is not the kind of emergency measure we typically think of when we talk about drastic action to resolve the climate emergency. Emergencies often call for extreme measures that subvert standard democratic and legal processes, bolster authoritarianism, and undermine civil liberties and justice. A carbon tax does none of these things. What's more, Pigouvian taxes (such as the carbon tax), which are taxes that aim to reduce negative externalities and correct market failure, are not generally the kind of tax mechanisms we see implemented during times of emergency. Rather, we tend to see either temporary tax cuts or reliefs introduced in attempts to bolster economies, or progressive taxes that seek to raise funds to tackle the crisis at hand.

In this paper, I argue that a carbon tax should be recognised and recast as not only a viable emergency measure, but as one of the best emergency solutions we have available to tackle the climate emergency.

It is true that Pigouvian taxes are not usually useful fiscal instruments in solving emergencies. I argue that this is primarily due to: (i) the nature of the emergencies that tend to arise, (ii) the urgency of the solution needed, and (iii) the presence of alternative, more rapidly implementable measures. However, there is nothing in principle that would bar a Pigouvian tax from being deployed as an emergency measure. In the context of climate change, I argue that a properly designed carbon tax would constitute an emergency solution and useful fiscal instrument. This is due to the distinctive features of the climate emergency concerning the cause of increased greenhouse gas (GHG) emissions and climate impacts, as well as the time frame we have for action. Of the 169 parties to the Paris Agreement, over 135 of those countries have set a net zero target, with 90% of those targets carrying a mid-century or earlier date [291]. This makes 2050 our time frame; we have 26 years.

I argue not only that a carbon tax does qualify as an emergency measure, but that, out of the solutions we have available, it is one of the best solutions. I measure bestness in terms of feasibility, efficiency, and justice. An interesting consequence of the emergency understanding of the carbon tax is that it overcomes certain typical objections we see launched against it: namely, that systemic change would be preferable, and that the carbon tax may increase inequality and generate unfair burdens.

This paper has three parts. First, I outline the extraordinary responses that emergencies typically elicit (§ 4.1). Second, I outline reasons why Pigouvian taxes are not likely candidates for emergency response, and why it would seem mistaken to understand the carbon tax as an emergency solution to climate change (§ 4.2). Counter to the above, I argue that the carbon tax does constitute an emergency response, and that it provides one of the best and most just solutions to climate change that we currently have available (§ 4.3). I make this argument in three stages: (i) First, I clarify a common misconception about emergencies — that they demand extreme responses.

(ii) I then provide reasons why a Pigouvian tax can count as an emergency measure, and why a carbon tax does count as one in the context of climate change. (iii) Next, I argue that, moreover, the tax presents as one the best emergency responses, given that it provides one of the most just and efficient ways of responding to the crisis. (iv) Finally, I demonstrate how the emergency status of the solution can overcome typical objections that have been levelled against the tax: (i) that they increase inequality and generate unfair burdens, and (ii) that systemic change is a preferable solution to the tax. I conclude that the emergency understanding of the carbon tax provides a powerful justification and moral grounding for its rapid uptake and global adoption. Its recognition as an emergency measure may likewise prove important in gaining traction, public and political support, and speed in implementation.

Three things to note upfront: first, I focus on the carbon tax, rather than carbon pricing in general which also includes a greenhouse gas (GHG) emissions trading system (ETS). The reason I do so is that the tax, in particular, seems an unlikely candidate for an emergency measure, and worthy of investigation in this respect. I do not deny that ETS may also count as emergency measure; however this is not a claim I explore here. The merits and pitfalls of these different pricing instruments, as well as hybrids of the two, have been extensively discussed [292]. As to which one may provide a better emergency solution, I suggest that one metric of assessment may have to do with political and public support. I expand on this in S3.

Second, I do not think carbon pricing — be it a carbon tax or an ETS — is the only measure we need to tackle climate change. It will be a necessary, indeed, "critical" component [291, p. 8]. By no means do I believe it will be sufficient [293]. Indeed, relying upon a carbon tax alone may be inadvisable given that it may delay investment in essential high-cost mitigation measures while low-cost alternatives remain available [291, p. 4]. We will also need to see complimentary measures, such as investment in

technology, RDD, carbon capture and storage (CCS) and a carbon border adjustment mechanism (CBAM) among others [291]. Many of these measures may naturally and necessarily follow from the adoption of a carbon tax.

Finally, for the purposes of this paper, I assume that climate change does count as a genuine emergency. This is not a bold claim. Emergencies can threaten imminent harm and require rapid action; emergencies can threaten more distant harm but still require urgent, rapid action to avert and reduce that threat of harm. Climate change falls into both of these categories. There have been many national, supra-national and municipal governments that have already legally declared climate change as an emergency [162]. One need only look to the string of IPCC reports, with the most recent addition of AR6, to understand the damage that climate change has already caused, and is threatening to cause, as well as to understand the urgency of emissions reductions and adaptation measures [212].

4.1 Extreme Expectations: Typical emergency responses

In addition to the features that define emergency — great harm and the need for urgent action — we can point out certain recurring and unusual features we see in times of emergency. We can refer to these as the 'typical hallmarks' of emergency responses. These hallmarks include (i) the subversion of normal parliamentary, democratic, and legal procedures, (ii) restrictions and limitations on civil liberties and justice, as well as (iii) extreme or unusual responses. These features seem to be largely generated by a combination of time pressure and high levels of risk and uncertainty that colour emergency situations.

Let me focus upon (i) and (ii) in more details.

(i) The subversion of normal parliamentary, democratic, and legal procedures

Various measures and mechanisms exist in our contemporary political and legal institutions that are designed to safeguard democratic decision making, protect civil rights and liberties, and keep the exercise of governmental authority and power in check [100]. Emergencies disrupt this framework.

The suspension of normal politics and laws are common during emergencies. Normal parliamentary and legal procedures are often a hurdle to rapid action: “when the public safety is seriously threatened, there may be need for quick and decisive action that cannot, perhaps, wait for the deliberate pace of ordinary constitutional rule" [100, p. 210]. We often hear, therefore, of ‘states of exception’, ‘extraordinary powers’, ‘emergency powers’ and ‘martial law’ being implemented or appealed to during these situations in order for governments to act so as to avoid or reduce the threat of harm. These terms are largely used synonymously. As a result of these extraordinary powers or exceptional emergency laws, rapid decisions can be made and implemented, more power is given to government and, with it, less accountability, and civil liberties may suffer. These measures and exemptions are usually temporary, though there is concern that such exceptions will become normalised [99].

COVID-19 provides examples. Many of the measures that the UK Government went on to implement, such as lockdowns and physical distancing, were brought in and changed swiftly — in some cases, overnight — and were seen to challenge standard democratic decision-making. Indeed, some have described these measures as a "trade-off between public health and fundamental democratic principles" [102].

(ii) Restrictions and limitations on civil liberties and justice

Likewise, emergency responses often undermine and violate established civil liberties and justice. Civil liberties, in short, refer to the freedoms and guarantees provided by government to its citizens and which are enshrined in legal doctrines, such as political speech, etc. We often see restrictions and limitations placed on these liberties, such as restrictions on freedom of movement, travel, and association in times of emergency. As Tushnet notes, "emergency may provide a justification for actions that would, absent the emergency, be unjustified intrusions on civil liberties" [99, p. 98].

COVID-19, again, offers ample examples of extraordinary measures that were introduced that impinged upon liberties: nation-wide lockdowns, border closures, enforced business closures, work-from-home orders, purchase restrictions, travel restrictions, enforced mask wearings and physical distancing, and in some instances, mandatory vaccinations.

The suspension of normal parliamentary and legal procedures, and restrictions and limitations of civil liberties, are some of the regular features that colour emergency situations. These features are by no means exhaustive, but they provide a good account of the types of unusual and exceptional responses undertaken by governments in emergencies; responses that, as evidenced by these features, compromise the normal political, legal and ethical frameworks of contemporary society.

4.2 An Unlikely Candidate: A Carbon Tax Doesn't Fit the Typical Emergency Response Paradigm

On the back of the typical extreme emergency responses canvassed above, the carbon tax seems an unlikely candidate for an emergency solution to climate change. I first expand upon the key features of a carbon tax, and then outline why it would seem mistaken to understand the tax, as well as Pigouvian taxes more generally,

as emergency solutions.

4.2.1 What is a Carbon Tax?

A carbon tax is a tax-based mitigation-focused climate policy instrument. In short, it is a price put on every tonne of CO_2 released into the atmosphere [294]. This price is set by the government and is reflected in increased costs of goods and services in proportion to their GHG emissions intensity [291].

As it is, the harmful impacts of GHGs are not factored into the cost of CO_2. The tax is designed to correct that. As Cameron Hepburn puts it, the tax presents one way of forcing companies to pay for harms associated with their emissions-based products [295]. In the process, the tax will drive down emissions, as the price will encourage behavioural change in consumers, pushing them towards lower carbon alternatives [291]. The tax constitutes one form of carbon pricing alongside ETS, and is often presented as an alternative to command-and-control regulation [296].

The carbon tax is an example of a Pigouvian tax — a tax on the negative externality of a product or production — attributable the early 20th Century English economist, Arthur Pigou [297]. Sometimes products, production and companies have damaging effects on society that are not accounted for in the cost of the good. It creates, in other words, a negative externality. An externality is an impact on those who have not been included or accounted for in the cost of production [298]. Externalities can be positive (beneficial) — public health and education, for example, bestow benefits to society at large; they can be negative (harmful) — classic examples include pollution and traffic congestion that negatively impact members of society who receive no benefit from these given activities [298]. Negative externalities constitute an instance of market failure. The damage and harm caused as a result of increased anthropogenic GHG emissions constitutes a negative externality — indeed, it has been referred to as the "largest global externality" [299].

The price of a Pigouvian tax is set to reflect the negative social cost of the product that is not included in the market price. For climate change, then, the tax price is calculated on the basis of the cost of harm to others from GHGs and climate impacts, such as crop damage, and healthcare and damage costs from extreme weather events [294] — "the monetised value of the damages to society caused by an incremental metric tonne of carbon dioxide (CO_2) emissions" [300, p.687]. As of 2020, the true social cost of CO_2 (SC-CO2) was thought to stand at US$185 per t ($44 - $413 per tCO2) [300]. The price of a Pigouvian tax is set to reflect the negative social cost of the product that is not included in the market price. For climate change, then, the tax price is calculated on the basis of the cost of harm to others from GHGs and climate impacts, such as crop damage, and healthcare and damage costs from extreme weather events [294] — "the monetised value of the damages to society caused by an incremental metric tonne of carbon dioxide (CO_2) emissions" [300, p.687]. As of 2020, the true social cost of CO_2 (SC-CO_2) was thought to stand at US$185 per tCO_2 ($44 - $413 per tCO_2) [300].

The Pigouvian tax (often referred to as a "corrective tax") is corrective in that it aims to change behaviour and correct the negative externality by having the tax on the good internalize the social cost [301]. Often, these taxes are implemented in the form of an excise tax, which is a tax on a specific good or service [302].

Finally, these taxes are generally regressive as opposed to progressive, meaning that the tax is applied uniformly at a set price. As a result, the tax takes a larger percentage of income from low-income households than higher income households. This is opposed to progressive taxes, like income tax, in which those with higher taxable incomes are taxed at a higher percentage.

4.2.2 A Carbon Tax Does Not Fit the Emergency Response Paradigm

While a carbon tax may present an effective strategy for reducing emissions, it is far removed from what we typically consider as emergency measures, in general, and emergency responses to climate change, specifically. There are several reasons that support this thought.

First, the tax possesses none of the hallmarks of typical emergency responses. It is not authoritarian, nor would any emergency declaration be required to institute it. This is evidenced by the fact that many democratic countries have already implemented the tax via democratic and legal routes. As of April 2022, there were 37 carbon taxes in place globally [303]. What's more, the instrument has been in use since 1990 [303]. This was well before climate change began being labelled and declared an emergency by different governing bodies in 2016, with the majority of declarations not being made until 2019 [184].

It would be difficult to call the tax extreme or out of the ordinary. Pigouvian taxes are widely used in regard to a range of goods that generate negative externalities, including congestion, alcohol, sugar, and tobacco. Australia, for example, has had a long-standing tobacco tax. In 2016, the government introduced annual increases in the tobacco excise of 12.5%, up to and including 2020, increasing the cost of a packet of cigarettes from AU$22 (2016) to AU$40 (2020) [304].

It is hard to see how the measure could be said to compromise individual liberties. The corrective nature of the tax encourages behaviour change — it does not mandate it. This is different from measures that explicitly limit and infringe civil liberties like conscription. We saw an example of this in Ukraine in 2022 when men between the ages of 18-60 were banned from leaving the Ukraine in order that they take up arms by martial law decree [110]. Other examples include lockdown rules, and even the mandatory wearing of masks during COVID-19. It may be argued that

the tax, as it is regressive, would compromise justice and generate unfair burdens on low-income earners and households [305]. This is a legitimate concern, especially given that poorer households are often more energy intensive (i.e., they own "dirtier vehicles") and are less able to afford less-emitting, green alternatives (i.e., electric vehicles) [306, p. 236]. However, such injustice can easily be overcome by redistributing the tax revenue to affected households and low-income earners. As such, the tax can, in fact, promote distributive justice [307].

Neither extreme, authoritarian, undemocratic, legally subversive nor threat to liberty or justice: the carbon tax possesses none of the typical hallmarks of emergency measures. In the absence of these features, and in addition to the fact that the tax has been in use for over 30 years, it is difficult to see how we could understand it as an emergency response to climate change.

What emergency responses do we expect of climate change? There has been great pushback about the possible extreme measures the declaration of a climate emergency could result in [43], [20]. Suggestions have included 'climate lockdowns' and drastic emissions cuts. In particular, it has been suggested that it may lead to extreme geoengineering measures, with solar radiation management (SRM) often presented as a "last-ditch response option in the event of a 'climate emergency' [20], [308]. It is these kinds of extraordinary, unusual, and quick acting responses that we typically think of when we think of emergency responses to climate.

Note, we have not yet seen any responses to climate change such as the ones canvassed above, despite emergency declarations that have been made. Indeed, there is debate about whether or not climate change counts as a genuine emergency. Emergency declarations have been criticised in regard to climate for the "socially corrosive ethical and political effects" emergency powers and responses have been known to historically generate [20, p.147], [43]. So far, it seems rather that the declarations and calls of "climate emergency" have merely been rhetorical to garner

support. I cannot go into detail on these points here. As mentioned, I assume that climate change does count as a genuine emergency and am interested in, given that, what kind of measures would count as emergency responses to the crisis.

4.2.3 Taxes in Times of Emergency: Not a Time for Pigouvian Taxes

It is not just that a carbon tax does not seem to be an emergency solution for climate change. Pigouvian taxes in general seem unlikely responses in emergency contexts and are not typical tax mechanisms used in emergency times.

Tax policies can and do play important roles in times of emergency [309]. They are generally employed to achieve two main objectives during emergency times: (i) to raise government revenue to respond to and handle the emergency and its impacts on society; and (ii) to safeguard and bolster the economy, and manage economic fallout [310].

Revenue raising taxes are a common tax intervention we see during emergencies. One of the most classic examples of this is the Victory Tax introduced in the United States (US) under the Revenue Act of 1942 in order to raise funds for World War Two. This was a mass tax — changing the percentage of American workers paying income tax from 5% to 75% — and a progressive tax, considered the "broadest and most progressive tax in American history" [311]. Windfall taxes or "excess profit taxes" also provide good sources of Government revenue [312]. These taxes are aimed at businesses that have profited from the emergency, and are justified on the basis that, were it not for the given crisis, they would not have profited as they did [310].

Tax mechanisms to secure the economy and "boost cash flow" during are numerous. In addition to securing the economy, these measures are often used to support both businesses and households from the impact of emergencies. Assessing COVID-19, Richard Collier et. al., were able to identify three main subcategories of these measures. The first includes modifying the temporal application of the domestic tax systems

to alleviate business cash-flow pressure [310]. For example, corporate income tax (CIT) or value added tax (VAT) may be deferred; interest payments waived, or rates lowered; and late payments penalties frozen. The second category concerns "more radical measures", which may exempt businesses or certain sectors that are particularly vulnerable from paying their usual tax bill [310, p. 3]. During COVID-19 the UK, for example, introduced business rates holiday for hospitality, leisure, and retail sectors [313]. The third category involves introducing more favourable tax provisions, such as relaxing conditions on non-taxable business expenses to reduce economic pressure on businesses and individuals. In addition to these measures, taxes may be introduced that aim to encourage investment and consumption and thereby kick-start or bolster economic stability. These include reduced VAT or accelerated capital allowances [310], [314]. All of these tax-based interventions introduce temporary and radical changes to tax systems that significantly subvert business-as-usual practices.

Pigouvian taxes are different. I give several reasons why we might think that Pigouvian taxes are not the right kind of taxes when it comes to dealing with emergencies. First (i) Pigouvian taxes do not have a history of being used during times of emergencies. Rather, they tend to cover things like smoking, alcohol, and congestion to deal with ongoing problems and harms associated with these goods.

Second (ii), they differ in purpose. Pigouvian taxes are not primarily employed to raise revenue for Governments to use to fund emergency measures and responses. Rather, they are specifically aimed addressing a given negative externality. While it is true that the taxes can raise revenue for government, their primary motivation is to correct a market failure and internalise the negative externality and social cost on society. Often revenue will be used to help further correct the damage done by the negative externality. In the emergency case, however, revenue is raised for the specific reason of funding endeavours to tackle the relevant emergency. While any revenue collected can be redistributed, or used for other purposes possibly including

government emergency-time financing, this is not the intended purpose of the tax and there are more obvious taxes to implement to achieve revenue related goals.

Likewise, they are not concerned with bolstering the economy or managing economic fallout in the presence of emergencies. Tax mechanisms that serve this second purpose could be applied to any emergency regardless of the specific type. They usually take the form of rebates or tax cuts. Pigouvian taxes, however, are often applied to specific goods and services in the form of an excise tax. The intention is not to stabilise the economy and they would present a poor tool to achieve this aim.

Third (iii), Pigouvian taxes differ in kind, formulation and design from the emergency-time taxes we tend to see. For instance, they tend to be regressive, as opposed to progressive; and they necessarily involve calculation of the relevant negative externality and social cost of a certain good to set the price of the tax. This is, again, different from typical emergency-time taxes.

Fourth (iv), most emergencies we see are not caused by market failure and the presence of negative externalities. Paradigmatic examples of emergencies — fires, floods, pandemics, terrorism — are not caused by negative externalities nor are they examples of market failure. Pigouvian taxes which seek to correct these negative externalities would therefore not be required or relevant to the situation at hand. As a result, they are not typically the kind of responses we see during emergencies.

Fifth (v), however, even if an emergency were caused by a negative externality, it does not follow that a Pigouvian tax would be a good emergency response. Emergencies often require rapid action and solutions. Pigouvian taxes are useful for nudging consumer behaviour change and driving down production until the negative social cost of the good is accounted for. Such an instrument takes time. This does not seem rapid enough to respond to emergencies with the degree or urgency they require, unlike the temporary cuts and adjustments made to strengthen the economy and raise funds. Furthermore, it may be difficult to calculate the negative social cost

of the tax given that emergencies are often sudden and unexpected events. This would likewise delay the implementation of the measure and lead to the social cost not being appropriately calculated.

In sum, carbon taxes, and Pigouvian taxes in general, simply appear to be the wrong kind of tool or policy intervention in the context of emergencies. There is good reason to think, then, that a carbon tax would not count as an emergency measure. This is not to say that it is not a solution to climate change point blank, but more specifically that it would not constitute an emergency measure.

4.3 One of the Best Emergency Solutions We Have Available

Contrary to the points made above, in this section I argue: (I) that the Carbon Tax is an emergency measure; (II) that it is one of the best and most just emergency measures we have at hand; and (III) that the emergency framing can overcome some of the classic objections we see against the tax.

4.3.1 A Carbon Tax is an Emergency Measure

The carbon tax — and Pigouvian taxes at large — can function as emergency measures.

The first thing to address is a common misconception which disrupts the idea that something so familiar — a Pigouvian tax on carbon — could count as an emergency solution, namely that emergencies require extreme, extraordinary, or unusual measures. While it is true that emergencies often give rise to such measures, and possess certain characteristics — subversion of democratic and legal procedures, elements of authoritarianism, and the derogation of civil liberties and justice — they do not require them.

Sometimes emergencies can be tackled by making use of measures that are already in place or are easily enactable under legal and democratic routes. All that emergencies require, on a fundamental level, is a response that would appropriately address the situation. By 'appropriately address', I mean that the response must be rapidly implementable in a way that would meet the urgency required by the given emergency, and provide good reason to think it would successfully address, reduce, or avert harm threatened. As this paper has made clear, a carbon tax possess none of the hallmarks of 'typical' emergency responses. Nor does its implementation require appeal to emergency powers — this is evidenced by the fact that it has been implemented in multiple democracies through proper legal routes. It is mistaken, however, to think that this says anything about whether or not it qualifies as an emergency response. Rather, the test will lie in its ability to appropriately address the situation.

I argue that Pigouvian taxes can be emergency measures. It's simply the case that they rarely are appropriate emergency measures. Recall the five points given as to why a Pigouvian tax is not a likely emergency measure above.

In regard to (iv): It is true that classic kinds of emergencies are not caused by the presence of negative externalities. The paradigmatic examples that come to mind are fires (usually caused by lightning or vagrancy); earthquakes and tsunamis (geological causes); war (political causes and individual aggressors); and pandemics (usually environmental factors and species transmission). However, while less immediately obvious, there are in fact many examples of public emergencies that are caused by negative externalities. This includes the 2008 financial crisis: an example of extreme market failure. It has been argued that the crisis was caused as a result of the negative externality of systemic risk [315]. Viral Acharya et. al. explain: "each individual firm is clearly motivated to prevent its own collapse but not necessarily the collapse of the system as a whole. So when a firm considers holding large amounts of illiquid securities, or concentrates its risk into particular ones (e.g., subprime-based assets),

or puts high amounts of leverage on its books (as a way to drive up excess returns), its incentive is to manage its own risk/return trade-off and not take into account the spillover risk it imposes on other financial institutions" [315, p. 287]. Other examples include the Great Smog emergency in London, 1954, as well as the Bhopal Disaster in India, 1984, both of which were caused by the negative externality of pollution and its effects on crowded residential and metropolitan areas.

However, recall (v), even if an emergency were caused by a negative externality, it does not follow that a Pigouvian tax would be a good emergency response. Why? The main reason is that it may not deliver results swiftly enough to deal with the emergency. Consider emergency situations involving pollution — for example, the Exxon Valdez oil spill in 1989. Such an emergency requires immediate intervention — containment, recovery of as much oil as possible, in-situ burning of the oil on waters surface to prevent further spread, etc. A Pigouvian tax is not an appropriate emergency response here that would have rapidly reduced harm. However, in response to the spill Congress established the Oil Spill Liability Trust Fund to compensate those who suffered loss and damage from the spill [316, p. 104]. The Fund was funded by a Pigouvian tax of five cents per barrel of oil produced and imported to the US. Thus, such taxes, while not being appropriate as an emergency response to such incidents, can still be drawn on to aid with emergencies in different ways such as loss and damage.

Climate change is different. The emergency is caused by a negative externality — the largest we have seen. What's more, the efficiency of the carbon tax in bringing down emissions combined with the 2050 time frame makes this Pigouvian tax a perfect emergency response. The kind of emergency it is does not require urgent action that rapidly reduces and halts CO_2 emissions overnight comparable to the oil spill response. Such a sudden drop in emissions would be disastrous in itself, given our reliance on fuels for energy and economic security. But it does require urgent action nonetheless. We have 26 years left to drop emissions, shift to renewables, and

implement carbon capture and storage (CCS) infrastructure to deal with emissions reductions and hard to abate sectors. Such a transformation takes time, and 26 years in this regard is extremely short. A carbon tax, universally implemented at an adequate rate, presents a reliable and efficient way to kickstart this transition and ensure we reach our goal of net zero emissions by 2050.

Moreover, there is precedent for thinking that Pigouvian taxes can be deployed as an emergency response. Ashley Craig and James Hines argue that it would have been more efficient than command and control measures in responding to Covid-19 transmission [309]. They state, "taxes on business activities that bring workers or customers into close contact with each other offer efficient alternatives to broad regulatory measures, such as shutdowns, that have been effective but enormously costly [309, p.969]. In this sense, although the virus itself was not caused by a negative externality, the spread of the virus via close-contact business practices was. As such they would have provided preferable emergency responses to the measures most Governments took.

Turning to the different purposes (ii) and design (iii) from typical emergency-time tax instruments. Appealing to Pigouvian taxes to address an emergency caused by a negative externality is fundamentally different from employing tax mechanisms to help fund emergency responses and stabilise the economy. The former seeks to address the root cause of the emergency, the latter deals with responding to fall out and the developing the means to respond to the disaster. This explains why Pigouvian taxes are not generally employed as emergency measures — because of the limited amount of public emergencies caused by externalities, and the even more limited amount that the tax would respond to with enough rapidity given the urgency of the situation. Outside this narrow context, the tax would of course be inappropriate as an emergency measure. It must be noted, however, that the tax would, as a consequence achieve the objectives of raising revenue and providing economic stability — or at least of "minimis[ing] the risk of adverse economic impacts" [291, p. 2].

In sum, when the circumstances are right, Pigouvian taxes can be emergency measures: when the emergency is caused by a negative externality, and when the tax would appropriately address the situation. Climate change is such that we have the time to implement a Pigouvian tax (if we do so urgently, universally, and properly) and for the tax to work by 2050. This is unusual and quite particular to climate. Given the particular context, the carbon tax is, without doubt, an emergency solution.

4.3.2 The Carbon Tax is one of the Best Climate Emergency Measures

Not only does the carbon tax qualify as an emergency measure, but it is, I argue, one of the best we have at our disposal. I make this assessment based on the measure's efficiency, effectiveness, feasibility, and justness.

The carbon tax stands out as a policy measure given that it: has the ability to successfully reduce emissions in a cost-effective, efficient way; is feasible — there are few barriers to implementing the policy above and beyond political opposition; and is an emergency measure that would maximise total global levels of justice. Again, I do not claim that it is, or should be, the only policy solution we employ — there will need to be a mix. Nor do I claim that the tax will always be the best option. For example, there may be some situations in which an ETS is preferable (see point (III)).

(I) Efficient: A uniform global carbon tax would be an "ideal tool" to reduce emissions in a cost-effective way [317]. There has been extensive work done on the effectiveness and efficiency regarding the carbon tax, and its benefits of carbon pricing over other measures, including command-and-control regulation [318]. As an example of carbon pricing, it provides great flexibility (i.e., in how emissions are reduced) and less room for manipulation compared to an ETS [318], [319].

(II) Effectiveness: While it is difficult to analyse the effectiveness of specific carbon taxes [291], [320], there has been observed effectiveness of the policy instrument in lowering emissions and shifting behaviour towards less-emissions intensive practices in British Columbia, for example [321]. For effectiveness, we must also consider whether the tax has been priced correctly. As Erik Haites et. al., note, "existing carbon pricing policies have had limited impact on the emissions of these sectors because their marginal abatement costs almost always exceed the tax rate or allowance price" [291, p. 1].

(III) Feasible: The tax could be easily implemented and would require no subversion of democratic or legal procedures. However, one important aspect of feasibility for emergency measures is the swiftness with which they can be implemented. Despite the technical feasibility of the measure, political and public opposition is important here. Suppose the political climate of one country or area is such that a carbon tax would have no degree of possibility of ever being implemented. Research has suggested that consumers have a tendency to prefer other, less efficient way of reducing consummation compared to taxes and have a recorded aversion to taxes [322]. In this context, an ETS (which, suppose, was met by less opposition in that country, would be preferable as an emergency measure given the inaction behind the carbon tax), even though a carbon tax may be best all things considered, or better in some other contexts (i.e. in countries without significant opposition to the tax).

(IV) Justness: Most importantly, I argue that the tax would provide one of the most just emergency measure we have available.

Delay on climate action both creates and intensifies climate injustice. Consider the following:

1. **The longer we wait, the more extreme emergency responses become**: The longer we wait, the more limited and more extreme our available set of emergency responses become. What this means is that measures become more likely to subvert democratic and legal procedure, to bolster authoritarianism and compromise civil liberties and justice. As it is, we need to act rapidly. If we wait too long, it may be impossible to implement a carbon tax at an affordable rate (this may in turn increase the burdens generated by the tax on low-income households). The estimated true social cost of carbon is, recall, $185 as of 2022 [300]. A carbon tax could conceivably be priced much higher than this if we were to continue business as usual and delay implementation for 10 or even 5 years for example. If we wait longer, we may have to make drastic emissions cuts (i.e., lockdown equivalent policies, travel bans, energy-usage restrictions); we run the risk of having to rely on as yet undeveloped, untested technology like CCS and geoengineering.

2. **The more extreme the response, the less just the measure**: The more extreme a response, the more likely it is to compromise liberties and justice. For example, the higher carbon price would increase the burden on low-income households. Even if the tax were designed in a progressive way (recycling revenue to low-income households), it would still disproportionately affect the vulnerable given that the high tax would increase the cost of living (fuel, electricity, transport, food, and other prices would be affected) [291]. Having to resort to extreme emissions cuts, lockdowns, and so on, would likewise severely curtail and compromise liberties and justice. Reliance upon as yet undeveloped technologies and extreme measures like geoengineering would also generate significant risk for current populations as well as unjustifiably transfer risk to future generations [323]. These measures will erode the current level of

justice we have and run the risk of taking away civil liberties that our society has already secured.

3. **The longer we wait, the worse things get**: Delay not only narrows the range of emergency responses we have available, leaving us with more extreme and less just options. It also allows time for emissions to increase and for climate impacts and damages to escalate. In short, the climate situation and its impacts worsen. In turn, vulnerable populations, industries, food security, socioeconomic security, health, etc, will suffer great impacts.

The above three points are obvious. What is not obvious, is what these have to do with a carbon tax and how it marks out the measure as one of the most just we have available. There is nothing about a carbon tax that means it will be rapidly deployed and avoid delay. Indeed, they have been around since 1990, and still there are only currently 37 in place, most of which are not set at high enough prices.

Moreover, there have been arguments launched against the carbon tax that it is, in fact, unjust. As Kian Mintz-Woo notes, "campaigners and civil society groups, especially those involved in environmental and climate justice spaces, have rejected carbon pricing as unjust" [307]. More specifically, it has been objected (i) that the tax may generate unfair burdens, and (ii) that fundamental, systematic change would be preferable [305]. I have already discussed the regressive nature of the carbon tax and redistribution of revenue that may correct that disproportionate burden, so let us leave (i) and consider (ii). The thought here is that carbon tax — or carbon pricing — alone would not maximise justice — it would not constitute a ""justice-determinative" policy choice" that would result in wide-spread systems change and raise the bar of justice realisation all round (i.e., gender justice, economic justice, racial justice) [307]. It would not, in other words, bring about, and may even distract from, the revolution we need.

Mintz-Woo responds to this line by arguing that fundamental change takes time, and that, when it comes to climate change, delay can be deadly. While calls for systemic change are sometimes appropriate, the urgency of climate change, combined with the fact that systemic change takes time, makes the call for systemic change inappropriate [307].

The context of emergency and focus on emergency response provides another response. The longer we wait, the worse climate impacts become, but also the worse, and less just, climate responses become. It is not that a carbon tax is the most just option. It is that, starting from where we are now, most other alternatives to the tax are even worse in terms of justice. While a revolution and systemic change may promote justice, the delays involved in agreeing on, implementing, and achieving such change, would seem likely in fact to create more injustice in virtue of leaving time for worsening climate impacts, and at the same time, closing our window for response and making more extreme, less just measures a certainty.

The carbon tax is implementable now. We do not need to delay further. While it may not be perfect, it would adequately and appropriately address the harm threatened by climate change and aid us in reaching our 2050 time frame.

It is mistaken, wrong and dangerous to delay action in the hope of coming up with a better solution, or to try to tackle more than the root cause of climate change at the cost of implementing efficient and appropriate measures now. I conclude therefore that the carbon tax presents one of the best and most just policies we have available. It is ready to go. We must implement it.

Conclusion

I have argued that the carbon tax is one of the best emergency responses we have available to tackle the climate emergency. The tax seemed an unlikely candidate

for emergency response, given its seeming mundanity — it is neither extreme, nor does it possess any of the typical hallmarks of emergency responses: authoritarianism, subversion of democratic and legal procedure, and suppression of civil liberties and justice. What's more, Pigouvian taxes (of which the carbon tax is one) are highly unusual taxes in the context of emergencies. Their purpose differs from the usual objectives of emergency-time taxes: they are not primarily intended to generate revenue for response efforts or to stabilise the economy. Contrary to this, I demonstrated that Pigouvian taxes can function as emergency responses in the right conditions: in the presence of an emergency caused by an externality, and that also has enough time between the tax deployment and resolution for the measure to be effective. Climate change presents one of those rare instances.

We must decarbonise by 2050. The carbon tax, I argue, provides one of the most efficient, effective, feasible and just routes to that deadline and should be recast and viewed as an emergency response.

Why does it matter whether it's an emergency measure or not?

An important question in all of this is whether the framing of a carbon tax as an emergency solution makes any substantial difference, or whether it is just of terminological interest. In other words, does it matter if we classify it as an emergency measure or not? What difference, if any, would it make? Why should we be concerned with this question at all?

Recasting a climate tax as an emergency policy or emergency response to climate change could make a difference to how the measure is perceived by the public and policymakers. By framing the tax as an emergency policy or response, it can be portrayed as an urgent and necessary solution. This framing could help to build political will and public support for the tax, which may have been lacking if it were viewed as just another tax or policy initiative. Taxes are notoriously hard to

implement, and there has been little political uptake of, and public support for, carbon taxes. Furthermore, most carbon taxes have been introduced at lower prices than necessary. The emergency framing may help in arriving at more properly designed carbon taxes. It may assist in getting the measure adopted in countries that have yet to introduce carbon pricing, and it may encourage the development of an international carbon tax. In short, recasting a climate tax as an emergency policy or emergency response to climate change could help to garner more support and build momentum for adopting and justifying the tax to stakeholders.

Even if this is true, why is it particular to the carbon tax? Couldn't we simply recast every solution to climate change as an emergency measure, given that every solution concerns climate change and climate change is an emergency? If so, why would it matter to single out a carbon tax as an emergency measure? There are a range of responses available to us in regard to addressing climate change. These include carbon capture and storage (CCS); nature-based solutions such as reforestation and afforestation; reductions in emission levels; and systemic change, including a transition to renewable energy sources (this can be done in the absence of carbon pricing). Surely, these would all count as well?

It is simply not the case that all solutions to climate change are emergency solutions. An emergency solution must, recall, be able to adequately and swiftly respond to the emergency at hand. I argue that a carbon tax can do so, whereas calls for revolutionary-like systemic change cannot, given the significant delays and risk involved. Likewise, under-priced or poorly designed carbon taxes cannot respond sufficiently, and so would not count as a genuine response. The tax must be implemented and designed properly, with an ideally global price. It is by no means the only emergency measure needed, but it is an extremely important one and a good place to start.

The old humility of the shepherds who felt themselves subject to the influence of the Pleiades is no longer appropriate in the scientific world. But there is a danger lest it should be replaced by a species of arrogance towards nature.

— Bertrand Russell,
New Hopes for a Changing World, 1951 [324, p. 32]

5 Conclusion: New Hopes for a Rapidly Changing World

Climate change is an emergency. While the grand conclusion of this thesis is a belief already held by many (though unfortunately not more), it is one I have now *proven* to be the case. I have provided what I believe is the most thorough defence and examination of the "climate emergency" to date.

If we are to accept that climate change is a genuine emergency, then we must also accept that we *must* take emergency action. The consequences of failing to do so are tremendous. While I have shown that extraordinary emergency responses are not necessarily the enemy of justice, and can be justified on the basis of securing the circumstances of justice, I have also shown that not all emergency measures must entail authoritarian, unjust responses. The carbon tax was my example.

However, the longer we wait, the more unjust the situation will become. Both in terms of climate impacts and its disproportional effects on the world's worst off, but also in terms of the nature and severity of the emergency measures we have at our disposal. If we wait too long, the carbon tax may cease to remain an effective

emergency response tool, given that it may not be able to provide a solution to the situation in the time-frame of limiting warming to 1.5°C.

The situation is dire. But it is important to continue to see reasons for hope. There is a path forward. Indeed, there are multiple paths that we can take in order to align with 1.5°C warming and avert and reduce the harm threatened by climate change [4]. Emergencies are something we must strive to overcome. Overcoming this one is possible within the laws of chemistry and physics. Now, we must find a way to make it possible within the laws of nations, government, and politics.

A Quick Summary

Let me reiterate my main takeaways and conclusions. Recall, there were 7:

1. Climate change is an emergency: Climate change is an emergency that requires urgent action to avert and reduce severe harm to critical systems. Climate change specifically constitutes a threshold emergency, meaning that harm is already occurring, but a threshold point has been identified beyond which critical systems will be severely harmed. This threshold is warming beyond 1.5°C.

2. *Climate change is not a crisis; not any more*: While climate change was once a crisis, it is now an emergency. I argued that it is possible to distinguish between a crisis and an emergency, on the basis of whether or not there has been an emergency threshold identified.

3. *The concept of emergency contains only two necessary conditions*: I have argued that the concept of emergency contains only two necessary conditions: (1) harm to critical systems, and (2) the need for urgent action. Additionally, I introduced a distinction between explosive, time-bomb, and threshold emergencies.

4. *Emergencies objectively exist*: I have argued that emergencies objectively exist; that they are not merely subjective perceptions. In addition, I identified various objective measures we can appeal to in order to assess whether an emergency exists.

5. *Urgency is a function of badness, time, and uncertainty*: I have argued that urgency is a function of three factors: badness (the severity of the harm), time (the amount of time until harm, and response time), and uncertainty (the degree of uncertainty about the harm and time involved).

6. *Extreme emergency measures are not always the enemy of justice*: I have argued that extreme emergency measures, such as those that may limit individual freedoms or impose undemocratic measures, are not always the enemy of justice. They are capable of being justified on the grounds of securing and protecting the circumstances of justice.

7. *The Carbon Tax should be recast as a just emergency measure*: And, finally, I have argued that a carbon tax, which is a policy designed to reduce GHGs, should be recast as a just emergency measure.

Future Directions

In order to understand climate change and its ethical and policy implications, it is necessary to have a deep understanding of the concept of emergency, as well as the critical concept of 'climate emergency' itself. I hope I have provided that solid foundation.

I have identified four immediate areas for future research:

1. *Why does the label of climate emergency matter?* I have established that climate change is an emergency. But an opponent might question why this matters. Why have I gone to such lengths and trouble? Indeed, some argue that we should abandon the emergency framing of climate change because of the unjust responses it may give rise to. I would like to tackle this question, and demonstrate why it is so important that we classify climate change as an emergency, and respond to it accordingly. A tentative guess is that the thinking of such an opponent is based on some crucial misconceptions about emergencies and their role in securing justice, as well as the misconception – or perhaps cognitive bias – that all emergencies will result in or lead to extreme measures.

2. *A justice scaling of emergency measures*: I would like to develop a framework for assessing just and unjust climate emergency measures.

3. *An Emergency Ethics*: I believe that emergencies create different demands on us and generate different responsibilities that clash with and may override climate responsibility and traditional moral responsibility. I would like to develop these arguments and the account of "emergency ethics", and demonstrate its application to topics within climate ethics and policy. For instance, the debate regarding a Climate World Bank from John Broome and Duncan Foley seems best explained in terms of emergency and self-protection, rather than self-interest [325] [326], while Stephen Gardiner's attack of the idea stems from a concern about justice [327]. I believe "emergency ethics", as I call it, may be able to conceptually enhance the argument for a World Climate Bank, and successfully overcome Gardiner's concerns.

4. *The Urgency Equation*: Finally, I would like to develop the urgency equation into a quantitative metric for assessing the scale of emergencies. I have already suggested ways in which this might be formulated. For instance, I would posit that Urgency (U) would equal to Badness (B) divided by Time (T), divided by Uncertainty (Uc). So, U=(B/T)/Uc). Here, the value of Uc would lie between 0 and 1, with 0 being 0% certainty (complete uncertainty), and 1 being 100% certainty.

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