An Agenda for Ethics and Justice in Adaptation to Climate Change

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Abstract. *As experts predict that at least some irreversible climate change will occur with potentially disastrous effects on the lives and well-being of vulnerable communities around the world, it is paramount to ensure that these communities are resilient and have adaptive capacity to withstand the consequences. Adaptation and resilience planning present several ethical issues that need to be resolved if we are to achieve successful adaptation and resilience to climate change, taking into consideration vulnerabilities and inequalities in terms of power, income, gender, age, sexuality, race, culture, religion, and spatiality. Sustainable adaptation and resilience planning that addresses these ethical issues requires interdisciplinary dialogues between the natural sciences, social sciences, and philosophy, in order to integrate empirical insights on socioeconomic inequality and climate vulnerability with ethical analysis of the underlying causes and consequences of injustice in adaptation and resilience. In this paper, we set out an interdisciplinary research agenda for the inclusion of ethics and justice theories in adaptation and resilience planning, particularly into the Sixth Assessment Report of the International Panel on Climate Change (IPCC AR6). We present six core discussions that we believe should be an integral part of these interdisciplinary dialogues on adaptation and resilience as part of IPCC AR6, especially Chapters 2 ("Terrestial and freshwater ecosystems and their services"), 6 ("Cities, settlements and key infrastructure"), 7 ("Health, wellbeing and the changing structure of communities"), 8 ("Poverty, livelihoods and sustainable development"), 16 "Key risks across sectors and regions"), 17 ("Decision-making options for managing risk"), and 18 ("Climate resilient development pathways").: (i) Where does 'justice' feature in resilience and adaptation planning and what does it require in that regard?; (ii) How can it be ensured that adaptation and resilience strategies protect and take into consideration and represent the interest of the most vulnerable women and men, and communities?; (iii) How can different forms of knowledge be integrated within adaptation and resilience planning?; (iv) What trade-offs need to be made when focusing on resilience and adaptation and how can they be resolved?; (v) What roles and responsibilities do different actors have to build resilience and achieve adaptation?; (vi) Finally, what does the focus on ethics imply for the practice of adaptation and resilience planning?*

Keywords: Climate adaptation; resilience; ethics; justice; IPCC

1. Introduction

As experts predict that at least some irreversible climate change will occur with potentially disastrous effects on the lives and well-being of vulnerable communities around the world, it is paramount to ensure that these communities are resilient and have adaptive capacity to withstand the consequences (Crowther et al., 2016; S. Gardiner, 2004, p. 573; IPCC, 2013, p. 18). Adaptation planning (defined as "the process of adjustment to actual or expected climate and its effects in natural or human systems") and resilience planning (defined as "the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning") (IPCC, 2014, p. 5) present several ethical issues – these need to be resolved if we are to achieve successful adaptation and resilience to climate change, taking into consideration vulnerabilities and inequalities in terms of power, income, gender, age, sexuality, race, culture, religion, and spatiality (Adger, 2006a; Adger, Paavola, Huq, & Mace, 2006; Borie, Pelling, Ziervogel, & Hyams, 2019; Paavola & Adger, 2006; Shi et al., 2016). Sustainable adaptation and resilience planning that addresses these ethical issues requires interdisciplinary dialogues between the natural sciences, social sciences, and philosophy, in order to integrate empirical insights on socioeconomic inequality and climate vulnerability with ethical analysis of the underlying causes and consequences of injustice in adaptation and resilience (Ziervogel et al., 2017).

On 3 May 2018, we hosted a workshop at the University of Warwick on the ethics of resilience and adaptation to climate change, with the participation of 21 social scientists, human geographers, philosophers, and practitioners, all of whom have worked on adaptation and resilience in development contexts and many with local communities. The workshop consisted of six presentations and plenary discussions, in which we discussed the wide range of ethical issues that arise from the need to ensure that vulnerable communities are resilience against climate-induced environmental shocks, and have the capacity to achieve longer term adaptation to anticipated climatic changes. The present paper summarises the results of these discussions, setting out an interdisciplinary research agenda for the inclusion of ethics and justice theories in adaptation and resilience planning, particularly into the Sixth Assessment Report of the International Panel on Climate Change (IPCC AR6).

It may be helpful to remark at the outset on the difference between, on the one hand, climate justice (S. Gardiner, 2004; S. M. Gardiner, Caney, Jamieson, & Shue, 2010; Hayward, 2012; Heyward, 2017; Klinsky et al., 2017) and sustainability ethics (Becker, 2011; Keitsch, 2018; McIntyre, Caputo, & Murphy, 2017), and, on the other hand, the ethics and justice of adaptation and resilience. Climate and sustainability ethics are concerned with a broad range of climate

issues, ranging from mitigation over adaptation and resilience to loss and damage. The ethics and justice of adaptation and resilience, by contrast, is concerned with a subset of these wider issues, namely how ethics can contribute to more fair and just adaptation and resilience outcomes. Our focus in the present paper is on the latter. Whereas the climate justice literature is often (though not exclusively) focused on what is owed to other people and future generations in terms of access to environment and natural resources, justice in adaptation and resilience is focused on what is owed to people and future generations *after* the occurrence of environmental change and the depletion of natural resources. As such, there are a number of key differences in terms of what justice requires within the two realms, and it is unclear – and requires more research – whether and to what extent climate justice principles can be translated and applied to the context of adaptation and resilience.

A clear understanding of ethics principles (defined as the conceptualization and delineation of what is right and wrong or good and bad) has become more important than ever in order to facilitate suitable pathways for equitable adaptation and resilience (Robinson & Shine, 2018). This is particularly the case in the context of a need to balance mitigation and adaptation efforts, and tradeoffs to achieve and prepare for 1.5°C warmer futures (IPCC, 2018). The rigorous application of ethical principles to adaptation and resilience requires a focus both on empirical considerations about the potential consequences of differences courses of action, and on theoretical approaches to ethics issues developed using philosophical methodologies such as logical consistency, conceptual analysis, and the Rawlsian 'reflective equilibrium' technique for generalizing moral intuitions (Rawls, 1999).

Following on from this workshop, we present in what follows six core discussions that we believe should be an integral part of these interdisciplinary dialogues on adaptation and resilience as part of IPCC AR6, especially Chapters 2 ("Terrestial and freshwater ecosystems and their services"), 6 ("Cities, settlements and key infrastructure"), 7 ("Health, wellbeing and the changing structure of communities"), 8 ("Poverty, livelihoods and sustainable development"), 16 "Key risks across sectors and regions"), 17 ("Decision-making options for managing risk"), and 18 ("Climate resilient development pathways").

2. What is the role of 'justice' in adaptation and resilience?

The first ethical issue that arises in the context of adaptation and resilience concerns the role and status of 'justice.' Theories of justice – such the Rawlsian theory and recent scholarship on the meaning and importance of equality (Rawls, 1999) – provide useful insights on distributive (the just distribution of resources and responsibilities), compensatory (e.g. remedying unjustified losses by restoring people to their positions *ex ante*), and procedural concerns (equitable representation and effective participation in decision-making). In particular, the introduction of justice and ethics within adaptation and resilience offers normative guidance, grounded in both

theory and practice, that can help to make informed decisions about resilience building and adaptation (Ajibade & Adams, 2019). This raises two questions. First, what is the relationship between justice theory and the practice of adaptation and resilience? Second, what does justice require of adaptation and resilience practice?

In the first case, theories of justice are largely focused on describing ideal principles of justice. Adaption and resilience, on the other hand, are essentially responses to a very non-ideal situation, namely the assertion that climate change is likely to destroy biospheres, disrupt social and economic livelihoods, and endanger the lives and well-being of humans and animals now and in the future (Heyward & Roser, 2016). Furthermore, communities' capacities to adapt are in practice limited, particularly in the Global South. This is due to many factors, including finite resources, inadequate financial and institutional infrastructures, lack of political leadership or consensus, and individual lack of awareness or motivation to adapt (Brooks, Neil Adger, & Mick Kelly, 2005; Gallopín, 2006; Smit & Wandel, 2006; Yohe & Tol, 2002). Adaptation and resilience thus present a tension between action that is urgently required, what is feasible given constraints of time and resources, and what may be required and desirable by justice ideals.

If the relationship between justice and adaptation and resilience practice is one between, on the one hand, ideal theory and, on the other hand, non-ideal practice, we need to ask how to describe this relationship and what exactly ideal justice demands of adaptation and resilience. Does a theory of justice present the end-goal of adaptation and resilience efforts – setting out an ideal state of affairs that adaptation and resilience efforts should aim to achieve? Or does it merely act as a constraint on the kinds of adaptation and resilience practices that can be implemented? A theory of justice in adaptation and resilience could, for example, hold that adaptation and resilience efforts should avoid (or rectify) discrimination based on social status, gender, age, sexual orientation, and race; not lead to unnecessary displacement of vulnerable populations; recognize the input and interests of vulnerable communities in procedure of planning adaptation and resilience efforts; and so on, while at the same time allowing that these restrictions can be respected in different ways.

Moreover, within climate ethics, the notion of intergenerational justice – what do we owe to future generations? – is an important concept (Barry, 1999; Beckman, 2008; S. M. Gardiner, 2006, 2009; Jagers & Duus-Otterström, 2008; Moellendorf, 2009; E. Page, 1999). Yet, given that future generations are already likely to experience some changes to the local and global environment, it becomes important to ask what we owe to future generations in terms of facilitating resilience and adaptation. It would be a strength of IPCC AR6 if it were to consider what pathways present generations might create or facilitate in order to ensure that future generations are resilient to climate change in ways that satisfy principles of intergenerational justice.

Given the dual orientation of the ethics of adaptation and resilience, both to theory and to practice, IPCC AR6 would be strengthened by addressing concerns about how adaptation and resilience can avoid creating, reproducing, and exacerbating (existing) inequalities and injustices. Addressing this question requires interaction with normative theory, and consideration about what justice requires of adaptation and resilience because theories of ethics and justice can help to make clear what normative demands there are on adaptation and resilience efforts, and how to distinguish justified from unjustified adaptation and resilience practices. This would help to identify and set out recommendations that adequately address ethical issues pertaining to various core issues. These include: the unequal access to goods, resources, services, and institutions which further exacerbate climate vulnerabilities and restrict adaptive capacities (section 1: "Risks, adaptation and sustainability for systems impacted by climate change"); risks associated with the unintentional creation of further socioeconomic inequalities and injustices (chapter 16: "Key risks across sectors and regions"); fair governance structures and decision-making procedures (chapter 17: "Decision-making options for managing risk"); and trade-offs between competing interests (chapter 18: "Climate resilient development pathways"). In doing so, we acknowledge differences in moral viewpoints arising from political, cultural, religious and other factors. Such divergence need not prevent us from incorporating considerations of justice into adaptation and resilience, though may provide a reason to do so in a way that takes account of the plurality of conceptions of justice available.

3. How can adaptation and resilience represent and protect the most vulnerable?

The second ethical issue that speaks to issues discussed in IPCC AR6 concerns how adaptation and resilience efforts can protect the most vulnerable individuals and communities. As the IPCC defines it, climate vulnerability "is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change" (McCarthy, Canziani, Leary, Dokken, & White, 2001, p. 6). According to Adger (2006b, p. 268). Vulnerability to climate change is a multidimensional concept with "multiple stressors and multiple pathways of vulnerability," including population growth, resource depletion, poverty, environmental mismanagement, inequality, and inadequate public policies (McCarthy et al., 2001, p. 8).

Adaptation and resilience efforts aim to protect vulnerable individuals and communities from the impact of climate change in terms of health (Castleden, McKee, Murray, & Leonardi, 2011; Murray & Ebi, 2012; Watts et al., 2015), food security (IPCC, 2019), livelihoods (Hahn, Riederer, & Foster, 2009; Tanner et al., 2015; Thomas & Twyman, 2005), and wellbeing (Adger, 2010). However, these impacts and vulnerabilities are unevenly distributed: some communities are more vulnerable than others and many lack the means and resources to adapt (Chu & Michael, 2019). Pre-existing social, economic and political disparities mean that adaptation – like development planning – may not benefit all people equally, or may even be captured by elite

interests in ways that reproduce existing disparities. Furthermore, climate change might also shift the dynamics of distribution of inequality, suggesting that we need to 'relearn' who is likely the most vulnerable in order to adequately help and target resources. Consider, for example, how urban development planning that focuses on the implementation of expensive green resilience infrastructures might unintentionally foster increased gentrification, pushing out poor households from resilient neighborhoods. This would create unequal access not only to the very same resilient infrastructures, but also to the accruing benefits of urban development those infrastructures may stimulate (Anguelovski et al., 2016; Keenan, Hill, & Gumber, 2018; Pearsall, 2010; Pearsall & Pierce, 2010). In short, vulnerable populations are disproportionately exposed to the negative consequences of poorly planned adaptation and resilience strategies that do not take into consideration inequalities in terms of power, gender, age, race, sexuality, income, religion, culture and spatiality. This raises the question: how can adaptation and resilience protect the most vulnerable populations?

One way to reduce the possibility that adaptation and resilience strategies create or reproduce socioeconomic inequalities is by recognizing social and cultural diversity, and by including vulnerable individuals and communities in the planning process (Ajibade & Adams, 2019). If the voices of the most vulnerable are heard during adaptation decision-making, it is more likely that their priorities and needs will be incorporated into policy. Local stakeholders may also hold tacit or embodied knowledge as well as valued explicit knowledge about the local environment and socioeconomic norms that is often lost to external experts (Atte, 1992; Barkin, 2010; Berkes, Colding, & Folke, 2000; Green, 1999) and the inclusion of local and indigenous knowledge has been explicitly endorsed by the United Nations as a key to successful adaptation and resilience planning (UNFCCC, 2016).

As part of IPCC AR6 – especially in chapters 17 ("Decision-making for managing risk") and 18 ("Climate resilient development pathways") – it would be relevant to ask: how can the interests and knowledge of vulnerable communities be included in adaptation and resilience planning? What obstacles are faced in this regard, including the need for quick decision-making? What kinds of governance structures and processes (both formal and informal/customary) are necessary to ensure equitable representation and effective participation of vulnerable communities? This would preempt the top-down implementation of adaptation and resilience policies and interventions, which, as research shows, is often subject to power inequalities and thus the unjust subjugation of local voices, interests, and needs.

4. How can different forms of knowledge be integrated within adaptation and resilience planning?

Adaptation and resilience planning involves many different actors, ranging from intergovernmental organizations to national and local governments, from climate scientists to

NGOs and local stakeholders of various types. Whereas IPCC reports are based primarily on academic research, IPCC AR6 would also be strengthened by giving consideration to how different actors, including academics and civil society, can contribute to adaptation and resilience planning more generally. There are both moral and knowledge-based reasons for including civil society actors in the decision-making on adaptation and resilience (Byskov, 2018, p. chapter 3). Morally, because they are affected by not only climate change but also adaptation and resilience efforts, local stakeholders and vulnerable communities have the right to influence the development of these efforts. Knowledge-based, because research shows that civil society actors, including community-based organizations, local NGOs and indigenous community groups, possess valuable knowledge about their local and socioeconomic environment that is essential for sustainable and responsive adaptation and resilience planning (Borie et al., 2019; Dodman et al., 2018). Adaptation and resilience policies and practices would benefit from taking these knowledges into account, not as supplemental to, but as standalone expert contributions (Byskov, 2017).

Research reveals that integrating civil society actors in adaptation and resilience planning faces several challenges (Bauer, Feichtinger, & Steurer, 2012; Dodman & Mitlin, 2013; Fünfgeld, 2010; Wamsler, 2017). First, there are several practical challenges. Consulting civil society actors requires both time and financial resources. Given the lack of both, a fully representative consultation process is both unlikely and unfeasible. Second, gross inequalities in terms of economic, social, and political power means that some actors are more capable of influencing decision-making processes than others. Such power inequalities may lead to epistemic injustices, in which some members of civil society are ignored within adaptation and resilience planning, even if they formally have access to deliberative or consultatory spaces. Research shows local voices can be excluded from risk-management decision-making in a range of ways, either deliberately (for example, inhabitants of informal settlements or illegal immigrants are not eligible to participate), or tacitly, because of exclusionary social, political or institutional norms (for example, it being too expensive for poorer communities to travel to consultation meetings) (Blackburn 2014). Third, different actors have different levels of knowledge as well as different ways of expressing that knowledge (Byskov, 2017) and inequalities in power may lead to one kind of knowledge – say, scientific – to be favored in place of forms of knowledge possessed by less powerful communities, such as indigenous peoples. The same applies for the fourth challenge, namely that different actors refer to different worldviews when expressing their knowledge (Ludwig, 2016). These worldviews might be in conflict, for example when indigenous communities refer to natural entities, such as rivers and forests, as persons, who have the right to protection from climate change.

Moreover, within many non-Western and Indigenous worldviews, non-human entities and ecosystems are considered to be non-human agents and have rights similar to that of humans

(Castro, 2015; Charpleix, 2018; Nadasdy, 1999; Smith, 2017; Watene & Yap, 2015). Since climate change also threaten ecosystems and the lives of nonhuman beings, IPCC AR6 might consider the role of posthuman and animal ethics in setting out climate action recommendations that provide protections beyond an anthropocentric scope and respect the right to adaptation and resilience of non-human entities and animals (Charpleix, 2018; Watson & Huntington, 2014).

In sum it would benefit IPCC AR6 – particularly in chapters 17 ("Decision-making for managing risk") and 18 ("Climate resilient development pathways") – to give consideration to how to integrate different forms of knowledge about adaptation and resilience, including input from civil society actors, local stakeholders and indigenous peoples, and investigate how the application of polycentrric governance systems can be both equitable and fair, given power imbalances (Morrison et al., 2019). Another potentially beneficial idea for future research, would be to analyze the epistemological and ontological basis of the IPCC reports and how or the extent to which they are compatible with different worldviews among local stakeholders, especially in non-Western contexts. By illuminating and analyzing the underlying causes of these challenges – such as inequalities of power and differences in worldviews – ethical theory can play a vital role. Consideration of ethical concerns can help set out innovative standards of procedural justice against which to monitor and evaluate the inclusion and integration of different actors and forms of knowledge. These considerations are all the more urgent because climate change has the potential to erode indigenous cultural knowledge and practices through the damaging of cultural heritage and through climate migration. Moreover, because local practices, such as Indigenous land management, often lead to better adaptation outcomes (Raygorodetsky, 2017; Swiderska et al., 2016; Whyte, 2013), creating pathways for integrating local and Indigenous knowledges would benefit and enrich the assessments and recommendations of chapters 2-8 on the specific climate-related risks (Section 1: "Risks, adaptation and sustainability for systems impacted by climate change"). Analyzing what challenges that are to integrating local knowledge about adaptive practices and how they can be overcome, would further benefit efforts to implement the recommendations of AR6 in practice.

5. How can trade-offs be made in adaptation and resilience?

The fourth issue faced by adaptation and resilience planning that raises ethical concerns is how different trade-offs can and should be made (L. M. Harris, Chu, & Ziervogel, 2018). Climate change and climate adaptation are situated in a non-ideal world, in which the resources and goods necessary to ensure successful adaptation and resilience are both finite and often scarce. Moreover, the need to mitigate climate change by imposing significant reductions on greenhouse gas emissions might limit the possibility for vulnerable communities in less affluent and under-developed countries to develop resilience and adaptive capacities to climate change (Robinson & Shine, 2018). Such resource scarcity and the need to reduce global greenhouse gas emissions

necessitates making certain trade-offs and prioritizations when planning for climate adaptation and resilience (Eakin, Tompkins, Nelson, & Anderies, 2009).

Two kinds of trade-off have particular relevance for IPCC AR6. The first asks: how can the need for mitigation be traded off against the need to ensure that vulnerable communities still have the opportunity for development? Whereas mitigation efforts to a large extent involve limiting greenhouse gas emissions and stringent decarbonisation, such efforts have the potential to stunt the industrial development in less-affluent communities that is needed for successful adaptation and resilience, thus making them doubly worse off (Gupta, 2014; Pelling & Garschagen, 2019; Robinson & Shine, 2018). IPCC AR6 would benefit from including an evaluation of different development pathways with a view to clarifying what kinds and levels of development vulnerable and low-income communities have the right to.

The second kind of trade-off that is relevant to IPCC AR6 concerns the discrepancy between effective adaptation and ethical adaptation. This tradeoff arises because the most effective adaptation options are not necessarily the most ethically justifiable. Consider, for example, the forced displacement of populations that might alleviate agricultural pressure or be justified out of a concern for their own safety in climatic hazard areas. Such nonconsensual displacement, while effective from a technocratic point-of-view, is not necessarily ethical. IPCC AR6 would benefit from considering what standards of ethical justification that are needed in order to enact certain adaptation and resilience strategies as well as to what extent a concern for effective adaptation can be traded off with a concern for ethical justifiability and *vice versa*.

In sum, the tension between, on the one hand, the demands of ethics and, on the other hand, the non-ideal reality of adaptation and resilience practice, circumscribed by political, economic, social, and technological inequalities, constraints, and opportunities, presents at least two major trade-off dilemmas. Engaging with ethical theory and taking a more collaborative and stronger interdisciplinary approach, we argue, can help elucidate what values that are at stake in each instance, how to assign weights to these values, and work towards balancing them in adaptation and resilience planning. These issues could best be addressed as part of chapter 18 ("Climate resilient development pathways"), which already considers certain trade-offs between sustainable development (defined in terms of the Sustainable Development Goals), mitigation, and adaptation. Ethics, we argue, can help illuminate and resolve these trade-offs and avoid the creation and entrenching of inequalities and injustices further down the line.

6. Who is responsible for achieving adaptation and resilience?

The fifth ethical issue that IPCC AR6 might address concerns the question of who is responsible for achieving adaptation and resilience, and how this responsibility can be normatively grounded and shared. According to Paavola and Adger (2002, p. 8), building resilience and fostering adaptation to climate change necessitates action on many levels: "adaptation is not an activity

that takes place exclusively at international political arenas" but also "concerns national and local governments and individuals and organisations both in developed and developing countries." It would be beneficial for IPCC AR6 to include discussion of literature on the questions: Which actors are involved at each level? What responsibilities do they have (or should they have) to support climate resilience adaptation? And are there gaps in responsibility that are currently not filled by any accountable actor? Questions of scale and politics are critical here (Blackburn & Pelling, 2018). Theories of ethics and justice, we argue, can provide useful guidance to consider what roles and responsibilities that can be allocated to different actors and according to what principles of allocating duties (Patterson et al., 2018).

On the face of it, every individual contributes to climate change, to a smaller or larger degree (Ritchie, 2018). There are thus good reasons to suggest that responsibilities and duties should be distributed globally to all actors, from governments and international companies to local communities and individual citizens. This is captured by the cosmopolitan notion of environmental (or sometimes ecological) citizenship, which is the idea that we are all (individuals, businesses and states) citizens of a global ecosystem and thus have global responsibility towards its sustainability (P. G. Harris, 2009; Hayward, 2006; IPCC, 2013). Decentralized approaches to adaptation and resilience adopt this view of climate responsibility, which stresses self-responsibility and solidarity for sustainable climate action. Others argue that an emphasis on individual action can distract from the need for political leadership and accountability for climate action at scale. Hayward (1997) discusses whether environmental citizenship should be limited to human beings or whether it should be extended to non-human beings. Ethical theory can help set out principles for solidarity – by whom and to whom? – as well as for how to avoid the privatization or absolution of government responsibilities. In particular, it can provide the basis for collective action and shared responsibility in addressing the existing adaption gap i.e. difference between the actual and required level of adaptation (United Nations Environment Programme, 2018).

The claim that all individuals have a duty to contribute to adaptation and resilience as suggested by the notion of environmental or ecological citizenship does not mean, though, that this duty should be distributed *equally*. Some actors contribute to climate change to a larger degree than others, some benefit more from the activities that drive climate change than others, and some have far more capacity to contribute to adaptation and resilience objectives than others (E. A. Page, 2008). How can the distribution of responsibilities and duties accommodate for this fact? The IPCC AR6 would benefit from considering principles for the distribution of responsibilities taken from the climate ethics literature, such as the 'polluter pays principle' (Baatz, 2013, p. 95; Caney, 2010, p. 205; Neumayer, 2000; Shue, 1999), the 'inherited debt principle' (Duus-Otterström, 2014), the 'beneficiary pays principle' (Baatz, 2013; Gosseries, 2004; Neumayer, 2000; E. Page, 2012; Shue, 1999), and the 'ability to pay principle' (Caney, 2010, 2011;

Knight, 2011). It would be worthwhile to investigate how and the extent to which these principles, developed primarily in the context of questions about the costs of mitigation, can be applied to the context of adaptation (Jagers & Duus-Otterström, 2008). Relatedly, where losses have already been incurred or are expected to be incurred, it may also be relevant to draw on emerging literature on the ethics of loss and damage (Huq, Roberts, & Fenton, 2013; James et al., 2014; E. A. Page & Heyward, 2017).

While responsibility is likely to be shared in some way in many situations, failure to take collective responsibility can lead to highly problematic consequences and maladaptation, as individuals usually cannot modify their choice sets – that is, they have to choose from given set of choices while collective action/responsibility can modify individuals' choice sets as well (Fenton, Paavola, & Tallontire, 2017). It would strengthen IPCC AR6 if it were to include research-based recommendations for promoting collective responsibility – including how to address the underlying causes, such as social, economic, and political inequalities (Paavola, 2017) – for adaptation and resilience.

In sum, there are many different ways in which responsibilities and duties for climate adaptation can be distributed to different actors. IPCC AR6 would benefit from engaging with these discussions and summarizing consensus research on what kinds of duties and responsibilities that these principles impose on different actors, and how they may shape adaptation and resilience policies and practices. Since the allocation of responsibility is essentially a normative issue, ethics is integral to these discussions, yet the distribution of responsibilities and duties for enacting the recommendations of the Assessment Reports is not explicitly addressed. Given that these have real-life consequences and may be a source of further inequalities and injustices – should already disadvantaged communities, for example, be subject to the same emissions restrictions as more affluent communities? – it would considerably strengthen AR6 to give explicit consideration to these issues. It might do so, for example, as part of chapter 17 on decision-making options for managing climate risks and can help provide concrete pathways for actions by explicitly stating who is responsible for doing what (and why).

7. How can these ethical discussions be translated in adaptation and resilience practice?

Finally, because adaptation and resilience are necessarily action-oriented, IPCC AR6 ought to consider what consequences the integration of ethics into adaptation and resilience *planning* will have for adaptation and resilience *practice*. A general issue with translating ethical theory into moral practice that arises in the case of climate change is the need to act urgently under difficult circumstances, including uncertainty about future consequences, limited resources, disagreements about what is just, and in the face of competing values.

First, IPCC AR6 would benefit from considering the questions set out in section 1, namely what the 'entry-point' for ethical deliberation should be, how ethical consideration can be

taken into account within decision-making, and what an 'ethical enough' adaptation and resilience practice would look like (and who gets to decide what the ethical threshold should be). There are good reasons to argue that ethics is best introduced upstream as part of the planning process. The first reason is that by integrating ethics in the planning process, unforeseen consequences (e.g. lack of wider support in adaptation activities, increasing contestations and conflicts) can be avoided downstream at the stage of implementation. The second reason is that adaptation and resilience to climate change require immediate action, and it is not always possible to wait around for ethicists to agree on a particular approach before acting. By inserting ethics into the planning process, it is possible to take into account real-life constraints on achieving just adaptation and resilience and develop a 'good enough'-ethics of adaptation and resilience (i.e., one that does not impose unrealistic demands on adaptation and resilience practice), *before* this becomes a problem further downstream.

Second, as argued in sections 3 and 4, IPCC AR6 would be strengthened by including discussion of how disagreements about priorities and values between ethicists, interdisciplinary experts, and local stakeholders can be resolved. Different stakeholders in adaptation and resilience may disagree about many issues; what risks and trade-offs are acceptable, what personal freedoms are at stake, and what priority should be given to mitigation, adaptation and resilience measures? This indicates that ethical deliberations – deliberations that are especially focused on resolving ethical dilemmas (Gracia, 2003) – should not only be part of the planning stage but also be continued in cooperation with local stakeholders. Several authors have explored ways to engage in such deliberations between professionals, practitioners, and local stakeholders and IPCC AR6 would benefit from summarising these insights to provide critical advice on how to translate their recommendations into adaptation and resilience practice (Brand & Karvonen, 2007; Byskov, 2017).

In sum, translating ethical theory on adaptation and resilience into ethical adaptation and resilience practice presents several tensions throughout AR6, but especially in chapter 18 ("Climate resilient development pathways"). While these tensions are not easily resolved, nevertheless casting a light on them, rather than ignoring them, shows the many ways in which the recommendations of the IPCC cannot escape ethical questions if it is to provide guidance on fair and effective adaptation and resilience pathways. Taking a robust interdisciplinary approach, including the array of disciplines represented at our aforementioned workshop (and beyond), we argue, be invaluable in this regard.

8. Concluding remarks

In this paper we have presented a research agenda for inserting ethics into the interdisciplinary discussion on resilience and adaptation to climate change. Introducing six ethical research questions, we argue that the recommendations of IPCC AR6 would be strengthened if they also

take greater account of the ethical and justice aspects of climate adaptation and resilience. This agenda raises important ethical issues that, if addressed at the upstream stage of adaptation and resilience planning, can prevent harmful consequences further downstream at the stage of implementation. We have provided recommendations for actions to be taken in this regard within the different chapters:

- Section 1, chapters 2-8 ("Risks, adaptation and sustainability for systems impacted by climate change"), which deal with particular climate issues, would benefit from addressing ethical issues pertaining to the unequal access to goods, resources, services, and institutions which further exacerbate climate vulnerabilities and restrict adaptive capacities (section 2) and how to create pathways for integrating local and Indigenous knowledges (section 4).
- Chapter 16 ("Key risks across sectors and regions") would benefit from considering how to avoid risks associated with the unintentional creation of further socioeconomic inequalities and injustices (section 2).
- Chapter 17 ("Decision-making options for managing risks") would benefit from considering how to create fair governance structures and decision-making procedures for adaptation and resilience (section 2) and how to distribute the responsibilities and duties for enacting the recommendations of IPCC AR6 without creating further inequalities (section 6).
- Chapter 18 ("Climate resilient development pathways") would benefit from considering how ethics of adaptation and resilience can help address and resolve trade-offs between competing interests (sections 2 and 5) and help translate the recommendations of IPCC AR6 into practice (section 7).

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