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11 **Abstract**
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14 Decisions about climate change are inherently moral. They require making moral judgements
15 about important values and the desired state of the present and future world. Hence there are
16 potential benefits in explaining climate action by integrating well-established and emerging
17 knowledge on the role of morality in decision-making. Insights from the social and
18 behavioural sciences can help ground climate change decisions in empirical understandings
19 of how moral values and worldviews manifest in people and societies. Here, we provide an
20 overview of progress in research on morals in the behavioural and social sciences, with an
21 emphasis on empirical research. We highlight the role morals play in motivating and framing
22 climate decisions; outline work describing morals as relational, situated, and dynamic; and
23 review how uneven power dynamics between people and groups with multiple moralities
24 shape climate decision-making. Effective and fair climate decisions require practical
25 understandings of how morality manifests to shape decisions and action. To this end, we aim
26 to better connect insights from social and behavioural scholarship on morality with real-
27 world climate change decision-making.
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1. Introduction

Decisions about climate change are inherently moral; the integrity of our planet and the wellbeing of its inhabitants are at stake. Climate decision-making thus requires making moral judgements about the sort of world each of us wants (Paavola and Adger, 2006; Byskov *et al.*, 2019; Pelling and Garschagen, 2019). The gamut of moral climate change decisions is wide and deep; virtually all decisions about the allocation and use of resources and labour have an impact on the carbon cycle and ultimately on human-induced climate change. Decisions on how to allocate resources in the face of climate change affect people and the non-human world differentially, highlighting priorities and values at risk. As such, climate decisions include all ‘decisions leading to actions that have consequences for climate change, particularly through mitigation and adaptation’ (Orlove *et al.*, 2020, p. 2). Thus, climate decisions span geographical, administrative and epistemological scales from individual consumption, to national strategies, to binding global commitments.

The moral dimensions of climate change decisions are twofold. First, there are substantive dilemmas about burdens of responsibility for mitigation and widely uneven climate impacts on current and future generations. This normative dimension has traditionally been the remit of climate ethics, that has mapped the contours of moral arguments about the distribution of rights, duties, responsibilities, costs and consequences of reducing greenhouse gas emissions (Müller, 2001; Roberts and Parks, 2006; Mattoo and Subramanian, 2012). These insights further highlight moral imperatives to minimize risk and impacts of weather extremes on marginalized and vulnerable populations (Pearce *et al.*, 2010; Watts *et al.*, 2015). Climate ethics outlines principles of corrective or restorative justice (Grasso, Marco; Vladimirova, 2020; Robinson and Carlson, 2021), and demonstrate issues around the limits of representation—how non-present human actors such as the powerless or yet un-born, or the natural world are taken into account (Antadze, 2019; Tschakert, 2020). Climate ethics hence

78 offers theoretically guided, normative principles, such as the precautionary principle, to guide
79 decisions.

80

81 Second, climate decisions require actors—including individuals, policymakers, societies and
82 higher governance bodies—to navigate everyday moral worldviews that shape the context,
83 character and limits of decision-making itself. Decisions take place within, and often seek to
84 change, existing moral norms, intuitions, and values. The social and behavioural sciences
85 empirically investigate how moral context, worldviews, and identities shape and constrain
86 how decision are made and enacted. They explore how decisions manifest in practice, and
87 whether they lead to enduring change. Thus, findings from across the social and behavioural
88 sciences can help adjudicate whether decisions are practical and feasible. They are
89 particularly important at the ‘messy middle’, where decisions made at higher levels—for
90 example, global policy—are translated and enacted on the ground (Goldberg, Gustafson and
91 van der Linden, 2020).

92

93 Alongside engagement with substantive moral issues, effective and fair climate decisions
94 require practical understanding of how morality manifests to shape decisions and action. Put
95 simply, ‘if we are to succeed in bending the moral arc of history toward climate justice – to
96 remake the world as it ought to be – we need to do a better job of working with the world as
97 it is’ (Storey, 2019, p. 39). Indeed, there are growing calls to better include the pragmatic
98 insights offered by empirical research in debates about climate ethics. Those who understand
99 climate ethics as ‘normative theorizing about climate change’ (Green and Brandstedt, 2020,
100 p. 1) are seeking to connect theory with methods that engage society (Bell, Swaffield and
101 Peeters, 2019), and to consider the normative implications that empirical research raises for
102 justice principles in climate ethics (Storey, 2019). Others identify a nascent and ‘as-of-yet
103 amorphous field of multidisciplinary climate ethics’ (Grasso and Markowitz, 2015, p. 473),
104 which builds on solid normative theorizing, but also incorporates psychological, sociological,
105 political and economic research (Markowitz, Grasso and Jamieson, 2015). Insights from
106 these fields contribute to real-world climate change decisions by ensuring that research is
107 meaningful and useful given institutional and political constraints.

108

109 In this paper, we aim to contribute to an ongoing debate about how practical and empirical
110 social and behavioural sciences can inform multidisciplinary climate ethics (Bell, Swaffield
111 and Peeters, 2019; Green and Brandstedt, 2020) and better connect scholarship to real world

112 climate change decision-making (Markowitz, Grasso and Jamieson, 2015). In this review, we
113 synthesize progress in the social and behavioural sciences that is relevant—directly and
114 indirectly—across the gamut of climate change decisions. We include research directly aimed
115 at climate change, such as on morals as motivations to act, and research with indirect but
116 important implications for climate change decisions, including on decision context, and the
117 character of decision-making itself. We highlight recent insights, lessons, and gaps across
118 three themes: 1) the role of morals in motivating and framing climate decisions; 2) morals as
119 relational, situated, and dynamic, and; 3) the uneven power dynamics of multiple moralities.
120 Although these themes address moral framings and multiple moralities, they are distinct and
121 emerge from diverse and sometimes siloed fields of research. Thus, rather than all-
122 encompassing, or mutually exclusive, these themes serve as a heuristic for organizing key
123 insights. The approaches in the three main sections address the topics differently at different
124 scales. First, social and behavioural insights into motivations and framings examine processes
125 by individuals, embedded in social contexts. The second theme examines moralities as
126 relational, culturally-specific and embedded in societal dynamics and institutions. The third
127 theme involves critique of moral framings in governance and focuses on processes of
128 eliciting and deliberating between moralities at higher policy and agenda-setting scales.

129

130 **2. Social and behavioural science insights**

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132

133 **2.1 The role of morals in motivating and framing climate decisions**

134

135 Morals may motivate and constrain climate decisions. A growing collection of empirical
136 work on moral foundations, moral motivations and framing offers key insights for climate
137 decisions. For instance, it is well established that people who perceive climate change to be a
138 moral issue are more concerned about it (Grasso and Markowitz, 2015). There is, in addition,
139 good evidence that public discourse in many world regions commonly articulates the pros
140 and cons of climate change policies in moral terms (Adger, Butler and Walker-Springett,
141 2017). Psychologists highlight the connection between people’s moral stances and attitudes
142 to climate change (Wolsko, Ariceaga and Seiden, 2016) and show how the desire to maintain
143 a group’s moral standing extends to action on climate change (Bain and Bongiorno, 2020).
144 As such, there is considerable evidence that—rather than narrow economic arguments—
145 appeals to moral principles resonate more deeply and lead to better outcomes on climate
146 change action (Corner and Randall, 2011; Bain and Bongiorno, 2020).

147

148 Moral foundations theory, which has its origins in moral psychology, posits that people are
149 primed to operate within a moral frame. People hold sets of distinct moral cognitive
150 resources, termed moral foundations. These foundations include combinations of care and
151 harm, fairness and cheating, loyalty and betrayal, authority and subversion, and sanctity and
152 degradation (Haidt, 2012; Graham *et al.*, 2013). The combination and weight placed on a
153 given moral foundation by an individual or society is based on culturally and historically
154 specific institutions and technologies (Graham *et al.*, 2011). For many indigenous peoples,
155 for example, the maintenance of moral bonds of trust and reciprocity have been shown to be
156 essential foundations of climate justice (Whyte, 2020). Moral foundations, through intuitions,
157 are important in shaping people's reactions, attitudes, and behaviour to climate change. For
158 instance, moral values of compassion, fairness, and to a lesser extent, purity, are positive
159 predictors of willingness to act on climate change in a study of lay public in the US
160 (Dickinson *et al.*, 2016). In contrast, in Australia, the moral imperative to maintain status quo
161 is linked to climate scepticism (Rossen, Dunlop and Lawrence, 2015).

162

163 There is growing evidence that people frame issues, including climate change, using specific
164 moral foundations. Within a given society, ones' moral foundations thus hold sway over both
165 private and collective actions. For instance, some moral foundations stress the maintenance
166 of social order and economic liberty (these often align with climate denialism) (Rossen,
167 Dunlop and Lawrence, 2015), while others prioritise the moral imperative to address climate
168 change, based on empathy and compassion for current and future affected peoples and
169 ecosystems (Feinberg and Willer, 2013; Brown *et al.*, 2019).

170

171 In addition, people draw on different moral foundations depending on the type of climate
172 decision at hand. Certain frames resonate with different policy interventions, and different
173 moral publics; 'the presence, absence, and even dominance of different moral framings have
174 significant implications for the governance of adaptation' to climate risks (Adger, Butler and
175 Walker-Springett, 2017, p. 385). For example, when discussing adaptation policy choices
176 people emphasize moral arguments about needs and ability to cope, but emphasize burden-
177 sharing when discussing mitigation (Klinsky, Dowlatabadi and Mcdaniels, 2012). In the UK,
178 research has shown that when evaluating potential climate change adaptation options, people
179 emphasize both moral concerns about individual vulnerability (solidarity, protection from
180 harm, and fairness in burdens), and 'issues of responsibility, of respect for and trust in

181 authorities, and of doing the right thing by the country or for nature (sanctity, system
182 preservation, and patriotism)' (Adger, Butler and Walker-Springett, 2017, p. 383).

183

184 Given the connection between moral foundations, motivations and types of climate decisions,
185 how decisions are framed matters for legitimacy, individual behaviour and belief change. The
186 moral framing of a decision shapes outcomes for people who support and advocate decisions
187 (e.g., political groups), or make them (e.g., consumption choices). When people perceive
188 their attitudes to be moral, they are more likely to act on them. For some, re-labelling
189 attitudes and decisions in broad moral terms might help motivate and strengthen action
190 (Luttrell *et al.*, 2016). Research suggests that people who link the harmful consequences of
191 climate change with people and things that they value (termed 'objects of care'), have
192 stronger responses to climate change, which promotes supports for climate change policy
193 (Wang *et al.*, 2018; Leviston and Walker, 2020). As such, framing climate change problems
194 and impacts in ways that emphasize close 'objects of care' directly connected to individuals
195 may help overcome moral disengagement with climate change (Leviston and Walker,
196 2020). Emotions and empathy, including care, are the foundations of 'moral judgments and
197 principles that guide action' (Jax *et al.*, 2018, p. 23; see also McCaffree, 2019). Framing
198 climate decisions as part of cultivating empathy and care thus may generate the moral
199 impetus for action by 'embed[ding] the environment and pro-environmental behaviour in
200 place-oriented norms and institutions' (Brown *et al.*, 2019, p. 16).

201

202 Reframing climate change decisions to align with an audience's moral foundations is also a
203 promising avenue for climate change decision-making. Research in psychology and climate
204 communication suggests that climate decisions that are communicated in ways that align with
205 people's moral foundations shift behaviours, including when messages go against people's
206 political beliefs. For example, framings emphasize the way individuals treat one another,
207 including fairness versus cheating and care versus harm. Framing can also intensify the
208 environmentalism of people no matter their pre-existing environmental attitudes (Milfont,
209 Davies and Wilson, 2019). Studies have found that moral reframing can change political
210 groups' pro-environmental behaviour (Feinberg and Willer, 2013; Sweetman and Whitmarsh,
211 2016), recycling habits (Kidwell, Farmer and Hardesty, 2013), and climate change beliefs
212 (Wolsko, Ariceaga and Seiden, 2016). Appealing to moral foundations associated with right-
213 wing political leanings (including loyalty, authority, and sanctity) offers an avenue for

214 making climate change morally relevant to a broader portion of society (Vainio and
215 Makiniemi, 2016; Storey, 2019).

216

217 Research on moral foundations and framing has accelerated and is opening up a number of
218 research gaps and directions of particular relevance to climate change decision-making. First,
219 there is only limited evidence on ‘which types of messages resonate in light of motivations
220 and particular prior beliefs, values and identities’ (Druckman and McGrath, 2019, p. 117).
221 Further research on how to effectively frame or translate climate change decisions to speak to
222 more traditional and conservative moral worldviews, could help provide tools for diverse
223 groups (from activists, and community leaders, to policymakers) to better communicate and
224 encourage change. In concert, we need research on whether and how moral values motivate
225 consistent moral behaviour and what internal and external barriers shape this (Nielsen and
226 Hofmann, 2021). Finally, much work on moral motivations extends from moral psychology
227 and moral neuroscience. Integrating this work into broader social sciences studies of moral
228 identity and worldviews could provide novel insights for climate decision-making (Stets and
229 Carter, 2012; Shadnam, 2020). The following section explores this contextual, relational view
230 of morals in more detail.

231

232

233 **2.2 Morals as relational, situated, and dynamic**

234

235

236 A second key thread of research describes moral worldviews as relational and contextual.

237 Broadly, research in this vein charts the ways that moral and ethical practices bound climate
238 change decisions across all areas. A recent resurgence of interest in morality in sociology
239 (Stets and Carter, 2012; Bargheer and Wilson, 2018; Bykov, 2019), anthropology (Mattingly
240 and Throop, 2018), and geography (Barnett, 2013; Olson, 2015b, 2018) provides a number of
241 insights relevant to climate decisions. These disciplines understand morality as culturally
242 specific, embedded and embodied in the skills, habits, and institutions of daily life, and
243 reinforced through practice (Barnett, 2013, p. 153). They examine how moral judgements,
244 norms, and emotions manifest in everyday life (Cresswell, 2007; Hitlin and Vaisey, 2013;
245 Olson, 2015b; Appel, 2019).

246

247 Insights on the socially embedded nature of morality emphasize that moralities and
248 institutions are co-constituted. For example, sociologists link inequalities in societies with

249 socialized patterns of moral judgements; ‘morality binds societies together, forming the core
250 of what it means to be part of a shared culture’ (Hitlin and Harkness, 2017, p. 5). People’s
251 moral (or normative) worldviews on climate change mirror their position within class
252 structures. For example, in Belgium, views on whether climate change can be solved through
253 everyone cooperating (egalitarian), individuals acting responsibly (entrepreneurial), by
254 governments and institutions (institutional) or as ultimately uncontrollable (fatalistic), map
255 both to moral worldviews about other issues and onto social class (in this case defined as
256 financial and cultural capital) (De Keere, 2020).

257

258 Research on the connection between moral identity and self-worth points to the potential
259 dangers of climate decisions (particularly about consumption) becoming overly and narrowly
260 moralized. A relational approach to morals suggests that ‘moral views [are] simultaneously
261 status markers and attempts to achieve self-worth’ (De Keere, 2020). Work in environmental
262 sociology highlights how friendships and families transmit ecological values in ways that
263 bolster or morally excuse individuals from pursuing sustainable practices (Jamieson, 2020).
264 Thus, conditions and relationships play a role in producing morality; the context and social
265 relations of a decision-maker (be they individual consumers or policymakers) will shape how
266 they judge what is moral or not. Thus, where and how climate-decisions are made, and who
267 the subjects are, will matter for how moral judgements ensue, and will thus shape decisions.
268 For example, strong practice-based identities around cycling, veganism (Kurz *et al.*, 2020), or
269 producing zero waste (Bolderdijk, Brouwer and Cornelissen, 2018) may actually block
270 broader societal shifts to sustainable practices because the ‘behaviour of “do-gooders” could
271 be interpreted as a threat to onlookers’ moral self-concept’ (Kurz *et al.*, 2020, p. 89). Rather
272 than being encouraging, such “moralized minority practice identities” may stop people taking
273 up sustainable practices (Kurz *et al.*, 2020). Thus, organizations and governments seeking to
274 encourage climate friendly practices, could ‘look to offer easy ways for people to experiment
275 with a practice without having to first claim (or grapple with) an associated moralized
276 identity’—for instance by advocating meat-free Mondays rather than becoming vegan (Kurz
277 *et al.*, 2020, p. 97).

278

279 Moral worldviews and values are entwined with systems of production, consumption and
280 markets across scales. Moral economy research provides a framework for understanding how
281 markets are constituted and continually negotiated through moral ideas and practices across
282 multiple economic scales, from micro (consumer’s lay normativity or moral reasoning), and

283 meso (collective customs, discourses, and institutions through which groups moralize the
284 market) to macro (state regulation of the economy) (Wheeler, 2019). This multiscale analysis
285 of how markets and moralities are co-constituted (e.g., Zelizer, 2011) provides important
286 ways to understand the solution space within moral economies of consumption and
287 production. For climate decisions involving consumption (for instance, of energy or food),
288 this framework offers a way to deepen an understanding of ‘why people choose to consume
289 as they do and the values important to them’ (Wheeler, 2019, p. 277). Climate decisions
290 seeking to change consumption and production may attend to different points of leverage
291 across these scales. For instance, recent anthropological studies emphasize how energy
292 consumption, use and production, including fossil fuels and renewables are part of ‘deeply
293 held ethical worlds’ (Appel, 2019, p. 188). Relegating CO₂ intensive industries as blanket
294 ‘bad’ or immoral misses the ‘rich ethical worlds that accrete around carbon-intensive energy
295 sources’ (Appel, 2019, p. 182). Recognizing these ethical worlds as legitimate—and as a
296 source of friction against climate transformations—may be a step towards productive
297 discussion.

298

299 Finally, research is beginning to explore how uncertainty and the prospects of irreversible
300 loss create new types of moral judgements. Climate change creates unfamiliar situations—
301 climate shocks, climate change-related disasters, and uncertainty (Crosweller and Tschakert,
302 2020)—and new experiences of grief wrought by ecological loss (Barnett *et al.*, 2016;
303 Tschakert *et al.*, 2017; Cunsolo and Ellis, 2018). Climate change decision-makers at all scales
304 will increasingly make decisions in and about new and uncertain situations. Sociological
305 studies have shown that alongside moral identity (Stets and Carter, 2012; Shadnam, 2020),
306 social relationships and changes in situations shape moral judgements and behaviour (Luft,
307 2020). When faced with unfamiliar situations, people do not revert to the unconscious moral
308 intuitions used in normal day-to-day situations. Instead, ‘what we believe to be good and bad
309 gets a little fuzzier when we find ourselves in unfamiliar territory, and so we reconsider our
310 relationships, and who and what truly matters’ (Luft, 2020, p. 2). This insight suggests that
311 moral foundations (section 2.1) may be more dynamic in the face of unfamiliar decisions.

312

313 Geographers emphasize that increasing urgency of action on climate change can serve to
314 limit moral choices. As Olson argues ‘urgency is not just a variable, but actually produces the
315 conditions for morality’ (Olson, 2015a, p. 519). For Olson, ‘urgency delimits human agency,
316 such that by the time we choose to undertake any particular action on moral grounds, we

317 assume it to be the only choice we have' (ibid). Climate decisions are increasingly made in
318 urgent situations; a critical research gap is understanding how this urgency delimits moral
319 possibilities. Further research is warranted on how moral judgements might change
320 depending on the context, including urgency, who they are about, and who makes them. The
321 mode of decision-making also has an important influence on how morals might or might not
322 be considered, and the extent to which they might be implicit or explicit.

323
324

325 **2.3 Power dynamics of multiple moralities**

326
327

328 Understanding how climate change decisions manifest in practice is important to ensure
329 climate decisions do not produce perverse outcomes, and that future decisions are more
330 equitable and effective. Environmental governance research has shown how interventions
331 that aim to be neutral, apolitical, or merely technical, are implicitly moral (Li, 2007; Blythe *et*
332 *al.*, 2018; Nightingale *et al.*, 2020) and has emphasized the power that these implicit moral
333 framings have in climate governance (Morrison *et al.*, 2017). Scholars have identified a
334 narrow set of epistemological perspectives dominant in global climate change discourse
335 (Castree *et al.*, 2014), the risks that arise from apolitical framings of environmental change
336 'problems' and 'solutions' (Blythe *et al.*, 2018), and growing mistrust of prevailing climate
337 change framings among communities in the Global South (Mahony, 2014; Miguel, Mahony
338 and Monteiro, 2019). There are, in effect, contested meanings in climate change policy
339 discourse and decision-making, whereby seemingly apolitical global climate knowledge is in
340 fact 'shaped by histories of exploration and colonialism, [... and] messy processes of linking
341 scientific knowledge to decision-making within different polities' (Mahony and Hulme,
342 2018, p. 395). By extension, what counts as worth knowing, as a viable solution to climate
343 change, and who and what counts as a moral subject (e.g., whose losses are considered when
344 making decisions) are embroiled in complex power relations across scales from individuals to
345 global negotiations (Castree *et al.*, 2014; Tschakert *et al.*, 2017, p. 10).

346

347 Significant injustices are wrought by market-based tools and frameworks available and used
348 in climate decisions and policies. As such, research in this area charts the boundaries of a
349 pragmatic and fair climate solution space. Much critical discussion in environmental
350 governance currently falls under the rubric of 'environmentality'—building on Foucault's
351 original concept of 'governmentality'—referring to the subtle ways that environmental

352 behaviour is regulated through the development of new subjectivities, or new environmental
353 values and moralities (Agrawal, 2005). There are a variety of environmentalities (Fletcher,
354 2017; Asiyambi, Ogar and Akintoye, 2019; Fletcher and Cortes-Vazquez, 2020), including the
355 ways that local communities resist or adapt to new forms of environmental governance
356 (Morrison *et al.*, 2019). For instance, empirical work has critiqued the market-based focus of
357 many climate tools and conceptual frameworks, such as REDD+, ecological modernization
358 and carbon trading and offsetting (Knox-Hayes, 2015; Watt, 2018; Song *et al.*, 2021),
359 resonating with literature that explicitly critiques their morality (Caney, 2010). Knox-Hayes
360 (2015), for example, shows how neoliberal approaches to environmental governance
361 (including climate) ultimately reduce all values—including those of morality—to exchange
362 value, ignoring their spatial and temporal characteristics.

363

364 Alongside the opportunities moral framing holds for climate decisions (section 2.1),
365 navigating multiple moral framings also holds challenges for governance. Multiple publics
366 generate multiple moralities; it is often not possible to reconcile different frames. For
367 instance, global mitigation actions, led by wealthier nations and privileged groups, can
368 violate indigenous values of consent, trust, accountability, and reciprocity (Whyte, 2020).
369 Indeed, pursuing a unitary ‘public morality’ risks obscuring diversity, and can be used to
370 glibly rationalise certain climate policy choices (Hulme, 2020). Rather, because moral frames
371 vary, ‘public morality’ must primarily be a procedural rather than substantive concept, where
372 multiple moral publics are accounted for by ensuring the articulation of diverse values and
373 interests in climate policy (Asen, 2003; Lane and Morrison, 2006).

374

375 This emphasis on multiple rationalities has highlighted the interactions between
376 environmental and climate governance strategies and the subjects of those strategies (e.g.
377 McGregor *et al.*, 2015; Malier, 2019), and has helped to investigate and interpret the gaps
378 between the visions of climate decision-makers and the implementation of decisions on the
379 ground (Collins, 2020; Fletcher and Cortes-Vazquez, 2020). In their discussion of REDD+ in
380 Nigeria, for example, Asiyambi *et al.*, (2019) describe how it aimed to normalise particular
381 moral values about forest protection but were countered by local discourses of morality
382 centred around entitlements to forests. Others have shown how framings of climate solutions,
383 for instance individualising moral narratives that situate climate change as the responsibility
384 of individuals and consumer behaviour, deliberately shift the burden of response from states
385 to citizens and thus justify minimal government action (Blythe *et al.*, 2018; Jamieson, 2020).

386

387 The mode of decision-making has an important influence on how morals might or might not
388 be considered, and the extent to which they might be implicit or explicit. Given people's
389 diverse moralities, climate decision-making procedures should not aim to reach a certain
390 moral 'truth' or underlying principle, but rather to encourage and facilitate democracy and
391 incorporate multiple forms of knowledge and truth (Rorty, 1989; Hulme, 2020; Hulme *et al.*,
392 2020). Deliberative decision-making invites consideration of plural moralities, and has been
393 used to address controversial issues hitherto deeply morally divisive (Dryzek and Niemeyer,
394 2019). A Citizen's Assembly has recently been convened in UK to advise the government on
395 how it should develop policy to meet its (legally binding) zero net emissions by 2050 target
396 (<https://www.climateassembly.uk>). Other opportunities to incorporate morals into climate
397 decision-making at different scales include participatory scenarios and futuring exercises
398 (O'Neill *et al.*, 2014)—which have long been used by the private sector, and are becoming
399 increasingly popular in public spherea—alongside the use of morally grounded tools to guide
400 transformation processes (Grasso and Tàbara, 2019).

401

402 Framings of problems and solutions can shut down parts of the 'solution space' for decision-
403 makers, namely what is politically feasible if a certain approach is outside a frame. For
404 example, an analysis of press releases from organizations across the United States found that
405 climate change was predominantly positioned as best handled through the expertise of
406 scientific, political and economic institutions (Wetts, 2019, p. 25). This post-political framing
407 that 'neutralizes social and political power dynamics' (Wetts, 2019, p. 1) can even dominated
408 the rhetoric of advocacy organizations. These findings highlight the implications of framing
409 beyond targeting and aligning to individual moral foundations (section 2.1); moral frames
410 may limit decision-maker's ability to interrogate interlinked causes of climate issues, and
411 thereby narrow the range of possible solutions. For instance, leaders who are able to expand
412 their remit of acceptable approaches to governing to include ethical elements like compassion
413 and care, will be more successful in navigating transformation after disaster (Crosweller and
414 Tschakert, 2020). Understanding the factors that impede decision-makers' abilities to act on
415 their moral duties to constituents, and how framings of climate change at higher governance
416 scale limit climate change options are important areas of future research.

417

418 Empirical explorations of the gaps between intention and outcome in climate governance
419 suggest that static typologies for climate change decision-making downplay the complexity

420 of lived moral values and the power struggles of whose perspectives matter (Tschakert *et al.*,
421 2017). Uncovering these implicit moral framings within climate change governance can thus
422 help cultivate new, more socially and ecologically equitable forms of climate governance
423 (Asiyanbi, Ogar and Akintoye, 2019). Such approaches include placing values and normative
424 commitments from diverse backgrounds at the centre of climate change analysis and action
425 (Castree *et al.*, 2014; Nightingale *et al.*, 2020), alongside a relational approach that allows
426 local, dynamic values to be incorporated into climate decision-making (Tschakert *et al.*,
427 2017). In sum, the morality of climate decisions must be openly discussed and form part of
428 the decision-making process itself.

429

430

431 **3. Conclusion**

432

433 Climate decisions concern many aspects of everyday life, and many moral junctures. Hulme
434 argues that ‘wise governance of climate... emerges best when rooted in larger and thicker
435 stories about human purpose, identity, duty, and responsibility’ (Hulme, 2020, p. 311). We
436 contend that morality insights from social and behavioural sciences are key ‘thickening’
437 ingredients for climate change decision-makers. In this review, we have highlighted the role
438 morals play in framing and motivating climate decisions, explored findings about morals as
439 relational, situated, and dynamic, and reviewed how uneven power dynamics of multiple
440 moralities shape climate decision-making. Our aim is to encourage climate decision-makers,
441 and climate scholars broadly, to engage more closely with emerging insights from this
442 scholarship. More broadly, this review serves as a first step to bringing sometimes
443 inaccessible theoretical debates into conversation with what is possible and pragmatic given
444 the social nature of climate change decision-making (Markowitz, Grasso and Jamieson,
445 2015). This effort to synthesise insights relevant to a cohering—but nebulous—body of work
446 in climate morality (Grasso and Markowitz, 2015) has inevitably skimmed over recent and
447 relevant work. However, the studies gathered here serve to orient those engaged with climate
448 decision-making and behaviour change, those working on the normative dimensions of
449 climate problems, and those seeking to guide and influence climate decision-making as a
450 field of research connected to real world problems.

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