

This is the author-created version of the following work:

**Lau, Jacqueline D., Kleiber, Danika, Lawless, Sarah, and Cohen, Philippa J.**  
**(2021) *Gender equality in climate policy and practice hindered by assumptions.***  
**Nature Climate Change, 11 pp. 186-192.**

Access to this file is available from:

<https://researchonline.jcu.edu.au/67037/>

© Springer Nature Limited 2021. In accordance with the publisher's policies, the Author Accepted Manuscript of this paper is available Open Access from ResearchOnline@JCU from 4 September 2021.

Please refer to the original source for the final version of this work:

<https://doi.org/10.1038/s41558%2D021%2D00999%2D7>

# 1 Gender equality in climate policy and practice

## 2 hindered by assumptions

3 \*Jacqueline D. Lau<sup>1,2</sup>, Danika Kleiber<sup>1,2</sup>, Sarah Lawless<sup>1</sup>, and Philippa Cohen<sup>2</sup>

4  
5 <sup>1</sup> Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University,  
6 Townsville, QLD, 4811, Australia

7 <sup>2</sup>WorldFish, Batu Maung, Malaysia

8  
9 **Corresponding author:** \*Jacqueline Lau, Australian Research Council Centre of Excellence for  
10 Coral Reef Studies, James Cook University, QLD 4811 Australia & WorldFish, Batu Maung,  
11 Malaysia

12 Email: [jacqueline.lau@jcu.edu.au](mailto:jacqueline.lau@jcu.edu.au)

13  
14 The authors declare no competing interests.

### 17 Funding

18 JL, SL, and DK acknowledge support from the Australian Research Council Centre of  
19 Excellence for Coral Reef Studies, James Cook University. This research was supported by  
20 the CGIAR Research Program on Fish Agri-Food Systems (FISH) led by WorldFish. The  
21 program is supported by contributions from the CGIAR Trust Fund.

### 23 Author contributions

24  
25 JL conceptualized the paper, analysed literature, wrote and edited the paper. DK  
26 conceptualized the paper, analysed literature, wrote and edited the paper. SL conceptualized  
27 the paper, analysed relevant, wrote and edited the paper. PC wrote and edited the paper.

28  
29

30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54

**Abstract**

Gender has a powerful influence on people’s experience of, and resilience to, climate change. Global climate change policy is committed to tackling gender inequalities in mitigation and adaptation. However, progress is hindered by numerous challenges, including an enduring set of gender assumptions; women are caring and connected to the environment; women are a homogenous and vulnerable group; gender equality is a women’s issue and; gender equality is a numbers game. We provide an overview of how these assumptions essentialize women’s and men’s characteristics, narrowly diagnose the causes of gender inequality, and thereby propel strategies that have unintended and even counterproductive consequences. We offer four suggestions for a more informed pursuit of gender equality in climate change policy and practice.

55

56 **Introduction**

57

58 Gender—in concert with other identities like race, class, and age—has a powerful influence  
59 on experiences of, and resilience to, the impacts of climate change. Gender norms and  
60 inequalities shape people’s ability to adapt and innovate<sup>1-5</sup>. Across climate change hotspots in  
61 Asia and Africa, women and men use different strategies to handle the pressures of poverty,  
62 insecure livelihoods, and high exposure to climatic shocks<sup>6,7</sup>. Women work harder and  
63 longer, in poorer conditions that harm their health<sup>8</sup>. Men are more likely to migrate to find  
64 work, which is often insecure and unreliable. Rather than immutable biological differences in  
65 how women and men handle change, these patterns reflect gender norms and gendered power  
66 relations. Norms and relationships mediate whether and how women, men, households,  
67 communities, and societies can act in the face of change<sup>4</sup>. Gender inequalities manifest in  
68 people’s vulnerability and resilience<sup>4,9</sup>, their adaptation options<sup>10</sup>, whether their climate  
69 information needs are met<sup>11</sup>, and how people experience and engage with climate change  
70 programs and policies<sup>12</sup>. As climates change, social and cultural expectations about what it is  
71 to be a woman or a man in any given society will shape people’s wellbeing<sup>13,14</sup>.

72

73 Pursuing gender equality in climate change policy and practice is critical. In principle, gender  
74 equality is realized when people have equal conditions, treatments, and opportunities to  
75 realize their full potential, irrespective of their gender identity. Gender equality requires  
76 eliminating stereotypes, and prejudices about gender<sup>15</sup>, and creating institutions and  
77 environments that enable all people to exercise agency to cope, change, and adapt<sup>16</sup>. Gender  
78 equality is enshrined in the pre-ambles of the United Nations Framework Convention on  
79 Climate Change<sup>17</sup>. Likewise, numerous funding bodies, task groups, action plans and

80 policies, including the Green Climate Fund, International Panel for Climate Change (IPCC)  
81 and the Global Environment Facility (GEF), require that gender equality be addressed across  
82 all aspects of delivery<sup>18</sup>. For instance, in 2017 GEF shifted from a ‘a gender-aware “do no  
83 harm” approach to a gender-responsive “do good” approach’<sup>19</sup> that aligns with the IPCC’s  
84 emphasis on ‘involving women and men equally in the development and implementation of  
85 national climate policies and projects’<sup>20</sup>. Good practice, expertise and guidance on gender  
86 equality and climate change is growing<sup>21–23</sup>; commitments to gender equality are now  
87 embedded in climate change adaptation and mitigation schemes, such as the United Nation’s  
88 Reducing Emissions from Deforestation and Forest Degradation (REDD+)<sup>13,24</sup>.

89

90 However, even with this global mandate, efforts to realise gender equality in climate change  
91 face many challenges. Alongside broader obstacles (Box 1), pathways to gender equality are  
92 obstructed by a series of assumptions and stereotypes (Box 2) that promote simplistic, and  
93 often ineffective, approaches. These include stereotypes of women as innately more caring,  
94 connected to the environment, and vulnerable, and assumptions that targeting enough women  
95 leads to gender equality. Together, these assumptions conflate gender with sex (Box 3), and  
96 essentialize women’s and men’s characteristics as innate and unchangeable. In turn, policies  
97 and projects based on these assumptions misdiagnose the causes of gender inequality, and  
98 produce counterproductive strategies. Many of these assumptions are reinforced and  
99 exacerbated by broader and interrelated barriers, such as lack of funding and short timelines  
100 to understand and address gender equality (Box 1). It is easier, cheaper, and quicker to define  
101 and measure gender equality as the number of women involved in a project or present at a  
102 meeting.

103

104 Here, we provide an overview of four common and interlinked assumptions, clarify their  
105 pitfalls, and detail how they mask underlying causes of gender inequality and hinder paths to  
106 equality within climate policy and practice. Understanding and interrogating such  
107 assumptions is a first step to disrupting and moving beyond them. We purposefully draw  
108 from post-2014 gender and climate change literature to give an overview of how assumptions  
109 manifest across the gamut of recent work in adaptation, mitigation, and broader climate  
110 change policy, practice and research. Articles selected present compelling examples of  
111 gender assumptions in practice. We include research that perpetuates gender assumptions and  
112 critical research that identifies and critiques them. For instance, critical research on gender  
113 equality in mitigation schemes, such as REDD+ payments for ecosystem services, is a vibrant  
114 and growing field<sup>13,25-27</sup>. Where possible, we give examples from nascent research such as  
115 gender equality and climate smart technology<sup>28</sup>. Rather than qualify their extent, examples  
116 are intended to illustrate key assumptions and how they manifest in different contexts.

117

118 We juxtapose examples with lessons from development and gender literature, which has a  
119 long history of engaging with the feminist theory and practice to work towards gender  
120 equality (Table 1). Climate change adaptation and mitigation interventions often focus on  
121 developing countries, and thus can and should avoid repeating mistakes documented across  
122 the field of development<sup>29</sup>. Finally, we offer four suggestions for a more informed pursuit of  
123 gender equality.

124

125 *[Table 1 here]*

126

## 127 **Gender assumptions**

128

129 Recognizing and disrupting gender assumptions is a vital step on the path towards gender  
130 equality in climate change policy and practice. The following assumptions stereotype women  
131 as innately caring, connected to the environment, and homogeneously vulnerable to climate  
132 change. Together these stereotypes propel assumptions that gender equality is a women's  
133 issue that can be addressed by increasing the number of women involved in climate change  
134 projects, policy and practice.

135

### 136 **Women are caring and connected to the environment**

137

138 A pervasive gender assumption still present across climate research, policy and practice, is  
139 that women are innately caring and deeply connected to their natural environment. This  
140 assumption recapitulates ideas from 1970s ecofeminism (Table 1c). Ecofeminism extended  
141 biological traits associated with female bodies, such as birth and breast feeding, to  
142 essentialized female traits of caring and a deeper and innate connection with nature<sup>30</sup>.  
143 Development furthered this 'earth mother myth' by promoting the image of a timeless,  
144 natural female domain of subsistence, domesticity and environmental connection<sup>30</sup>. Women  
145 are assumed to more dependent on the environment for subsistence and domestic work, like  
146 gathering firewood and water, or farming small-plots of land, and thus as more 'in touch'  
147 with their environment<sup>31,32</sup>.

148

149 These stereotypes exist across the gamut of climate change policy, practice and research. For  
150 instance, in climate change discourse, women are often depicted as connected to the  
151 environment through domestic labour despite growing empirical evidence on different (and  
152 changing) gendered divisions of labour in different contexts<sup>28,33</sup>. In Nicaragua, an adaptation  
153 project introduced wood-saving stoves as a gender-sensitive technology to benefit women,

154 who were viewed as traditional wood gatherers<sup>28</sup>. Rather than understanding gendered  
155 household labour (whereby men, and sometimes only men, collected wood), the project  
156 ‘ticked the box’ of gender equality, reinforced stereotypes about women’s responsibility for  
157 household chores. These stereotypes are also found in research. One ‘lab-in-the-field’  
158 experiment found that women’s presence at 50% in decision-making groups enhanced  
159 conservation outcomes, and suggested that the “*stronger environmental preferences of*  
160 *women* are more easily achieved under the additional support of PES”<sup>34</sup>. This interpretation  
161 positions women as holding innate environmental preferences.

162  
163 Interpreting caring norms and connection to nature as innate feminine qualities obscures a  
164 wide range of factors that shape people’s experiences and expectations about their roles.  
165 Rather than an innate aspect of being female, caring and valuing care work comes through  
166 socialization, ‘wherein girls learn from their mothers and others that caring is women’s  
167 work’<sup>35</sup>. These norms around women’s domestic and care work are related to the gendered  
168 acceptability of other types of (paid) work, and mobility and respectability<sup>36</sup>. In climate  
169 change adaptation, this assumption risks saddling women with greater responsibility to act as  
170 ‘saviours’ of environments, households and communities<sup>37</sup>. For example, Nicaraguan climate  
171 change policy narratives depict women as the natural saviours of both the environment and  
172 their communities because of their special and natural ‘connectedness to nature’<sup>38</sup>.

173

#### 174 **Women are homogenous and vulnerable**

175

176 Building on the assumption of women’s innate connection to nature, is a second enduring  
177 stereotype that women are inherently more vulnerable than men to the impacts of climate  
178 change. The argument follows that because women are more reliant on the environment,



179 changes to water supply, forest coverage, and rainfall will disproportionately affect women's  
180 productive and caring labour<sup>31,32</sup>. As such, addressing women's vulnerability and  
181 marginalization is seen as the path to reaching gender equality in climate change. For  
182 instance, at national and district levels in Tanzania and Uganda, policies and development  
183 plans to build climate change resilience characterized women as marginalized and vulnerable,  
184 while men were largely ignored<sup>39</sup>. In Burkina Faso, REDD+ projects assumed that women's  
185 vulnerability was inherently connected to their poverty and reliance on forest resources<sup>40</sup>. By  
186 extension, the project equated reducing women's poverty with reaching gender equality.

187

188 Essentializing women as a vulnerable group with homogenous climate change experiences  
189 and adaptation needs, can exacerbate inequalities and obscure opportunities to address  
190 different people's needs. For example, in Mali, older and younger women and men pursued  
191 different farming strategies, held different goals, and thus had very different climate  
192 information needs<sup>11</sup>. However, the information provided by Mali's Agrometeorological  
193 Advisory Program was not tailored to these needs, and was thus only useful for around 15%  
194 of men. In Tanzania, access to climate change adaptation strategies is dependent on marital  
195 status. Married women are able to pursue adaptation strategies, like livelihood diversification  
196 and irrigation and water management, that unmarried women (young or widowed) cannot<sup>3</sup>.  
197 Likewise, in Nicaragua, male widowers are particularly vulnerable to water and resource  
198 scarcity because policy-makers assumed that water collection—and it's increasing  
199 difficulty— was purely a women's issue<sup>38</sup>.

200

201 Experience in development shows that essentializing women as a homogenous and  
202 vulnerable group risks overlooking power and status conferred by multiple identities within  
203 the social structures of a given place. People's gender intersects with other identities—

204 including caste, class, ethnicity, age, health, sexuality, and nationality, among others—in  
205 ways that shape vulnerability and resilience (Table 1e, 1f). This intersection of identities,  
206 including gender, is defined as intersectionality<sup>41</sup>. Policies and studies that take  
207 intersectionality into account are better able to address people’s different and gendered  
208 needs<sup>41,42</sup>. Recent work on climate smart agriculture has called for research to move beyond  
209 conceptualizing women as a homogenously vulnerable group, and to embrace  
210 intersectionality to ensure locally relevant and targeted strategies to enhance climate change  
211 resilience<sup>43</sup>.

212

### 213 **Gender equality is a women’s issue**

214

215 Viewing women are uniformly vulnerable to climate change propels the assumption that  
216 gender equality is a women’s issue. This assumption echoes the ‘women in development’ era  
217 in development (Table 1b), which targeted women to improve development outcomes, in  
218 effect using women as a means to an end without considering their diverse needs and  
219 aspirations<sup>44</sup>. Gender equality can be pursued for intrinsic reasons—where people are viewed  
220 as active agents in development<sup>47</sup>— or instrumental reasons—where people are viewed as  
221 objects, tools, or a means to an environmental or development end<sup>45</sup>. An intrinsic approach  
222 seeks to enhance gender equality for its own sake, by supporting the wellbeing, agency,  
223 livelihoods and prospects<sup>46</sup> of people as active agents<sup>47,48</sup> in their own lives and contexts. In  
224 contrast, in an instrumental approach, ‘women end up working *for* development’<sup>45</sup>, rather  
225 than development working for them (Table 1b). This overt focus on women stems from early  
226 efforts to redress gender-blindness in development practice (Table 1a)<sup>49,50</sup>. During the 1970s  
227 and beyond, explicitly targeting women as the recipients and instruments of development  
228 played an important and warranted role in changing development discourse by bringing

229 international attention to gender inequality. However, it also had a number of unintended  
230 negative consequences including increasing time burdens and workloads, without changing  
231 women's status or agency in society or within households<sup>51</sup>.

232  
233 Climate change practice at times recapitulates an instrumental approach of targeting women  
234 as a means to realising climate change resilience. For instance, resilience building policies in  
235 Tanzania and Uganda position women as more productive, and simply lacking the necessary  
236 resources to realize their full productive potential<sup>39</sup>. Research into the gendered preferences  
237 for climate-smart agricultural technologies seeks to align benefits with women's needs  
238 because women 'represent *a crucial resource* in agriculture and the rural economy through  
239 their roles as farmers and entrepreneurs'<sup>52</sup>. In India, projects seek to provide women with  
240 better access to technology and climate information assuming that women will then play a  
241 more prominent role in household decisions about planting<sup>53</sup>. However, access alone does not  
242 guarantee that information will be translated into meaningful change, particularly if agency is  
243 curtailed by social norms of household decision making<sup>12</sup>.

244  
245 Unintended side-effects of targeting women as a means to an end are manifesting across  
246 climate change practice. For example, in Uganda, Ghana and Bangladesh, labour  
247 requirements are a disincentive for women to adopt climate smart agricultural practices  
248 because new, labour intensive tasks such as vermiculture and composting were more likely to  
249 fall to women<sup>43</sup>. In Burkina Faso, a REDD+ program connected women with global markets  
250 for non-timber forestry products<sup>40</sup>. The project sought to concurrently enhance gender  
251 equality by reducing poverty, and to mitigate climate change by reducing pressure on timber  
252 resources. However, in this instance connecting women with markets as the pathway to  
253 gender equality ignored inequalities among women, assumed that their desire to be involved

254 in the program was a given, and ignored the possibility that their labour would be exploited.  
255 In development, similar fair trade initiatives—such as the shea butter industry—that sought to  
256 empower poor women by incorporating them into global value chains inadvertently lead to  
257 low remuneration and exploitation<sup>40,54</sup>.

258  
259 Finally, a narrow focus on women in climate change adaptation or mitigation can eclipse  
260 understandings of local socio-cultural contexts and power structures, leading to misguided  
261 strategies that risk backfiring and creating greater inequality. For instance, if targeting  
262 women does not align with culture and existing power structures, there may be a backlash  
263 (Table 1d). A study of knowledge, attitudes, and practices of organizations supporting  
264 climate change adaptation in Sub-Saharan Africa found that projects which began by  
265 emphasizing the benefits and empowerment of women had not been well received by  
266 communities, whereas those that framed the project as community-based (but still incorporate  
267 the same gender components) had been more widely accepted<sup>55</sup>.

268

### 269 **Gender equality is a numbers game**

270

271 Finally, pursuing gender equality by focusing on women leads to the assumption that equal or  
272 greater numbers of women in attendance in a forum or activity is an appropriate proxy for  
273 equality. By extension, this assumption suggests that increasing the numbers of women that  
274 participate in, or benefit from, development programs, corresponds neatly with women  
275 becoming empowered. As such, gender equality becomes little more than a numbers game.  
276 The term gender equality can easily be misconstrued as ‘sameness’ in participation or  
277 benefits<sup>15</sup>. For example, quotas are a popular standard in governing bodies. They are often  
278 supported by empirical research pointing to how women’s participation can change both

279 process and outcomes<sup>56</sup>. Recent research on the impact of gender quotas on PES outcomes,  
280 found that groups with a 50% quota of women were more likely to distribute payments  
281 equally among members, and interpreted this outcome as equality. However, a more  
282 appropriate measure of equality is whether people's circumstances, characteristics and  
283 agency allow them to convert payments into desired and fair opportunities<sup>15</sup>. Thus, rather  
284 than equal payments, realising equal outcomes requires identifying the benefits and costs of  
285 an activity for individuals in the community, alongside local perceptions of fair outcomes. In  
286 many cases, what is fair will differ from equal payments<sup>16</sup>, because fairness is not always  
287 akin to equality (as sameness). For instance, in cases of unequal power relations, equal  
288 distribution of payments or material resources may overlook the unequal distributions of  
289 costs, and thus sustain existing inequalities.

290

291 This assumption also conflates more or less equal levels of participation as empowerment.  
292 Projects may define empowerment loosely as 'better participation in the decision-making  
293 process'<sup>57</sup>, with a focus on equal opportunity. Equating equal numbers with empowerment  
294 can lead to a 'tyranny of participation'<sup>44</sup>, whereby turning up is defined as empowerment, and  
295 the social, cultural and structural barriers to meaningful empowerment are neither  
296 acknowledged or addressed<sup>58</sup>. Simply encouraging equal numbers of women to participate  
297 may merely serve to reinforce traditional gender roles. For instance, an analysis of REDD+  
298 policies globally found that gender equality was defined as women's participation. However,  
299 this participation often amounted to women as passive recipients or as a means to enhancing  
300 project effectiveness<sup>25</sup>. For instance, even when projects successfully increase women's  
301 income, this benefit may not empower women to have greater control how that income is  
302 used<sup>59</sup>. In an effort to challenge gender norms, a resilience building activities in Burkina Faso  
303 and Ethiopia provided women's groups with goats, which were traditionally kept by men<sup>12</sup>.

304 While women did make decisions and take on new responsibilities for the livestock, the  
305 initiative had no clear impact on decision making within households or more broadly, and  
306 thus did not shift gender norms towards empowerment.

307

308 Treating the number of women as a proxy for equality is counterproductive when projects  
309 seek to include women in decision-making and leadership positions. Specifically, if barriers  
310 to meaningful participation are not addressed, then providing incentives for women to  
311 participate in decision-making may backfire, reinforce or exacerbate existing power  
312 imbalances<sup>60-64</sup>. Specifically, insisting that women be newly positioned as decision-makers  
313 without addressing how this might challenge social norms<sup>65-67</sup>, can lead to increased violence  
314 at home, or backlash among male community leaders<sup>64,68</sup>. In India, REDD+ projects aimed to  
315 have an equal numbers of women and men in decision-making groups<sup>69</sup>. However, women  
316 had little to no influence on the decision-making process, were unable to sway the opinions  
317 and interests of the most powerful in the group and were dissatisfied with eventual benefit  
318 sharing decisions and accountability within the group. Likewise, in Nepal, REDD+ projects  
319 targeted women but their ideas were not listened to, no women held leadership positions, and  
320 there was no mechanism to ensure equitable benefit sharing, or empowerment beyond  
321 participation in numbers<sup>26</sup>. Thus, fulfilling a quota of women in a decision-making in  
322 isolation, without also considering other barriers to full inclusion, is unlikely to produce  
323 gender equitable outcomes. Equality in numbers is a poor proxy for gender equality. It  
324 obscures whether opportunities, access, and participation translate into meaningful and  
325 actionable change for different people.

326

327 These four interconnected assumptions impoverish the pursuit of gender equality in climate  
328 change policy, research and practice. A myopic focus on women, or on one aspect of

329 women's lives (e.g., money or participation) obscures the power structures and relationships  
330 that bound people's agency<sup>16</sup>. Power structures, gender norms and relations and gendered  
331 vulnerabilities are complex, and can become particularly dynamic in the face of climatic  
332 stress. For instance, in drought stricken Isiolo County in Kenya, water scarcity has not only  
333 made men's incomes insecure and disrupted their traditional gender role of providing for  
334 their families but has also changed norms around marriage, polygamy, and separations,  
335 leading to new forms of multi-generational and multi-locational households with new  
336 vulnerabilities<sup>70</sup>. Such an example challenges the assumption that women and men exist as  
337 'discrete variables'<sup>16</sup>. Instead, people are inextricably embedded in households, communities,  
338 and more broadly, dynamic, and power-laden socio-ecological systems<sup>71</sup>. Gender equality  
339 requires a deeper diagnosis of context specific and intersectional vulnerability and need, and  
340 strategies that ensure women and men participate in projects in meaningful ways that support  
341 their rights, voice, and influence.

342

### 343 **Towards informed pursuit of gender equality**

344

345 A first step to disrupting these assumptions is to recognize, critique and test them. However,  
346 moving beyond them requires concurrent and concerted effort to dismantle broader,  
347 interrelated barriers to gender equality. We offer four broad suggestions for a more informed  
348 pursuit of gender equality in climate change policy and practice.

349

350 First, be specific about how organisations, projects and policies seek to realise gender  
351 equality. A useful distinction is whether an organisation, project or a policy seeks to reach  
352 (through participation in terms of numbers), benefit (through outcomes like improved income  
353 or voice) or empower (through enhanced ability to make and enact decisions in a given

354 context)<sup>72</sup>. The assumptions we have described are particularly problematic when they  
355 muddy the goals and measurement of reaching, benefiting, or empowering<sup>72</sup> women and men.  
356 Even though efforts that reach or benefit are important steps towards gender equality, ‘reach’  
357 is not akin to ‘benefit’, which is in turn not akin to ‘empowerment’, because the latter will  
358 require changes to social, economic and institutional structures. The precise use of language  
359 of gender equality, especially outcomes, can combat this muddiness. In addition, where  
360 possible, seek to serve people and communities in terms of agency, wellbeing, livelihoods,  
361 and prosperity. Ensuring those less empowered can contribute to, find opportunity within,  
362 and influence trajectories of change requires identifying, and challenging socio-cultural  
363 structures that set the rules of play<sup>58</sup>. Rather than something that can ‘be done’ to someone,  
364 empowerment is an ongoing process of challenging inequitable gender norms by removing  
365 barriers for individual self-actualization and collective mobilization through agency and  
366 consciousness (Table 1f)<sup>73,74</sup>.

367

368 Second, conduct, critique and communicate gender and sex-disaggregated research. When  
369 reading and reviewing research that seeks to inform or evaluate gender equality in practice,  
370 read critically to see if research is reinforcing assumptions, even inadvertently. For example,  
371 in the field of agriculture, unexamined, inaccurate ‘facts’, such as ‘women produce 60-80%  
372 of the world’s food’ continue to negatively influence project design, obscure the need for  
373 accurate data, and impede progress to gender equality<sup>31</sup>. Beware of research that naturalizes  
374 gender differences as sex differences. For example, many findings in behavioural economics  
375 (e.g. that women are more risk averse than men) are reported through a lens of stereotypes,  
376 serving to naturalize sex differences as innate and unchangeable<sup>75</sup>. Beyond critiquing existing  
377 research, future research on how these assumptions emerged across multiple fields can help  
378 explain why they remain powerful. For instance, they may be symptomatic of the ‘watering



379 down' of gender equality through different levels of policy (re)interpretation or stages of  
380 policy cycles<sup>76</sup>. How global goals, including gender equality, are interpreted and enacted in  
381 local level policies is a growing research focus<sup>77</sup>.

382

383 Third, understand and use robust measures of gender equality in policy and practice. While  
384 sex and gender-disaggregated analysis improves science quality<sup>78</sup>, lack of quality data is an  
385 ongoing challenge. Monitoring and evaluation that integrates gender from the outset is  
386 necessary to build the evidence base on the links between gender actions, climate change  
387 initiatives and ultimate outcomes<sup>72</sup>. To this end, climate policy and practice can draw on  
388 emerging standardized measures for empowerment and gender equality, that can tailored to  
389 specific contexts<sup>79</sup>. Such measures include, for instance, the Women's Empowerment in  
390 Agriculture Index<sup>80</sup>, the Individual Deprivations Measure<sup>81</sup>—which captures intersectional  
391 aspects of multidimensional poverty—and the 'Enabling Gender Equality in Agricultural and  
392 Environmental Innovation' project—which offers a methodology for understanding the  
393 connection between gender norms and innovation<sup>82</sup>.

394

395 Fourth, work to question and disrupt the deeper, difficult-to-quantify, and more intractable  
396 barriers to gender equality, as well as barriers that support, reinforce and even encourage  
397 assumptions within funding structures, projects and institutions. The former includes barriers  
398 to tenure rights, education, access to material resources, and norms shaping social  
399 expectations of women and men in a given context. The latter requires that climate change  
400 institutions themselves create the environment and capacities to move beyond unhelpful  
401 gender assumptions. This includes recognizing and countering short timelines, supporting  
402 and funding gender expertise, and developing and implementing intersectional gender  
403 approaches to climate change programs. For policy-makers, this may require a better

404 understanding of how the translation of gender equality through policy scales risks co-opting  
405 gender equality concepts and goals<sup>83,84</sup>, and ameliorating this. Finally, there is a need to  
406 bridge disciplinary silos to ensure that gender equality lessons inform climate change projects  
407 and sectors, such as energy<sup>85</sup> and climate services<sup>86</sup>, where engagement and research are  
408 more nascent.

409

## 410 **Conclusion**

411

412 The persistence of gender assumptions hinders efforts to realise gender equality in climate  
413 change policy and practice. Old tropes of gender equality as a women's issue support  
414 counterproductive strategies. Alongside the growing body of expertise, gender and  
415 development literature provides lessons to climate change practitioners and researchers about  
416 the need to disrupt and counteract these assumptions. Gender inequality is a systemic  
417 problem, comprised of complex and dynamic relationships, norms and processes. In concert  
418 with clear goals and monitoring, robust research and communication, and building enabling  
419 environments and capacities, recognizing and disrupting the gender assumptions described  
420 here is an important step towards meaningful change.

421

422

423

424

425 Table 1. Development of thinking and practice in gender and development compiled from <sup>30,74,87-89</sup>. Although overall development practice has progressed  
 426 through these paradigms, the time-periods indicate when the approach was in vogue, and current practice in development still spans the entire table.  
 427

	<b>a. Gender-blind</b>	<b>b. Women in Development</b>	<b>c. Women, Environment, Development</b>	<b>d. Gender &amp; Development</b>	<b>e. Women, Culture &amp; Development</b>	<b>f. Transformation &amp; Development</b>
<b>Target of interventions</b>	Men	Women	Women	Men and Women	Social relations, lived experience	Social and power relations, intersectional identities
<b>Time-period*</b>	Pre-1960s	1970s	1970s	1980s	2000s	Current
<b>Assumptions</b>	Women are irrelevant to development interventions	Delivering development opportunities to women and addressing women's issues will empower women	Women have an innate connection to nature (ecofeminism) so should be targeted for conservation	Recognition of men as part of gender problems and solutions will lead to greater gender equity	Addressing structural and cultural inequities will lead to gender equity	Transforming restrictive power relationships will lead to greater gender equity
<b>Desired outcomes</b>	Efficient economic and productive gains	Economic empowerment of women	More effective conservation	Gender equality, improved productivity	Equity Redistribution of power	Transformation of underlying gender norms and power relationships
<b>Unintended outcomes/ Critiques</b>	Women excluded from economic and productive opportunities	Emphasis on women's productivity exacerbated women's triple burden (i.e., productive, reproductive and community work)	Generalization and assumptions about women's connectedness to nature, over-burdening women	Obscured 'connectedness' within households. Backlash from men and elites (e.g., resources directed at women)	Potential risk of reifying local culture	Potential risk of cultural imperialism
<b>Reference</b>		87	30	88	89	74

428

429

430

### **BOX 1. Obstacles to gender equality in climate change responses**

Alongside the assumptions discussed in this review, there are broader obstacles to realising gender equality in climate change responses. Gender-blindness—whereby gender issues are not considered at all—remains common. In 2018, an external audit of Global Environmental Facility funded projects found that almost two-thirds did not include gender, when they should have<sup>90</sup>. Even when gender equality is included, it can be diluted<sup>84</sup> or manipulated for political ends<sup>91</sup>. In other cases, gender equality is included as an afterthought or bureaucratic obligation, rather than receiving genuine commitment from the outset<sup>25</sup>. When gender equality is a central goal, it can be thwarted by short timelines, complex organizational structures and lack of a clear vision<sup>12</sup>. Other common obstacles to meaningful action include lack of funding or expertise<sup>92</sup>, and murky definitions of what gender equality entails<sup>74,76</sup>.

431

### **BOX 2. Gender assumptions and stereotypes**

An assumption is not a lie or a falsehood, but something accepted as true without proof. Assumptions may be true in certain contexts, for certain people<sup>31</sup>, but the danger lies when they are taken for granted and then used as universally accepted truths. Unchallenged, gender assumptions perpetuate and reinforce unhelpful stereotypes. Gender stereotypes are part of a system of expectations held by societies about feminine and masculine roles<sup>93</sup>. Commonly, these have fallen across a gender binary of feminine traits and behaviours as ‘niceness/ nurturance’ and masculine as ‘potency/ power’. Gender stereotypes affect the judgments people make of others, with consequences for how people behave, are treated, and define themselves<sup>93,94</sup>. As such, gender stereotypes may become self-fulfilling<sup>75,95</sup>, creating the illusion that gender differences, as natural and innate, are unchangeable.

432

### **BOX 3. Sex-disaggregation or gender analysis**

Sex and gender are distinct but related. Sex differences are based on biological indicators that are used to categorize people as male, female, or intersex. By contrast, gender is made up of socio-cultural expectations of what it is to be a woman, man, masculine or feminine. Gender is shaped by social norms, power, and institutions. Gender identity shapes access to resources, how work is divided within households and communities, and norms around decision-making and mobility in different ways in different contexts<sup>96-98</sup>. Neither sex nor gender are binary; multiple sexes and

multiple genders exist<sup>78,93</sup>. Accurate and usable research requires investigating patterns linked to sex differences or gender<sup>78, 85,99–101</sup>. However, sex-disaggregated research—while important—cannot replace gender analysis on context specific, socio-cultural dimensions that shape people’s experiences of agency, opportunity and society. When climate change policies and practical interventions use sex-disaggregated data in lieu of detailed gender research, they risk diagnosing gender inequalities as the consequence of innate sex differences<sup>102</sup>. Conflating sex-disaggregated research with gender research likewise reinforces unhelpful stereotypes across many fields including behavioural economics<sup>75</sup>, social and economic research on poverty alleviation,<sup>103</sup> and energy<sup>85</sup>.

433

434

435 **References**

436

- 437 1. Cohen, P. *et al.* Understanding adaptive capacity and capacity to innovate in social-  
438 ecological systems; applying a gender lens. *Ambio* **45**, 309–321 (2016).
- 439 2. Terry, G. No climate justice without gender justice: An overview of the issues. *Gend.*  
440 *Dev.* **17**, 5–18 (2009).
- 441 3. Van Aelst, K. & Holvoet, N. Intersections of Gender and Marital Status in Accessing  
442 Climate Change Adaptation: Evidence from Rural Tanzania. *World Dev.* **79**, 40–50  
443 (2016).
- 444 4. Rao, N., Lawson, E. T., Raditloaneng, W. N., Solomon, D. & Angula, M. N. Gendered  
445 vulnerabilities to climate change: insights from the semi-arid regions of Africa and  
446 Asia. *Clim. Dev.* **11**, 14–26 (2019).
- 447 5. Jerneck, A. Taking gender seriously in climate change adaptation and sustainability  
448 science research: Views from feminist debates and sub-saharan small-scale agriculture.  
449 *Sustain. Sci.* **13**, 403–416 (2018).
- 450 6. de Sherbinin, A. Climate change hotspots mapping: What have we learned? *Clim.*  
451 *Change* **123**, 23–37 (2014).
- 452 7. Szabo, S. *et al.* Making SDGs work for climate change hotspots. *Environ. Sci. Policy*  
453 *Sustain. Dev.* **58**, 24–33 (2016).
- 454 8. Rao, N. *et al.* A qualitative comparative analysis of women’s agency and adaptive  
455 capacity in climate change hotspots in Asia and Africa. *Nat. Clim. Chang.* **9**, 1–8  
456 (2019).
- 457 9. Ravera, F., Iniesta-Arandia, I., Martín-López, B., Pascual, U. & Bose, P. Gender  
458 perspectives in resilience, vulnerability and adaptation to global environmental change.

- 459 *Ambio* **45**, 235–247 (2016).
- 460 10. Ylipaa, J., Gabriëlsson, S. & Jerneck, A. Climate Change Adaptation and Gender  
461 Inequality: Insights from Rural Vietnam. *Sustainability* **11**, 1–16 (2019).
- 462 11. Carr, E. R. & Onzere, S. N. Really effective (for 15% of the men): Lessons in  
463 understanding and addressing user needs in climate services from Mali. *Clim. Risk*  
464 *Manag.* **22**, 82–95 (2018).
- 465 12. McOmber, C., Audia, C. & Crowley, F. Building resilience by challenging social  
466 norms: integrating a transformative approach within the BRACED consortia. *Disasters*  
467 **43**, S271–S294 (2019).
- 468 13. Larson, A. M. *et al.* Gender lessons for climate initiatives: A comparative study of  
469 REDD+ impacts on subjective wellbeing. *World Dev.* **108**, 86–102 (2018).
- 470 14. Rao, N. *et al.* Managing risk, changing aspirations and household dynamics:  
471 Implications for wellbeing and adaptation in semi-arid Africa and India. *World Dev.*  
472 **125**, 104667 (2020).
- 473 15. ILO. *ABC of Women Workers' Rights and Gender Equality. International Labour*  
474 *Office* **24**, (2007).
- 475 16. Rao, N. Assets, Agency and Legitimacy: Towards a Relational Understanding of  
476 Gender Equality Policy and Practice. *World Dev.* **95**, 43–54 (2017).
- 477 17. United Nations Framework Convention on Climate Change (UNFCCC). UN  
478 Framework Convention on Climate Change. (2015). Available at: <http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>. (Accessed: 6th November 2020)
- 479
- 480 18. Resurreccion, B. *et al.* *Gender-Transformative Climate Change Adaptation:*  
481 *Advancing Social Equity. Background paper to the 2019 report of the Global*  
482 *Commission on Adaptation* (2019).
- 483 19. GEF. *Progress Report on the GEF Gender Implementation Strategy.* (2020).

- 484 20. GEF. *Report of the Global Environment Facility to the Twenty-Sixth Session of the*  
485 *Conference of the Parties to the United Nations Framework Convention on Climate*  
486 *Change*. (2020).
- 487 21. UN Women. *Pacific gender and climate change toolkit: Tools for practitioners*. UN  
488 *Women* (2015).
- 489 22. Kato-Wallace, J. *et al.* *Men, Masculinities & Climate Change: A Discussion Paper*.  
490 *MenEngage Alliance* (2019).
- 491 23. Baćanović, V. & Murić, J. *Gender and climate change - Training Handbook*. (2018).  
492 doi:10.1002/wcc.451
- 493 24. Nature Climate Change. Gender in conservation and climate policy. *Nat. Clim. Chang.*  
494 **9**, 255 (2019).
- 495 25. Bee, B. A. & Basnett, B. S. Engendering social and environmental safeguards in  
496 REDD+: lessons from feminist and development research. *Third World Q.* **38**, 787–  
497 804 (2017).
- 498 26. Khadka, M., Karki, S., Karky, B. S., Kotru, R. & Darjee, K. B. Gender Equality  
499 Challenges to the REDD+ Initiative in Nepal. *Mt. Res. Dev.* **34**, 197–207 (2014).
- 500 27. Samndong, R. A. & Kjosavik, D. J. Gendered forests: Exploring gender dimensions in  
501 forest governance and REDD+ in Équateur Province, democratic republic of Congo  
502 (DRC). *Ecol. Soc.* **22**, (2017).
- 503 28. Gonda, N. Climate Change, “Technology” and Gender: “Adapting Women” to Climate  
504 Change with Cooking Stoves and Water Reservoirs. *Gend. Technol. Dev.* **20**, 149–168  
505 (2016).
- 506 29. Pelling, M. & Garschagen, M. Put equity first in climate adaptation. *Nature* **569**, 7–9  
507 (2019).
- 508 30. Leach, M. Earth Mother myths and other ecofeminist fables: How a strategic notion



- 509           rose and fell. *Dev. Change* **38**, 67–85 (2007).
- 510 31. Doss, C., Meinzen-Dick, R., Quisumbing, A. & Theis, S. Women in agriculture: Four  
511 myths. *Glob. Food Sec.* **16**, 69–74 (2018).
- 512 32. Kristjanson, P. *et al.* Addressing gender in agricultural research for development in the  
513 face of a changing climate: where are we and where should we be going? *Int. J. Agric.*  
514 *Sustain.* **15**, 482–500 (2017).
- 515 33. Sunderland, T. *et al.* Challenging Perceptions about Men, Women, and Forest Product  
516 Use: A Global Comparative Study. *World Dev.* **64**, 56–66 (2014).
- 517 34. Cook, N. J., Grillos, T. & Andersson, K. P. Gender quotas increase the equality and  
518 effectiveness of climate policy interventions. *Nat. Clim. Chang.* **9**, 330–334 (2019).
- 519 35. MacRae, H. Women and Caring: Constructing Self Through Others. *J. Women Aging*  
520 **7**, 145–167 (1995).
- 521 36. Marcus, R. *The norms factor: Recent research on gender, social norms, and women's*  
522 *economic empowerment.* (2018).
- 523 37. Leach, M. Earth mother myths and other ecofeminist fables: How a strategic notion  
524 rose and fell. *Dev. Change* **38**, 67–85 (2007).
- 525 38. Gonda, N. Re-politicizing the gender and climate change debate: The potential of  
526 feminist political ecology to engage with power in action in adaptation policies and  
527 projects in Nicaragua. *Geoforum* **106**, 87–96 (2019).
- 528 39. Ampaire, E. L. *et al.* Gender in climate change, agriculture, and natural resource  
529 policies: insights from East Africa. *Clim. Change* (2019). doi:10.1007/s10584-019-  
530 02447-0
- 531 40. Westholm, L. & Arora-Jonsson, S. Defining Solutions, Finding Problems:  
532 Deforestation, Gender, and REDD+ in Burkina Faso. *Conserv. Soc.* **13**, 189 (2015).
- 533 41. Kaijser, A. & Kronsell, A. Climate change through the lens of intersectionality. *Env.*

- 534 *Polit.* **23**, 417–433 (2014).
- 535 42. Garcia, A., Tschakert, P. & Karikari, N. A. ‘Less able’: how gendered subjectivities  
536 warp climate change adaptation in Ghana’s Central Region. *Gender, Place Cult.* **27**, 1–  
537 26 (2020).
- 538 43. Jost, C. *et al.* Understanding gender dimensions of agriculture and climate change in  
539 smallholder farming communities. *Clim. Dev.* **8**, 133–144 (2016).
- 540 44. Penderis, S. Theorizing Participation: From Tyranny to Emancipation. *J. African Asian*  
541 *Local Gov. Stud.* **1**, 1–28 (2012).
- 542 45. Chant, S. The ‘feminisation of poverty’ and the ‘feminisation’ of anti-poverty  
543 programmes: Room for revision? *J. Dev. Stud.* **44**, 165–197 (2008).
- 544 46. Clissold, R., Westoby, R. & McNamara, K. E. Women as recovery enablers in the face  
545 of disasters in Vanuatu. *Geoforum* **113**, 101–110 (2020).
- 546 47. Guérin, I., Kumar, S. & Agier, I. Women’s Empowerment: Power to Act or Power  
547 over Other Women? Lessons from Indian Microfinance. *Oxford Dev. Stud.* **41**, (2013).
- 548 48. O’Hara, C. & Clement, F. Power as agency: A critical reflection on the measurement  
549 of women’s empowerment in the development sector. *World Dev.* **106**, 111–123  
550 (2018).
- 551 49. Jackson, C. Environmentalisms and Gender Interests in the Third World. *Dev. Change*  
552 **24**, 649–677 (1993).
- 553 50. Molyneux, M. Socialist Societies Old and New: Progress towards Women’s  
554 Emancipation? *Fem. Rev.* **8**, 1–34 (1981).
- 555 51. Escobar, A. Whose Knowledge, Whose nature? Biodiversity, Conservation, and the  
556 Political Ecology of Social Movements. *J. Polit. Ecol.* **5**, 53–82 (1998).
- 557 52. Murage, A. W., Pittchar, J. O., Midega, C. A. O., Onyango, C. O. & Khan, Z. R.  
558 Gender specific perceptions and adoption of the climate-smart push-pull technology in

- 559 eastern Africa. *Crop Prot.* **76**, 83–91 (2015).
- 560 53. Mittal, S. Role of Mobile Phone-enabled Climate Information Services in Gender-  
561 inclusive Agriculture. *Gend. Technol. Dev.* **20**, 200–217 (2016).
- 562 54. Kent, R. “Helping” or “Appropriating”? Gender Relations in Shea Nut Production in  
563 Northern Ghana. *Soc. Nat. Resour.* **31**, 367–381 (2018).
- 564 55. Bryan, E., Bernier, Q., Espinal, M. & Ringler, C. Making climate change adaptation  
565 programmes in sub-Saharan Africa more gender responsive: insights from  
566 implementing organizations on the barriers and opportunities. *Clim. Dev.* **10**, 417–431  
567 (2018).
- 568 56. Agarwal, B. The power of numbers in gender dynamics: illustrations from community  
569 forestry groups. *J. Peasant Stud.* **42**, 1–20 (2014).
- 570 57. Hariharan, V. K. *et al.* Does climate-smart village approach influence gender equality  
571 in farming households? A case of two contrasting ecologies in India. *Clim. Change*  
572 **158**, 77–90 (2018).
- 573 58. Cornwall, A. Whose voices? Whose choices? Reflections on gender and participatory  
574 development. *World Dev.* **31**, 1325–1342 (2003).
- 575 59. Behrman, J., Meinzen-Dick, R. & Quisumbing, A. Understanding Gender and Culture  
576 in Agriculture: The Role of Qualitative and Quantitative Approaches. in *Gender in*  
577 *Agriculture: Closing the Knowledge Gap* (eds. Quisumbing, A. *et al.*) 31–53 (Springer,  
578 2014). doi:10.1007/978-94-017-8616-4
- 579 60. Giri, K. & Darnhofer, I. Nepali women using community forestry as a platform for  
580 social change. *Soc. Nat. Resour.* **23**, 1216–1229 (2010).
- 581 61. Cummins, D. The problem of gender quotas: women’s representatives on Timor-  
582 Leste’s suku councils. *Dev. Pract.* **21**, 85–95 (2011).
- 583 62. Franceschet, S. & Piscopo, J. . Gender quotas and women’s substantive representation:

- 584 Lessons from Argentina. *Polit. Gend.* **4**, 393–425 (2008).
- 585 63. Devlin, C. & Elgie, R. The effect of increased women’s representation in parliament:  
586 The case of Rwanda. *Parliam. Aff.* **62**, 237–254 (2008).
- 587 64. Clayton, A., Josefsson, C. & Wang, V. Quotas and women’s substantive  
588 representation: Evidence from a content analysis of Ugandan plenary debates. *Polit.*  
589 *Gend.* **13**, 273–304 (2017).
- 590 65. Zegenhagen, S., Ranganathan, M. & Maria, A. Household decision-making and its  
591 association with intimate partner violence: Examining differences in men’s and  
592 women’s perceptions in Uganda. *SSM - Popul. Heal.* **8**, 100442 (2019).
- 593 66. Carnegie, M. Creating community-based indicators of gender equity: A methodology.  
594 **60**, 252–266 (2019).
- 595 67. Murshid, N., Akincigil, A. & Zippay, A. Microfinance Participation and Domestic  
596 Violence in Bangladesh: Results From a Nationally Representative Survey. *J.*  
597 *Interpers. Violence* **31**, 1279–1596 (2016).
- 598 68. Beaman, L., Duflo, E., Pande, R. & Topalova, P. Female leadership raises aspirations  
599 and educational attainment for girls: A policy experiment in India. *Science (80-. ).* **335**,  
600 582–586 (2012).
- 601 69. Devkota, B. P. & Mustalahti, I. Complexities in accessing REDD+ benefits in  
602 community forestry: evidence from Nepal’s Terai region. *Int. For. Rev.* **20**, 332–345  
603 (2018).
- 604 70. Rao, N. From abandonment to autonomy: Gendered strategies for coping with climate  
605 change , Isiolo County , Kenya. *Geoforum* **102**, 27–37 (2019).
- 606 71. Schill, C. *et al.* A more dynamic understanding of human behaviour for the  
607 Anthropocene. *Nat. Sustain.* **2**, 1075–1082 (2019).
- 608 72. Johnson, N. *et al.* How do agricultural development projects empower women?

- 609 Linking strategies with expected outcomes. *J. Gender, Agric. Food Secur.* **3**, 1–19  
610 (2018).
- 611 73. Cornwall, A. Women’s Empowerment: What Works? *J. Int. Dev.* **28**, 342–359 (2016).
- 612 74. Cornwall, A. & Rivas, A. From ‘gender equality and ‘women’s empowerment’ to  
613 global justice: reclaiming a transformative agenda for gender and development. *Third*  
614 *World Q.* **36**, 396–425 (2015).
- 615 75. Sent, E. M. & van Staveren, I. A Feminist Review of Behavioral Economic Research  
616 on Gender Differences. *Fem. Econ.* **25**, 1–35 (2019).
- 617 76. Acosta, M. *et al.* Discursive translations of gender mainstreaming norms: The case of  
618 agricultural and climate change policies in Uganda. *Womens. Stud. Int. Forum* **74**, 9–  
619 19 (2019).
- 620 77. Lawless, S., Song, A. M., Cohen, P. J. & Morrison, T. H. Rights, equity and justice: A  
621 diagnostic for social meta-norm diffusion in environmental governance. *Earth Syst.*  
622 *Gov.* **6**, 100052 (2020).
- 623 78. Tannenbaum, C., Ellis, R. P., Eyssel, F., Zou, J. & Schiebinger, L. Sex and gender  
624 analysis improves science and engineering. *Nature* **575**, 137–146 (2019).
- 625 79. Gupta, S., Vemireddy, V., Singh, D. & Pingali, P. Adapting the Women’s  
626 empowerment in agriculture index to specific country context: Insights and critiques  
627 from fieldwork in India. *Global Food Security* **23**, 245–255 (2019).
- 628 80. Alkire, S. *et al.* The Women’s Empowerment in Agriculture Index. *World Dev.* **52**,  
629 71–91 (2013).
- 630 81. Bessell, S. The Individual Deprivation Measure: measuring poverty as if gender and  
631 inequality matter. *Gend. Dev.* **23**, 223–240 (2015).
- 632 82. Petesch, P., Camfield, L., Feldman, S., Prain, G. & Kantor, P. Qualitative,  
633 comparative, and collaborative research at large scale: The GENNOVATE field

- 634 methodology. *J. Gender, Agric. Food Secur.* **3**, 28–53 (2018).
- 635 83. de Jong, S. & Kimm, S. The co-optation of feminisms: a research agenda. *Int. Fem. J.*  
636 *Polit.* **19**, 185–200 (2017).
- 637 84. Lawless, S., Cohen, P. J., Mangubhai, S., Kleiber, D. & Morrison, T. H. Gender  
638 equality is diluted in commitments made to small-scale fisheries. *World Dev.* **140**,  
639 (2021).
- 640 85. Bradshaw, S. Sex disaggregation alone will not energize equality. *Nat. Energy* **3**, 813–  
641 815 (2018).
- 642 86. Gumucio, T., Hansen, J., Huyer, S. & van Huysen, T. Gender-responsive rural climate  
643 services: a review of the literature. *Clim. Dev.* **12**, 241–254 (2019).
- 644 87. Rathgeber, E. WID, WAD, GAD; Trends in Research and Practice. *J. Dev. Areas* **24**,  
645 489–502 (1990).
- 646 88. Singh, S. Deconstructing ‘gender and development’ for ‘identities of women’. *Int. J.*  
647 *Soc. Welf.* **16**, 100–109 (2007).
- 648 89. Chua, P., Bhavnani, K. K. & Foran, J. Women, culture, development: A new paradigm  
649 for development studies? *Ethn. Racial Stud.* **23**, 820–841 (2000).
- 650 90. Global Environment Facility Independent Evaluation Office. *Evaluation of gender*  
651 *mainstreaming in the GEF.* (2018).
- 652 91. Lombardo, E., Meier, P. & Verloo, M. Discursive Dynamics in Gender Equality  
653 Politics: What about ‘Feminist Taboos’? *Eur. J. Women’s Stud.* **17**, 105–123 (2010).
- 654 92. Lahousen, V. & Popovic, N. *Gender equality capacity assessment tool.* (2016).
- 655 93. Lips, H. *Sex and Gender: An Introduction.* (Waveland Press, 2020).
- 656 94. Ellemers, N. Gender Stereotypes. *Annu. Rev. Psychol.* **69**, 275–298 (2018).
- 657 95. Nelson, J. A. The power of stereotyping and confirmation bias to overwhelm accurate  
658 assessment: the case of economics, gender, and risk aversion. *J. Econ. Methodol.* **21**,

- 659 211–231 (2014).
- 660 96. Resurreccion, B. P. & Elmhirst, R. *Gender and natural resource management:*  
661 *livelihoods, mobility and interventions.* (Earthscan, 2008).
- 662 97. Rocheleau, D., Thomas-Slayter, B. P. & Wangari, E. *Feminist political ecology:*  
663 *global issues and local experience.* (Routledge, 1996).
- 664 98. MacGregor, S. *Routledge Handbook of Gender and Environment.* (Routledge, 2017).
- 665 99. Kleiber, D., Harris, L. M. & Vincent, A. C. J. Gender and small-scale fisheries: a case  
666 for counting women and beyond. *Fish Fish.* **16**, 547–562 (2014).
- 667 100. Fisher, M. & Carr, E. R. The influence of gendered roles and responsibilities on the  
668 adoption of technologies that mitigate drought risk: The case of drought-tolerant maize  
669 seed in eastern Uganda. *Glob. Environ. Chang.* **35**, 82–92 (2015).
- 670 101. Cramer, L., Förch, W., Mutie, I. & Thornton, P. K. Connecting Women, Connecting  
671 Men: How Communities and Organizations Interact to Strengthen Adaptive Capacity  
672 and Food Security in the Face of Climate Change. *Gender, Technology and*  
673 *Development* **20**, 169–199 (2016).
- 674 102. MacGregor, S. ‘Gender and climate change’: From impacts to discourses. *J. Indian*  
675 *Ocean Reg.* **6**, 223–238 (2010).
- 676 103. Brashaw, S., Linnerker, B., Nussey, C. & Sanders-McDonagh, E. *Gender Evidence*  
677 *Synthesis Research Award (ESRA). ESRC-DFID Joint Fund for Poverty Alleviation*  
678 *Research and Middlesex University* (2015).

679