



# Epistemic injustice in Climate Adaptation

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## Abstract

Indigenous peoples are disproportionately vulnerable to climate change. At the same time, they possess valuable knowledge for fair and sustainable climate adaptation planning and policymaking. Yet Indigenous peoples and knowledges are often excluded from or underrepresented within adaptation plans and policies. In this paper we ask whether the concept of epistemic injustice can be applied to the context of climate adaptation and the underrepresentation of Indigenous knowledges within adaptation policies and strategies. In recent years, the concept of epistemic injustice has gained prominence, indicating that someone has been unfairly discriminated against in their capacity as a knower (Fricker 2007, 1). We argue that many climate adaptation policies are epistemically unjust towards Indigenous peoples because of the underrepresentation of Indigenous knowledges by showing how the case of Indigenous knowledges in climate adaptation planning and policy satisfies five conditions of epistemic injustice. We further consider what challenges there are to integrating local and Indigenous knowledges within development in general, and climate adaptation strategies in particular and how these can be addressed. Whether the lack of Indigenous knowledges in climate adaptation policies constitutes an epistemic injustice matters because an injustice denotes an unfair (dis)advantage to one group – whether by design or default – that ought to be remedied and redressed.

**Keywords** epistemic injustice · climate adaptation · Indigenous knowledge · ethics of adaptation · socioeconomic inequality

While scientists predict that the world is on course towards irreversible climate change, it becomes paramount to develop and implement responsive and sustainable adaptation policies and strategies. Indigenous peoples, in particular, are vulnerable to climate change (Oviedo and Fincke 2009; Salick and Byg 2007). It is thus essential to develop plans and policies that enable and empower Indigenous communities to adapt to climate change. At

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the same time Indigenous peoples often possess knowledges, experiences, and practices that are essential to developing fair and sustainable adaptation plans and policies. Recent research suggests that the ability of relevant actors to influence decision-making on climate adaptation and express their knowledge of the local socioeconomic and environmental circumstances is key to ensuring that climate adaptation policies and strategies are fair, responsive, and sustainable Atte 1992; Barkin 2010; Berkes et al. 2000; Berkes, Colding, and Folke 2000; Green 1999; Swiderska et al. 2016).

In this paper we argue that the underrepresentation of local knowledges and Indigenous knowledges<sup>1</sup> within adaptation policies and strategies constitutes a strong case of epistemic injustice because it satisfies five conditions of epistemic injustice. In the process, we show how epistemic injustices against Indigenous knowledges in climate adaptation policy and planning further entrench and exacerbate the existing unjust climate vulnerabilities of Indigenous peoples. We further draw on Dotson's (2014) three orders of epistemic oppression to analyze the challenges to resolving the issue of epistemic injustice in the context of Indigenous knowledges and climate adaptation and provide recommendations to overcome these.

The paper is structured as follows. In the first section, we provide an introduction to the context of local knowledges and Indigenous knowledges for climate adaptation. In the second section, we introduce the notion of epistemic injustice and detail five conditions for assessing claims of epistemic injustice. In the third section, we show how the case of Indigenous knowledges in climate adaptation planning and policy satisfies all five conditions and should thus be considered a strong case of epistemic injustice. In the fourth section, we argue that because the exclusion of Indigenous knowledges in climate adaptation planning and policy constitutes an epistemic injustice there is a moral responsibility address and redress this. We further consider the challenges and potential solutions to creating pathways for the inclusion of Indigenous knowledges in climate policy and planning.

## 1 Climate adaptation and indigenous knowledges

Scientific consensus clearly indicates that even the levels of climate change to which we are already committed will have a massively disruptive effect on the lives and well-being of vulnerable communities around the world. It therefore becomes paramount to ensure that these communities are resilient and have adaptive capacity to withstand these consequences Crowther et al. 2016; Gardiner 2004, 573; IPCC 2013, 18; 2018). As Oviedo and Fincke (2009, 11–12) argue, Indigenous peoples, in particular, are vulnerable to climate change for several reasons:

- (i) “[...] many of the world’s centres of biodiversity coincide with areas owned, occupied, or managed by them;”

<sup>1</sup> According to UNESCO (2018), “[l]ocal and indigenous knowledge refers to understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. For rural and indigenous peoples, local knowledge informs decision-making about fundamental aspects of day-to-day life. This knowledge is integral to a cultural complex that also encompasses language, systems of classification, resource use practices, social interactions, ritual and spirituality. These unique ways of knowing are important facets of the world’s cultural diversity, and provide a foundation for locally-appropriate sustainable development.”

- (ii) “Indigenous peoples are often highly dependent on their lands and natural resources for their livelihoods;”
- (iii) “The environments they choose or are forced to live in are often physically isolated and harsh – often as a consequence of historical, social, political and economic exclusion;” and.
- (iv) “Consequently, any changes to the ecosystem may impact on their way of life and survival.”

Because of these vulnerabilities, it becomes essential to ensure that Indigenous peoples are able to adapt to climate change. This requires setting out adaptation policies and plans that aim to decrease Indigenous climate vulnerability and enhance their adaptive capacities. Climate threats have often been addressed by scientific means, such as promoting the use of more efficient and resilient crops or by introducing alien species into the ecosystem. Yet such initiatives have created unintended negative consequences, including monocropping, the loss of biodiversity, and the disruption of local ways of life (Shiva 1993; 2000). It is therefore imperative to explore alternative and more sustainable approaches to ensure climate adaptation.

### 1.1 The epistemic contribution of indigenous peoples

One way to promote sustainable adaptation is by including local knowledges and in particular Indigenous knowledges within climate adaptation policies and practices (Ford et al. 2010, 2014; Naess 2013). Local stakeholders, such as Indigenous communities, possess in-depth experiential knowledge about the local environment and socioeconomic norms that are essential for the success of climate adaptation initiatives Atte 1992; Barkin 2010; Berkes et al. 2000; Berkes, Colding, and Folke 2000; Green 1999; Swiderska et al. 2016). Indigenous knowledges can contribute in important ways to sustainable and responsive climate adaptation policies and initiatives (Raygorodetsky 2017).

For example, while increased rainfall contributes to soil degradation by washing out essential minerals, Indigenous Bolivian farmers, who have faced this issue for generations, avoid the problem by planting their crops on raised farms that protect them from seasonal flooding (Swartley 2002). In Kenya and Tanzania, Maasai pastoralists are able to predict rain onset and water availability, wildlife diseases, and assess quality and quantity of grazing through the observation of changes in nature, such as the sounds of birds, the flowering of trees, vegetation cover, or the presence of butterflies, which has proven essential for wildlife management and environmental protection (Kenrick 2000). Likewise, in the Arctic, Indigenous perceptions of seasonality based on detailed accounts of the movements of plants, animals, and insects weather patterns, such as rain, snow, and cloud cover, have helped identify seasonality shifts that, while relatively minor when measured by climate scientists and changes in precipitation and temperature, are important for people engaged in subsistence practices that transcend the four seasons of annual change (Chisholm Hatfield et al. 2017; McNeeley and Shulski 2011; Weatherhead et al. 2010).

Indigenous peoples have been explicitly recognized within international climate policies since at least the 1992 Earth Summit, but the integration of local and Indigenous knowledges into national and sub-national adaptation policies has been and in many cases continues to be underdeveloped (Ford et al. 2016). The United Nations notes that “Indigenous

peoples have invested enormous efforts in the work related to the different processes within the Committee for Sustainable Development, the Convention on Biological Diversity, the Forest Forum and the Framework Convention on Climate Change” (United Nations 2009, 119), yet it has not yet been able to translate these gains into representation of Indigenous knowledges and interests at local and national levels. This situation is the result of several factors:

*[...] structural discrimination of indigenous peoples at all levels in many countries, a lack of political will to prioritize indigenous issues and provide funds to address them, the low level and efficacy of indigenous participation in national policy formulation and implementation, and a lack of awareness of international commitments amongst government officials as well as among indigenous peoples themselves (except for a minority who work in leading indigenous organizations).* (United Nations 2009, 108)

## 1.2 The negative consequences of excluding indigenous knowledge

Where Indigenous knowledges have been disregarded, climate policies at the national level have often led to unforeseen and undesirable socioeconomic outcomes for affected Indigenous communities, including loss of lands, jobs, and homes, marginalisation, increased food insecurity, morbidity, and mortality, and loss of access to public and common resources (forests, water) (United Nations 2009, 93). It is important to note here the intrinsic relationship between climate and environmental policy, on the one hand, and development policy, on the other. That is, because climate vulnerabilities and lack of adaptive capacity are often best addressed through social and economic development, which aims to provide alternative and/or more sustainable livelihoods, the distinction between what counts as explicitly climate (adaptation) policy and planning can be opaque. Thus, while the examples below are primarily development related, they highlight how the lack of Indigenous voices in development policy-making and planning can lead to worse development outcomes. In the process, we also relate the examples to the current context and show how the policies and plans in question are relevant for climate, adaptation, and environmental protection, even if they more explicitly have other aims, such as ensuring food security or erosion of land.

Barume (2010, 69–79, 81), for example, describes several cases, such as the Batwa in Uganda, DR Congo and Rwanda, the Bagyeli in Cameroon, the Masaai and Hadzabe in Tanzania, and the †Khomani San of South Africa where the establishment of protected conservation areas have led to the eviction of Indigenous peoples from their traditional lands without any consultations with nor consent of members of these communities. Moreover, in the Andes, for example, the introduction of genetically modified potatoes, as a more climate resilient crop, has threatened the biodiversity that has significant cultural importance for the Indigenous population (Marris 2007). The introduction of cash-crops, such as GMO maize in Mexico, have priced out Indigenous farmers, reduced their access to the market economy, and threatened the biodiversity that is culturally important to many Indigenous communities (Commission for Environmental Cooperation 2004; Fox 2005; United Nations 2009, 88). In Lesotho, Botswana and South Africa, the implementation of grazing restrictions to combat soil degradation resulted in the weakening of local, traditional land management institutions, further exacerbating soil degradation because the restrictions did not take into account

already existing land management practices (Rohde et al. 2006). The lack of consultation with the Indigenous Kigiqitamut people living in the small island community of Shismaref, Alaska, has resulted in social practices that render them immobile and vulnerable to climate risks Marino 2012; Whyte 2016, 100–101).

Efforts to have their voices heard have also led to legal backlash against Indigenous communities. Consider, for example, the legal actions taken against the Ardoch Algonquin First Nation of Canada protesting against uranium mining on their lands (United Nations 2009, 205) or, more recently, the arrests of Native American and Native Canadian (‘Aboriginal peoples’, First Nations, Métis, and Inuit) protesters of the Keystone XL oil pipeline that will run through Indigenous lands and threatens contaminations of essential and culturally important sources of water, putting the health Indigenous communities at risk (Levin, Woolf, and Carrington 2016).

These unforeseen negative consequences of responses to climate risks could have been avoided if the local knowledges and Indigenous communities had been consulted and their knowledge about the local social and cultural norms and institutional and economic practices had been taken into account and implemented within the adaptation initiatives. Koskinen and Rolin (2019), for example, argue for the epistemic importance of collaborations with social movements to integrate local and situated knowledge, which is crucial for the application of scientific knowledge.

As an example of this, consider, the case of the Nunavik Research Center in Northern Quebec, which brings together Indigenous and scientific knowledge to monitor the impact of climate change on the Inuits in Nunavik and suggest ways to adapt to these risks (Whyte and Crease 2010, 423–24). In order to ameliorate the distrust that the Inuits have towards Western institutions due to the historical oppression of against Indigenous peoples in Canada, the Center functions as a form of mediator between the Indigenous communities and scientists: the Center relays concerns to the scientists who conduct the studies, constantly checking them against Indigenous standards of knowledge in order to ensure “that technological decision-making does not fall prey to obvious problems of local compatibility or indigenous participation.” In this way, moreover, “the scientists depend on the development of an understanding of indigenous knowledge and lifeways to communicate to lay people how to gather data for the different studies.” Conversely, the scientific data is crucial to ensuring that the Inuit are able to adapt to climate change, for example as part of negotiations with the Canadian government over hunting quotas.

In the following sections, we argue that framing the lack of integration of Indigenous knowledge in climate adaptation policy and planning in terms of what Fricker (2007) has called *epistemic injustice* can help to bring into focus the ethical issues at stake and normatively ground the inclusion of Indigenous knowledges in adaptation planning and policy. Consequently, we conclude, those in charge of climate adaptation policy and planning have a moral responsibility to recognize the value of Indigenous knowledges for just climate adaptation and create pathways for the inclusion of Indigenous peoples in adaptation planning and policy.

## 2 Epistemic injustice and indigenous knowledges

Several authors have argued that Indigenous communities and knowledges *in general* are subject to epistemic injustice (Berenstain et al. 2021; L. Townsend and Townsend 2020; D. L. Townsend and Townsend 2021; Tsosie 2012), while other authors have argued that Indigenous peoples are subject to epistemic injustices in relation to, for example, agricultural development (Boogaard 2021), lawmaking processes and human rights systems (Koggel 2018; D. L. Townsend and Townsend 2021), and development aid (Koch 2020; Sou 2021).<sup>2</sup> According to Fricker (2007, 1), epistemic injustice is a “distinctively epistemic kind of injustice”, in which someone is wronged “specifically in their capacity as a knower.” Fricker argues that there are two distinct forms of epistemic injustice, namely *testimonial injustice* and *hermeneutical injustice*. Testimonial injustice occurs when we attribute more or less credibility to a statement based on prejudices about the speaker, such as gender, social background, ethnicity, race, sexuality, tone of voice, accent, and so on (Fricker 2007, 1, Sect. 1.3). An example of a testimonial injustice may be when “the police do not believe you because you are black” (Fricker 2007, 1). Hermeneutical injustice occurs when the collective pool of knowledge lacks the concepts necessary for someone to make sense of her experiences because these experiences have been systematically excluded from the collective pool of knowledge (Fricker 2007, 1, 149). Importantly, testimonial injustice may lead to hermeneutical injustice. That is, when testimonial injustices structurally affect what is included in a collective pool of knowledge – such as the public discourse or, more relevant to our purpose, the discourse on climate adaptation – it leads to an underrepresentation of the experiences of marginalized individuals and groups, in turn affecting their ability to make sense of their experiences.

The exclusion of Indigenous knowledges, crucially, is not merely coincidental but rather systematic. As Berenstain et al. (2021), Cooke (2004), and Wolfe (1999; 2006; Lloyd and Wolfe 2016) all argue, the oppression of Indigenous knowledges has been, and continues to be, a feature of settler colonialism and the general oppression of Indigenous peoples:

*“Settler systems of epistemic and conceptual resources and the relations among them are constructed to preclude certain forms of knowledge. This is not an accident; it is the central goal of colonial violence. Colonization and land dispossession would not be possible without the violent disruption of Indigenous knowledge systems and ongoing organized attempts to disrupt their survival.”* (Berenstain et al. 2021, 2)

Given the systematic epistemic discrimination<sup>3</sup> of Indigenous peoples and knowledges, it would be obvious to think that this also extends to the present case of Indigenous knowl-

<sup>2</sup> A relevant question here is whether an epistemic injustice is related to the treatment of Indigenous peoples as individual knowers or whether it concerns Indigenous knowledges as bodies of knowledge. Since, for reasons of space, we cannot answer question in greater detail, we here hold that an epistemic injustice is committed against an Indigenous person (as an individual knower) or an Indigenous community (as a collective knower). When we refer to Indigenous knowledges as subject to epistemic injustice, what we mean is that such knowledge is in the abstract often excluded from decision-making processes, but that such exclusion in practice takes the form of epistemically excluding Indigenous communities and individuals from the processes.

<sup>3</sup> We define ‘epistemic discrimination’ as the exclusion of forms of knowledge within a given process. This definition is normatively neutral and does not determine *a priori* whether the exclusion of knowledge is justified or wrong. As such, the systematic epistemic discrimination of Indigenous knowledges indicates

edges in climate adaptation policy and planning. What would be the significance of defining the lack of recognition of Indigenous knowledges in climate adaptation planning and policy as an epistemic injustice? Labeling something an injustice denotes an unfair (dis)advantage to one group, whether by design or default (Gostin 2007); it indicates that this discrimination is arbitrary and based on no good justification. Injustices make some people worse-off *for no good reason* and ought therefore to be remedied and redressed because they are being treated in a way that is arbitrary (Miller 2017).

Thus, if there are no good reasons for excluding Indigenous communities from influencing climate adaptation policies, it indicates that they are being unjustly treated epistemically speaking and that such unfair inequality should be equalized and compensated for in future climate adaptation decision-making processes and policies. Consequently, the analysis in this paper is significant because couching these harms in the language of (epistemic) injustice means that the process by which adaptation policies are formulated is unjust and thus ought to adopt measures to equalize and compensate for epistemic injustice (in addition to other socioeconomic inequalities).

## 2.1 Assessing claims of epistemic injustice

Does the case of Indigenous knowledges in climate adaptation policy and planning constitute an epistemic injustice? How can we identify cases where the exclusion of knowledges leads to unfair (dis)advantages to the extent that it constitutes an epistemic *injustice* that ought to be redressed? While several authors have considered how to distinguish *epistemic* form of injustice from other forms of injustice Alcott 2010; Coady 2010; Fricker 2010; Goldberg 2010; Hookway 2010; Kidd, Medina, and Pohlhaus Jr 2017; Maitra 2010; Pohlhaus Jr 2012; 2014), Byskov (2020a) expands on Fricker's framework to set out a set of five conditions that can be used to evaluate the extent to which an epistemic discrimination constitutes an *injustice*.

First, *the disadvantage condition* states that in order for someone to be unjustifiably discriminated against as a knower, they must suffer epistemic and/or socioeconomic disadvantages and inequalities as a result from the discrimination. In other words, if no harm is done, it can hardly be categorized as an injustice. In the present case, it needs to be shown how the exclusion of Indigenous knowledges from adaptation planning and policy (further) disadvantages Indigenous peoples socioeconomically and/or, more specifically, in relation to their capacity to adapt to climate change.

Second, *the prejudice condition* states that the discrimination in question must be based on prejudiced (i.e., unfair) sentiments about the speaker (*the prejudice condition*). In other words, the exclusion is unfair because it is based on stereotyped prejudices about the body of knowledge(s) or knower(s) in question. Accordingly, it needs to be shown that the exclusion of Indigenous knowledges from adaptation planning and policy is not merely incidental but based on the systematic and prejudiced discrimination of Indigenous knowledges and/or Indigenous peoples.

Third, *the stakeholder condition* states that in order for someone to be unjustifiably discriminated against as a knower, they must be somehow affected by the decisions that they

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that Indigenous knowledges are often excluded from processes. Whether such exclusion is justified or not depends on under what conditions it is wrong to discriminate against (the holders of) a body of knowledge. These conditions are considered further below in Sect. 2.1 and 3.

are excluded from influencing. This condition aims to avoid the inflation of cases of epistemic injustice: in its absence anyone with relevant knowledge could claim to suffer from epistemic injustice if they are excluded from any decision-making process, however big or small and regardless of whether they are in any way affected by it. In the present context, to satisfy this condition it needs to be shown how Indigenous peoples are affected by climate change and how unjust climate adaptation policies contribute to their suffering and vulnerability.

Fourth, *the epistemic condition* states that the discriminated individual or group must possess knowledge that is relevant for the decision that they are excluded from. This condition is meant to establish that the discrimination in question is epistemic as it would not be unjust to exclude testimonies that do reflect any relevant knowledge. In fact, we routinely make such discriminations, for example when we defer to a pilot's expertise on how to fly a plane, rather than the input of the passengers. Thus, it needs to be shown that Indigenous peoples hold relevant knowledge for ensuring successful adaptation to climate change, whether in general or in relation to their specific socioeconomic context.

Finally, fifth, *the socioeconomic condition* states that in order for an epistemic discrimination or epistemic inequality (i.e., differences in epistemic power between individuals and groups)<sup>4</sup> to be an epistemic injustice, the discriminated individual or group must at the same time also suffer from other social injustices. This condition aims to exclude cases from consideration in which efforts to address epistemic inequalities involve decreasing the excess epistemic power of socioeconomically and epistemically dominant individuals and groups. For example, in the present case, it would not be an epistemic injustice to decrease the influence of Western government officials in adaptation planning and policy – e.g., in favor of increasing the influence of marginalized communities – because this influence has so far been unfairly disproportionate due to their leveraging their socioeconomic advantage to gain epistemic power. Accordingly, it must be shown that Indigenous peoples are already in a disadvantaged socioeconomic position that has led to an unfair deficiency in epistemic power.

Each of the five conditions is insufficient to prove that an epistemic injustice has been committed (Byskov 2020a, 14–15).<sup>5</sup> That is, for example, it is not sufficient to show that Indigenous peoples will be affected by climate adaptation plans and policies (the stakeholder condition) because they might not hold any relevant knowledge for climate adaptation (the epistemic condition) or they might not be disadvantaged by being excluded from climate adaptation planning and policy, and thus no actual harm is done (the disadvantage condition). What Byskov's framework of epistemic injustice here highlights is that epistemic injustice is not (merely) binary – that is, either an epistemic injustice is committed or it is not. Rather, the five conditions highlight different *exacerbating factors* of epistemic injustice. Hence, for example, disrespecting a knower by not recognizing their knowledge

<sup>4</sup> Epistemic inequalities are caused by the different credibility that we give to different groups of knowers, for example based on non-epistemic characteristics and stereotypes, and lead to differences in the power that these groups have to be epistemically influential.

<sup>5</sup> Byskov (2020a, 15) argues that it not straightforward to determine what combination of conditions that need to be satisfied in order for an epistemic injustice to have been committed. First, some of the conditions are stronger than others, such as the epistemic condition, while some cases might not satisfy all conditions, yet constitute a case of epistemic injustice. That is to say, whether a case constitutes an epistemic injustice must be judged on a case-by-case basis. In this paper, we argue that the case of Indigenous knowledges in climate adaptation planning and policy satisfies all five conditions of epistemic injustice.

can be an epistemic injustice in itself, but the fact that such under- or misrecognition leads to further epistemic and socioeconomic disadvantages for the knower is an exacerbating factor for that injustice.

While all five conditions do not need to be met for an epistemic injustice to occur, in the following section, we do argue that the case of Indigenous knowledges in climate adaptation planning and policy satisfies all five and thus constitutes a strong case of epistemic injustice.

### 3 The lack of indigenous knowledges in adaptation policy as an epistemic injustice

To what extent does the case of Indigenous knowledges and Indigenous peoples in climate adaptation policy and planning constitute an epistemic injustice that meets the five conditions set out in the previous section? In the following, we assess the case in respect to each condition and conclude that it does indeed satisfy all five and should therefore be defined as a *strong* case of epistemic injustice.

#### 3.1 The disadvantage condition

The first condition that needs to be satisfied states that Indigenous peoples must be likely to suffer some epistemic and/or socioeconomic harm from being excluded from adaptation policy and planning processes. In Sect. 1, we highlighted how current climate adaptation policies and plans, especially at the national level, have led to significant harms to Indigenous peoples, both in terms of their socioeconomic position in general (e.g., being priced out of the market as a consequence of the introduction of resilient GM crops) and, particularly, in regards to their resilience and vulnerability to climate change (e.g., a failure to address the inequalities that underlie the climate vulnerabilities of Indigenous peoples).

These disadvantages, or harms, can be categorized as either instrumental or intrinsic. Intrinsically speaking, the underrepresentation of Indigenous knowledges is a wrong in and of itself. That is, equal recognition of other people's claims, experiences, interests, values, and knowledges is a fundamental part of a just society (Fraser and Honneth 2003). Conversely, mal-, mis-, and underrecognition fundamentally disrespects and invalidates these knowledges, experiences, values, and interests, regardless of whether it is instrumentally harmful (e.g., leading to an unfair distribution of goods, resources, and services).

Instrumentally, the lack of inclusion of Indigenous knowledge will further result in less-than-optimal adaptation efforts and poor implementation of adaptation policies that do not take into account local socioeconomic circumstances and practices. Over time, moreover, a lack of attention to Indigenous knowledges may result in the dying out of Indigenous ways of being and adaptation practices: in the context of climate adaptation, the systematic discrimination of Indigenous knowledges for no good reasons (a testimonial injustice) leads to the underrepresentation of Indigenous perspectives on adaptation and of Indigenous adaptive practices within the collective pool of knowledge that is used to shape climate adaptation efforts. This has the further consequence that Indigenous communities are rendered unable to communicate their knowledges intelligibly – that is, in ways that make sense to interlocutors that do not share the same epistemic and ontological resources – within the climate adaptation discourse (a hermeneutical injustice) because the concepts they use

to describe their experiences are lacking from this discourse as a result of the testimonial injustice.

In sum, misrecognizing the value of Indigenous knowledges and underrepresenting it within adaptation policy and planning thus disadvantages Indigenous communities in several ways. Not only are they being disrespected as knowers; their claim to having their interests, needs, and values taken into consideration within adaptation policy and planning is also being invalidated. This in turn leads to the unjust distribution of the goods, resources, and services that they need to successfully adapt to climate change, exacerbating climate vulnerabilities and undermining adaptive capacities.

### 3.2 The prejudice condition

The second condition that needs to be satisfied states that the underrepresentation and underrecognition of Indigenous knowledges in adaptation planning and policy must be based on prejudices about Indigenous knowledges and/or Indigenous peoples. As Fricker (2007, 151) says: “For something to be an injustice, it must be harmful but also wrongful, whether because discriminatory or because otherwise unfair”. Thus, this condition is necessary because the exclusion and underrepresentation could merely be incidental and not malicious. This is so in two ways.

First, it could merely be that the lack of inclusion of Indigenous knowledges is merely a by-product of social structures and practices in which all agree that some set of knowledge is preferred over all other forms of knowledge (Allen 2017). For example, we usually accept that a molecular physicist is more knowledgeable about quantum mechanics than the average person on the street and that it would not be prejudiced to exclude the average person on the street from discussions on quantum mechanics. On the face of it, this might similarly be case in the present context in which it is generally accepted that adaptation decisions should be science-based. If this is so, the exclusion and underrepresentation of Indigenous knowledges is not discriminatory because Indigenous knowledges do not (always) fit within the general structures of science as set out by the Mertonian principles (Macfarlane and Cheng 2008; Merton 1973).

Second, it is also a possibility that Indigenous peoples do not wish to be involved in climate adaptation planning and policy and thus have excluded *themselves* from the processes. Consequently, it would not be an injustice because the underrepresentation of Indigenous knowledges is caused by the voluntary self-exclusion of holders of Indigenous knowledges. Thus, while the exclusion of Indigenous knowledges might be harmful (in the sense that it might lead to more just, fair, and sustainable adaptation plans and policies), it is not an epistemic injustice because it is not a prejudiced, discriminatory, unfair, or malicious exclusion of someone as a knower.

However, both of these possibilities are doubtful. First, several scholars have shown how local knowledges are not always in conflict with scientific knowledge (Byskov 2020b, 264). Whyte et al. (2016, 25), for example, show how “Indigenous peoples [...] incorporate methods from biology, ecology, climate science, among other fields into their own knowledge systems.” Likewise, Ludwig and Polisei (2018) show how holders of traditional ecological knowledge are capable of identifying the mechanisms underlying ecological phenomena, while holders of academic ecological knowledge do often appeal to holistic strategies (which is more commonly associated with traditional knowledge). As Lacey (2004) and Shrader-

Frechette and McCoy (1993) conclude, research into contextualized local knowledges *can* yield generalizable, structured, and objectively scrutinized lessons for development. Consequently, excluding Indigenous knowledges from adaptation policy and planning because it is somehow unscientific *is* unfair and highly prejudiced. Second, as argued in Sect. 2, there is ample evidence that the exclusion of Indigenous knowledges is both structural and prejudiced as a consequence of settler colonialism (Cooke 2003; 2004; Coulthard 2014; Whyte 2016). In many countries, Indigenous peoples are often seen as ‘primitive’ and their knowledge as less developed than scientific forms of knowledge with the consequence that it is often deprioritized at the benefit of technological or scientific solutions (Briggs 2005, 102).

Hence, we need to ‘broaden’ the prejudice condition to include cases in which the discrimination is not necessarily prejudicial (i.e., based on biased or bigoted beliefs) about Indigenous knowledges but rather unfairly discriminatory. Unfair discrimination of knowledge would include cases where the exclusion is based on unjustified reasons, including prejudices but also political reasons (because political reasons for excluding someone’s knowledge is based on non-epistemic factors and thus unjustified), while still excluding cases where discrimination of knowledges and knowers is justified based on epistemic reasons, such as when making highly technical decisions that require a specific form or body of knowledge (e.g., requiring flight education in order to piloting a plane).<sup>6</sup>

In sum, while Indigenous organizations have made great strides in places like Canada, Australia, Peru, and Uganda, for example, for governments to recognize Indigenous knowledges as important for addressing climate change, Indigenous peoples are still subject prejudices and discriminations in many countries. This satisfies the expanded prejudice condition of epistemic injustice and shows how Indigenous knowledges are underrepresented and excluded for unjustified reasons.

### 3.3 The stakeholder condition

The third condition of epistemic injustice follows from the all-affected principle of democratic theory, which holds that everyone who is affected by a particular decision should be involved in the decision-making process and that it would be unjust to exclude them without a good reason (Benhabib 2004; Goodin 2007; Young 2002).<sup>7</sup> Consequently, the condi-

<sup>6</sup> A related issue here would be how to distinguish which issues justifies discriminating one body of knowledge over others. It is beyond the scope of this paper to explore these issues.

<sup>7</sup> Even if the all-affected principle were not true for democratic theory in general, Byskov (2020a, Sect. 4.1) argues that it is relevant in the context of epistemic injustice: “Consider, for example, how it would not be unjust for me to disregard my neighbor’s advice about how to fill in my tax returns, no matter how good that advice might be or how much it based on his own experiences with filling out tax forms. Simply put, it is not an epistemic injustice to disregard his knowledge and experience because he does not have a stake in whether or not I fill in my tax returns correctly. Conversely, though, imagine that I had borrowed a substantial amount of money from my neighbor and that a failure to fill in my tax returns properly would likely mean that I would not be able to pay him back. In that case, my neighbor *does* have a stake in my tax returns and *does* have a legitimate, though not absolute, claim to have a say in that I fill them out correctly.” In short, it does make a difference to whether we consider epistemic exclusion to be an injustice, whether or not the excluded, or discriminated against, has a stake in the decision, though it is important to note, again, that the stakeholder condition is not by itself sufficient to establish that an epistemic injustice has been committed. We hold that the stakeholder condition is especially the case for Indigenous peoples within adaptation policy and planning because their disproportionate vulnerability to climate change. In any case, there are also cases of epistemic injustice where the stakeholder condition is irrelevant, such as when an expert testimony in a criminal trial is deemed less credible because of the skin-color or tone of voice of the expert. While the expert does not have a

tion demands that it is shown how Indigenous peoples are relevant stakeholders in climate adaptation policy and planning, either or both because they are especially vulnerable to and negatively affected by climate change and thus require adaptation assistance and/or because they suffer from poorly developed and implemented adaptation plans.

Indigenous peoples can claim to have stakeholder rights in both regards. In the first regard, as shown in Sect. 1, Indigenous peoples are especially vulnerable to climate change because many communities live in fragile areas that are likely to be impacted the most by climatic changes, such as mountain regions, rainforests, coastal regions, and small island developing states (Oviedo and Fincke 2009; Salick and Byg 2007; United Nations 2009, 87, 95–96). Moreover, as the IPCC (2013; 2014) stresses, many Indigenous communities are socioeconomically disadvantaged and lack the institutional and economic resources to foster an adequate response to climate change.

Given these vulnerabilities, it becomes especially important that Indigenous communities are able to express their experiences and knowledges within international and national climate adaptation processes. Thus, in the second regard, many Indigenous communities urgently need the implementation of responsive and sustainable adaptation strategies. Yet, the inclusion of Indigenous experiences and Indigenous knowledges within current climate adaptation policies is still underdeveloped. If Indigenous experiences continue to be overlooked it will result in climate adaptation strategies that are less responsive to the plights of Indigenous communities, unfairly disadvantaging their ability to adapt to climate change.

In this way, the lack of attention to Indigenous experiences within climate adaptation policy and planning is an unjust denial of their stakeholder rights. It is unjust because, as proponents of democratic legitimacy argue, those who are affected by the outcome of a public decision-making process ought to be able to influence that process, either directly or by representation (Abizadeh 2010); it is an epistemic injustice because the relevant way in which Indigenous peoples can influence this process is by having their experiences and knowledges recognized as valuable information for adaptation policy. Thus, because many Indigenous communities are unequally affected by climate change – and, to add, are not responsible for bringing it about in the first place – they *ought* to have the opportunity to influence climate adaptation policies and to have their experiences and interests reflected in them.

In sum, then, the case of Indigenous knowledges in climate adaptation planning and policy satisfies the stakeholder condition of epistemic injustice: Indigenous communities are both especially vulnerable to climate change and risk suffering adverse consequences of the poor implementation of adaptation plans. Indigenous communities depend on responsive and sustainable adaptation policies and plans and underrepresenting Indigenous experiences and knowledge within these unfairly disadvantages Indigenous communities in terms of being adequately considered in climate adaptation strategies, further exacerbating their vulnerabilities.

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stake in the trial, *per se*, it could still constitute an epistemic injustice since it satisfies the prejudice condition (the credibility deficit is based on prejudices about the speaker) and the disadvantage conditions (her status as an expert unduly suffers because of this unreasonable credibility deficit).

### 3.4 The epistemic condition

The fourth condition states that in order for Indigenous communities to suffer an epistemic injustice in the case of adaptation policy and planning, it must be shown how they hold knowledge that is relevant in this context. If Indigenous communities would *not* hold any relevant knowledge, it would be difficult to argue that excluding this knowledge is epistemically unjust since it would be possible to argue that including it would add nothing to adaptation policy and planning, or even lead to maladaptation or worse outcomes.

As argued in Sect. 1, there is plenty of evidence for how Indigenous peoples hold valuable knowledges for the adaptation policy and planning, including about the local socioeconomical and environmental circumstances and sustainable adaptive practices (Raygorodetsky 2017). These knowledges are essential to ensure that adaptive strategies are both responsive and sustainable and adequately address local needs and challenges.

By ignoring local knowledges and Indigenous knowledges, technocratic responses to climate change and climate adaptation have further exacerbated vulnerabilities and entrenched existing inequalities, for example by introducing monocropping, by causing biodiversity loss, and through large-scale development projects that have involved the forcible displacement of communities Penz et al. 2011; Shiva 1993; 2000). Moreover, institutional reforms have often tended to erode local practices and disrupting local ways of life, such as in the case of the grazing restrictions and land management practices in Lesotho, Botswana and South Africa mentioned in the previous section (Rohde et al. 2006).

In sum, the case of Indigenous knowledges satisfies the epistemic condition of epistemic injustice because Indigenous peoples do hold knowledges that are relevant for developing sustainable and responsive adaptation plans and policies and ignoring these knowledges.

### 3.5 The socioeconomic injustice condition

The fifth condition of epistemic injustice aims to highlight how the exclusion of Indigenous peoples and Indigenous communities from adaptation planning and policy reproduces existing epistemic and socioeconomic inequalities. That is, as Fricker (2007, 4), Bohman (2012), and Coady (2017) argue, epistemic injustice cannot be separated from larger structures of socioeconomic distribution, domination and inequality, including racism, poverty, marginalization, and ostracization, because such socioeconomic factors are determinants in establishing epistemic (dis)advantage.

Epistemic (dis)advantage denotes the extent to which an individual or group is able to influence the public discourse. Fricker, for example, shows how race and racism affects the extent to which someone's testimony is afforded credibility while Christiano (2010; 2012) shows how affluence can provide one with unequal democratic power. Likewise, members of communities with minority languages might be less confident in expressing themselves within the confines of a majority language. Thus, structural and socioeconomic inequalities have a tendency to create and reproduce epistemic inequalities and *vice versa*.

Indigenous communities have a long history of being subject to such structural inequalities and domination. These inequalities and injustices occur both in general and within climate policy. In general, the "situation of indigenous peoples in many parts of the world continues to be critical" (United Nations 2009, 1):

*[I]ndigenous peoples face systemic discrimination and exclusion from political and economic power; they continue to be over-represented among the poorest, the illiterate, the destitute; they are displaced by wars and environmental disasters; the weapon of rape and sexual humiliation is also turned against indigenous women for the ethnic cleansing and demoralization of indigenous communities; indigenous peoples are dispossessed of their ancestral lands and deprived of their resources for survival, both physical and cultural; they are even robbed of their very right to life.*

Within climate policy, in particular, some existing strategies have negatively impacted the socioeconomic status of Indigenous communities, increasing their vulnerabilities, both on the national and the global levels. On a national level, for example, “[t]he experience of most indigenous peoples is that national forest policies and legislation have generally been designed without, or with very little, input and involvement from them. Very few countries have included considerations regarding forest-related traditional knowledge in their forest policies” (United Nations 2009, 90). Moreover, consider, for example, how the introduction of cash-crops, such as GMO maize in Mexico, have priced out Indigenous farmers and reduced their access to the market economy (United Nations 2009, 88). In many places, such as the US, Latin America, and Africa, conservation policies developed with little input from Indigenous communities have additionally led to their eviction and engendered abuse (United Nations 2009, 91–92). Consequently, many existing climate policies at the international and, especially, national level have led to unforeseen and undesirable socioeconomic outcomes for affected Indigenous communities, including loss of lands, jobs, and homes, marginalization, increased food insecurity, morbidity, and mortality, and loss of access to public and common resources (forests, water) (United Nations 2009, 93).

As a result, in the context of climate adaptation Indigenous people have been and are in a highly disadvantaged position to influence adaptation policies and strategies. This epistemic disadvantage is increased by the socioeconomic inequalities suffered by Indigenous communities. In this way, epistemic injustice and socioeconomic inequalities are mutually reinforcing – socioeconomic inequality creates epistemic disadvantage and epistemic disadvantage creates socioeconomic inequality. Likewise, in the context of climate adaptation policies the disadvantaged socioeconomic status of Indigenous peoples means that they will likely be in an epistemically disadvantaged position to influence to selfsame policies, which, in turn, creates the likelihood that the resulting adaptive policies are less sensitive to the needs, interests, and experiences of Indigenous communities. The result is that vulnerable Indigenous communities are only further disadvantaged in response to climate change.

The way in which many climate adaptation policies at the national level are epistemically unjust towards Indigenous peoples transcends the two epistemic injustices – namely, testimonial and hermeneutical injustice – highlighted by Fricker. The injustice here lies not in whether the Indigenous communities have been wronged by having their testimony disregarded or by leading to a loss of Indigenous knowledges, but rather in the fact that these epistemic injustices related to climate adaptation are, first, *caused* by existing socioeconomic inequalities and injustices that affect the epistemic influence of Indigenous peoples and, second, *reproduce* these existing socioeconomic inequalities and injustices. Moreover, third, this vicious cycle leaves Indigenous communities worse off in terms of their adaptive capacities as they are not supported by climate adaptation policies.

In sum, climate vulnerable Indigenous communities are doubly worse off because not only do they not have the socioeconomic resources necessary to adequately adapt to climate change, they also do not have the epistemic power to influence the policies that set out adaptive strategies. Because these socioeconomic inequalities are unfair in the first place – given that they are rooted in decades of discrimination by governments (and in some cases centuries of colonial oppression) – the epistemic disadvantages they cause for Indigenous peoples are likewise unfair. Hence, climate adaptation policies that do not take into consideration and address how larger socioeconomic inequalities affect the epistemic power of climate vulnerable communities to influence those policies are unjust, whether from the perspective of social justice, distributive justice, or epistemic injustice.

#### 4 Implications and challenges of addressing epistemic injustice in adaptation

What are the implications of defining the underrepresentation of Indigenous knowledges within climate adaptation policy, whether at the international, national, or local level, as an epistemic injustice? How can we approach an epistemically *just* decision-making process on climate adaptation? And what are the challenges to addressing epistemic injustice climate adaptation policy and planning?

The significance of defining as an epistemic injustice the underrepresentation and exclusion of Indigenous knowledges in climate adaptation policy and planning is twofold. First, it can help us identify the epistemological, social, cultural, and political structures behind Indigenous climate vulnerabilities and lack of adaptive capacities. Second, it provides a normative impetus to address the lack of inclusion of Indigenous communities in adaptation policy and planning. In other words, because the underrepresentation of local knowledges and Indigenous knowledges is an epistemic *injustice*, governance bodies have a *moral responsibility* to create pathways for inclusion of Indigenous peoples and their knowledges within climate adaptation planning and policy processes.

Redress of epistemic injustice can be done in two ways: first, by compensating for previous transgressions and, second, by prospectively integrating Indigenous knowledges in climate adaptation policy-making. In the first regard, because epistemic injustice contributes to social and economic marginalization of Indigenous peoples, further entrenching their vulnerability to climate risks, and because socioeconomic marginalization, as argued, has the potential to limit epistemic power, one way to compensate for previous inequalities could be to actively make efforts to address these inequalities by supporting the democratic rights and capabilities of Indigenous communities, enabling their access to public goods and resources, and provide ample public services, such as education and healthcare, for Indigenous communities to thrive. Such redress would have the effect of not only making Indigenous communities more resilient to climate change, but also to support their epistemic power and thus limiting the risk of epistemic injustice.

In the second regard, addressing epistemic injustice in the context of Indigenous knowledges and climate adaptation requires the proportionate and fair inclusion of Indigenous communities in climate adaptation policy-making. Integrating Indigenous knowledges within adaptation policy and planning is not straightforward, however, and there are several practical, normative, political, epistemic, and ontological barriers to such knowledge-

integration (Byskov 2020b; Ludwig and El-Hani 2019). The case of Indigenous knowledges in adaptation planning and policy straddles several of these challenges and Dotson's (2014) further conceptualization of Fricker's (1999) notion of *epistemic oppression* – that is, the “persistent epistemic exclusion that hinders one's contribution to knowledge production” (Dotson 2014, 115) – can help us clarify the multiple socioeconomic, epistemic, and ontological issues underlying the lack of Indigenous voices in climate adaptation policy and planning, as well as the challenges to addressing these.

Dotson shows how there are three degrees of epistemic oppression and what challenges there are to address each. *First-order epistemic oppression* occurs when prejudices about a group of people evolve as a result of socioeconomic inequalities, such that the credibility afforded to their experiences and knowledges unwarrantedly decreases compared to other groups (Dotson 2014, 123–26) and the creation of an ‘epistemically disadvantaged identity’ (Tuana 2006). It is not the case that the knowledge and experiences of this group are different from other people (i.e., they share the same epistemic resources) – it is just that they are less believed because of their belonging to a particular group that is subject to prejudice. As a result, this group will find it hard to contribute to knowledge production. *Second-order epistemic oppression* follows from first-order oppression: over time, the unequal distribution of credibility will result in shared epistemic resources that are skewed toward the experiences and knowledges of epistemically powerful groups (Dotson 2014, 126–29). As a consequence, the epistemically disadvantaged group is “often required to use a language and a set of assumptions when communicating with [the epistemically dominant group(s)] that do not adequately account for the full range of their experiences,” resulting in an hermeneutical injustice and further epistemic exclusion (Dotson 2014, 127). In a *third-order epistemic oppression* the dominant epistemic resource is fundamentally limited due to the persistent exclusion of the experiences and knowledges of socioeconomically and epistemically disadvantaged groups (Dotson 2014, 129–33). In other words, there are things about the world that the dominant epistemic resource does not include because it has failed to give sufficient credibility to those experiencing and having knowledge about these things.

Applying Dotson's analysis to the present case, we can see how cases of first-, second-, and third-order epistemic oppression create challenges for the successful integration of Indigenous knowledges and communities in climate adaptation planning and policy. As argued shown in the previous sections, many Indigenous groups enjoy little status within the political and scientific domains with the consequence that their knowledges and interests are often underrepresented in climate adaptation decision-making (McNeeley 2017; Mitchell et al. 2007, 2008; Polack 2008; Salick and Byg 2007; Sillitoe and Marzano 2009). The lack of credibility afforded to Indigenous communities, and their experiences and knowledges, due to their socioeconomic status (first-order epistemic oppression) leads to the systematic exclusion of, and lack of opportunities for, Indigenous voices within climate adaptation planning and policy (second-order epistemic oppression). As Escobar puts it, “Development has relied exclusively on one knowledge system, namely, the modern Western one. The dominance of this knowledge system has dictated the marginalization and disqualification of non-Western knowledge systems” (1995, 13). According to Brand and Karvonen (2013, 23; italics in original), the root of this problem should be found in the traditional preference for formal knowledge within development discourses: “[...] *power inequalities* do exist frequently, if not systematically, between the possessors of different knowledge forms. Holders of experiential knowledge are typically not granted a seat at the decision table due to

favoritism for formal knowledge inherent in our decision-making institutions”. This results in a situation in which Indigenous experiences, knowledges, and practices are largely absent from climate adaptation policies and plans (third-order epistemic oppression) and leads to limited adaptive interventions that do not take into account Indigenous realities and further entrenches Indigenous vulnerabilities and maladaptation.

Addressing these forms of epistemic oppression requires different measures. First of all, it requires addressing the socioeconomic inequalities that are the basis of prejudices and credibility deficits. Indigenous communities must be recognized as equal members of society in general and, more specifically, as particularly vulnerable to climate change. Thus, while Indigenous communities must therefore be afforded the necessary means and opportunities to adapt to climate change, it is also crucial to recognize how their vulnerability to climate change offers a valuable epistemic perspective that is necessary to ensure that adaptation policies and plans address the needs of the most vulnerable communities.

Second, successful integration of Indigenous knowledges in climate adaptation policy and planning requires recognition of how the current climate language is skewed towards Western scientific and technocratic approaches and how this may limit the input that vulnerable Indigenous communities are able to give. While some Indigenous communities have successfully been able to express their knowledge and experiences in ways consistent with Western scientific norms and standards, as argued in Sect. 3.2, expecting them to do so is not only unjust, as Whyte (2016) argues with reference to settler colonial norms; it may also exclude crucial information that is not easily communicated through explicit means. Consequently, addressing epistemic injustice in climate adaptation policy and planning requires greater attention to Indigenous ways of being and adaptive practices, providing pathways for the integration of these in ways that Indigenous communities are most comfortable with.

Third, it needs to be recognized that technocratic approaches to adaptation are limited and exclude experiences, knowledges, and practices that are essential for ensuring robust adaptive interventions, in general as well as for Indigenous communities. This requires adopting a sense of *epistemic humility* (Kidd 2017; Fricker 2003; Medina 2013). Epistemic humility is the idea that we are always limited in what we can know given the contextual nature of how knowledge is acquired and that we should therefore not assume that we can understand the experiences of other people. In this way, adopting a sense of epistemic humility enables the recognition, rather than merely the inclusion, of marginalized voices.

On a practical level, however, some of the problems with translating international climate policies that take into account of the needs and knowledge of Indigenous peoples into national and sub-national strategies comes down to the shortcomings of the current treaty-based framework of international environmental law, which is based on state sovereignty (United Nations 2009, 98). The emphasis on state sovereignty means states have the right to exploit their own resources, which often is found on Indigenous lands. The problem here is that Indigenous peoples and communities are not recognized, internationally, as state actors and, on a national level, often “have a distinct legal status within their countries, are barely recognized as equal citizens, and face multiple constraints when trying to claim the rights that international law grants them” (2009, 120). Yet, as the United Nations report further argues, by ratifying international human rights conventions, states have an obligation to adhere to the UN Charter, which affirms equal human rights for all, including Indigenous peoples, regardless of race, sex, language, and religion.

In sum, because existing socioeconomic inequalities and epistemic injustices have damaged the capacity of Indigenous communities to adapt to climate change, it is necessary that climate adaptation policy-making processes take future steps to include and integrate Indigenous communities and Indigenous knowledges in the decision-making. Such inclusion, however, faces several barriers and more research must be done on how these barriers can be overcome. In that regard, it is important to make explicit these issues, which are both practical and ethical in nature, such that they can be taken into account in future policy-making on climate adaptation. Moreover, the ability to epistemically influence development policy in general and adaptation policy in particular is not a concern just for Indigenous communities but for anyone influenced by climate change. It is necessary for policy-makers to be aware of avoiding epistemic discriminations and consider how to address obstacles to epistemic inclusion, such as the ones mentioned in this section. The language of epistemic injustice, we contend, can be helpful in highlighting these pitfalls.

## 5 Concluding remarks

Indigenous communities are disproportionately vulnerable to climate change and, in many cases, they are already living with the adverse consequences of changes to the global and local environmental, resulting in the loss of livelihoods and well-being. It thus becomes essential to ensure that Indigenous communities have fair and equitable access to adaptive assistance and support, for example by being provided the resources that they need to adapt and which they are owed as a matter of just adaptation. At the same time, Indigenous peoples have also been shown to possess experiential knowledge of the local environment and socioeconomic circumstances and adaptive practices. While integrating this knowledge into climate adaptation policies is vital in order to ensure sustainable and responsive adaptation, many national climate adaptation policies and strategies continue to ignore the interests and knowledge of Indigenous peoples. In this paper, we have argued that it is possible to define the lack of recognition of Indigenous knowledge within international and national climate adaptation policies as a strong case of epistemic injustice because it satisfies five conditions: Indigenous peoples (i) are likely to be further disadvantaged by being excluded from adaptation plans and policies; (ii) are unfairly discriminated against in general and, in particular, in relation to adaptation policies and plans; (iii) have a stake in ensuring that adaptation policies and plans are fair, equitable, and responsive to their needs; (iv) possess knowledge that is vital in order to ensure fair, equitable, responsive, and sustainable adaptation plans and policies; and (v) are already socioeconomically disadvantaged to the extent that are marginalized within adaptation policy and planning. We ended by sketching out some of the implications of these arguments and the challenges of addressing epistemic injustice in the context climate adaptation policy.

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